

MWP

Chapter 05 Population and Human Health

Carrownagowan 110kV Grid Connection

5. Population and Human Health

5.1 Introduction

This chapter considers the potential effects on population and human health arising from the Proposed Development. A full description of the Proposed Development is provided in **Chapter 2** Description of the Proposed Development of this Environmental Impact Assessment Report (EIAR). The assessment comprises:

- A review of the existing receiving environment;
- Prediction and characterisation of likely impacts;
- Evaluation of effects significance; and
- Consideration of mitigation measures, where appropriate.

5.1.1 Competency of Assessor

The assessment was completed by Caitriona Fox (B.A, M.Sc). Caitriona is an Environmental Consultant with over 20 years environmental consultancy experience. She is an environmental impact assessment practitioner and has taken on the role of Environmental Impact Assessment (EIA) Project Manager for a variety of large scale EIA projects including wind farms such as Knockranny/Cnoc Raithní Wind Farm, Leanamore Wind Farm and Drumnahough Wind Farm. She has extensive experience in the management and compilation of environmental reports and has authored numerous specialist reports including: population and human health impact assessment, air and climate impact assessments, landscape impacts assessment, and material assets assessment for project EIAs.

5.1.2 Legislation

This chapter has been prepared in accordance with the Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU.

5.2 Methodology

The methodology used for this study included desk-based research of published information and site visits to assemble information on the local receiving environment.

5.2.1 Desktop Study

The desk study included the following activities:

- Review of the most recent Census of Ireland data (2022) to establish settlement demographics and economic context of the study area.
- Review of Ordnance Survey Mapping and aerial photography (Geohive¹) to establish existing land use and settlement patterns within the study area.

¹ <https://webapps.geohive.ie/mapviewer/index.html>

- Review of local and regional development plans, including the Clare County Development Plan(2017-2023 A varied) and planning policy in order to identify future development and identify any planning applications within the study area.
- Review of Clare Council's and An Bord Pleanála's (ABP) Planning Register to identify relevant development proposals currently under consideration by the Council.
- Review of planning policy and strategies included within the Clare County Development Plan (2017-2023 A varied) to identify walking and cycling routes and other Rights of Ways within the study area.
- Review of tourism data (tourism policies and local attractions) from websites including Tourism Ireland, Failte Ireland, Visit Clare and other local websites to identify tourism data and visitor attractions within the study area.

5.2.2 Field Surveys

Site visits to supplement the desk studies and establish an understanding of land use patterns, tourism and recreational resources within the vicinity of the Proposed Development site were previously undertaken as part of the environmental assessment for the Carrownagowan Wind Farm planning application. The information acquired from these site visits are used in this assessment. The EIA team revisited the site in 2023 for this planning application. Information gathered during these site visits were used to inform this chapter.

5.2.3 Guidelines and Best Practice

The following publications were followed in the preparation of this assessment::

- Environmental Protection Agency (EPA) (2022): *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*;
- World Health Organisation (WHO) Regional Office for Europe, *Night Noise Guidelines for Europe*, (2009); and
- WHO *Environmental Noise Guidelines for the European Region* (2018);

5.2.4 Study Area

The study area for the purpose of this assessment on Population and Human Health primarily focuses on the local receiving human environment in the vicinity of the Proposed Development site. These include those who reside, work, visit, or use the local road networks in the general area.

Electoral Divisions (EDs) are the smallest legally defined administrative areas in the State for which Small Area Population Statistics (SAPS) are published from the Census of Population. Therefore, in order to discuss the receiving human environment and other statistics in the vicinity of the Proposed Development site, the Study Area for this assessment has regard to EDs within or located close to the Proposed Development site. The extent of the EDs considered for the purposes of this assessment are shown in **Figure 5-2**.

Although this chapter predominantly describes the human environment in the vicinity of the Proposed Development, sensitive receptors in the broader environment are also considered in the other environmental topics including the following;

- Noise and Vibration (Chapter 9);
- Cultural Heritage Impact (Chapter 10);

- Air Quality and Climate (Chapter 11);
- Material Assets Impact (including Traffic and Transportation, Waste and Built Services) (Chapter 12); and
- Landscape and Visual (Chapter 13).

5.2.5 Scope of Assessment

Table 5-1 outlines the topics which the EPA 2022 EIAR guidance documents suggest may be examined as part of a human environment study.

Table 5-1 Topics relevant to the Human Environment

Topic Area	Potential Issues
Employment	Will the development affect employment opportunities?
Settlement patterns	Will the development change settlement patterns and types of activity?
Land use patterns	Will the development change land use patterns and types of activity?
Baseline population	Will the development affect the current population?
Demographic trends	Will the development change concentrations of a particular ethnic group or influence the movement of human populations?
Human health	Vectors through which human health impacts could be caused e.g. will there be risk of death, disease, discomfort or nuisance?
Amenity	Will the development change the uses of the site, loss of rights of way or amenities?

Accordingly, the scope of this assessment was carried out with respect to these topic areas and considers the effects of the construction and operation of the Proposed Development in terms of how the proposal could affect employment, settlement patterns, land use patterns, baseline population, demographic trends, human health and amenities.

5.2.5.1 Tourism and Amenities

Tourism and amenity impacts are interrelated with effects on landscape and visual amenity, archaeology and heritage interests, and transport. Each of these effects are addressed in other chapters of this EIAR and reference should therefore be made to **Chapter 13** Landscape and Visual, **Chapter 10** Cultural Heritage and **Chapter 12** Material Assets.

While reference is made to these effects where relevant, this chapter does not re-evaluate these assessments. The focus of this assessment is primarily on physical disruption, severance or exclusion of users’ ability to continue existing activities or deter additional further development of amenities and tourism potential.

5.2.5.2 Human Health

The European Commission (EC) document ‘Guidance on the preparation of the Environmental Impact Assessment Report, 2017; provides that: *“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”.

Similarly, the EPA Guidelines on the information to be contained in environmental impact assessment reports (2022), states that ‘*in an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc’.*

The EPA (2022) guidance also advises that ‘*The evaluation of effects on these pathways is carried out by reference to accepted standards of safety in dose, exposure and risk. These standards are in turn based upon medical and scientific investigation of direct effects on health of the individual substances, effect or risk. This practice of reliance upon limits doses and thresholds for environmental pathways such as air water or soil provides a robust and reliable health protection criteria for analysis relating to the environment’.*

Human health, in this chapter of the EIAR, is therefore considered in relation to health effects/issues and environmental hazards arising from the other environmental factors and the assessment is made with regard to the established international health-based guidelines limit value necessary to protect the public.

5.2.5.3 Assessment Criteria

Determination of the significance of an effect will be made in accordance with the terminology outlined in the EPA ‘Guidelines on Information to be contained in Environmental Impact Assessment Reports’ (2022). These are outlined in detail in **Chapter 1** of the EIAR.

5.2.6 Statement on Limitations and Difficulties Encountered

In preparation of this Chapter, the following difficulties were encountered:

- Limited preliminary population data from the 2022 census was available at the time of writing.

Notwithstanding the above, we consider that the data collected, and analyses outlined reflects an accurate representation of the population and human health considerations with respect of the Proposed Development.

5.3 Baseline Environment

5.3.1 Site Location and Description

The proposed underground 110kV electrical cable line connection will connect the consented 110kV Carrowmagowan windfarm substation at Caherhuley, Co. Clare to the existing substation in Ardnacrusha, Co. Clare.

The Proposed Development will have a length of c. 25 kilometers (km) passing through townlands Caherhurlly, Killokennedy, Cloongaheen West, Cloongaheen East, Kilbane, Killeagy (Goonan), Ballymoloney, Cloonygonry Beg, Ballyquin Beg, Ballyquin Mor, Springmount, Leitrim, Fahy More (South), Aharinaghmore, Ballybrack, Tooreen, Aharinaghbeg, Cloghera, Trough, Knockdonagh, Roo West, Lakyle, Glenlon South, Castlebank and Ballykeelaun.

The majority of the Proposed Development is to be installed within the carriageway of the public road network with short sections within existing access tracks (within Ardnacrusha), private forestry access tracks, private agricultural lands and permitted internal wind farm access roads. The landscape along the route primarily consists of patchwork farmland, with fields enclosed by hedgerows, along with conifer plantations.

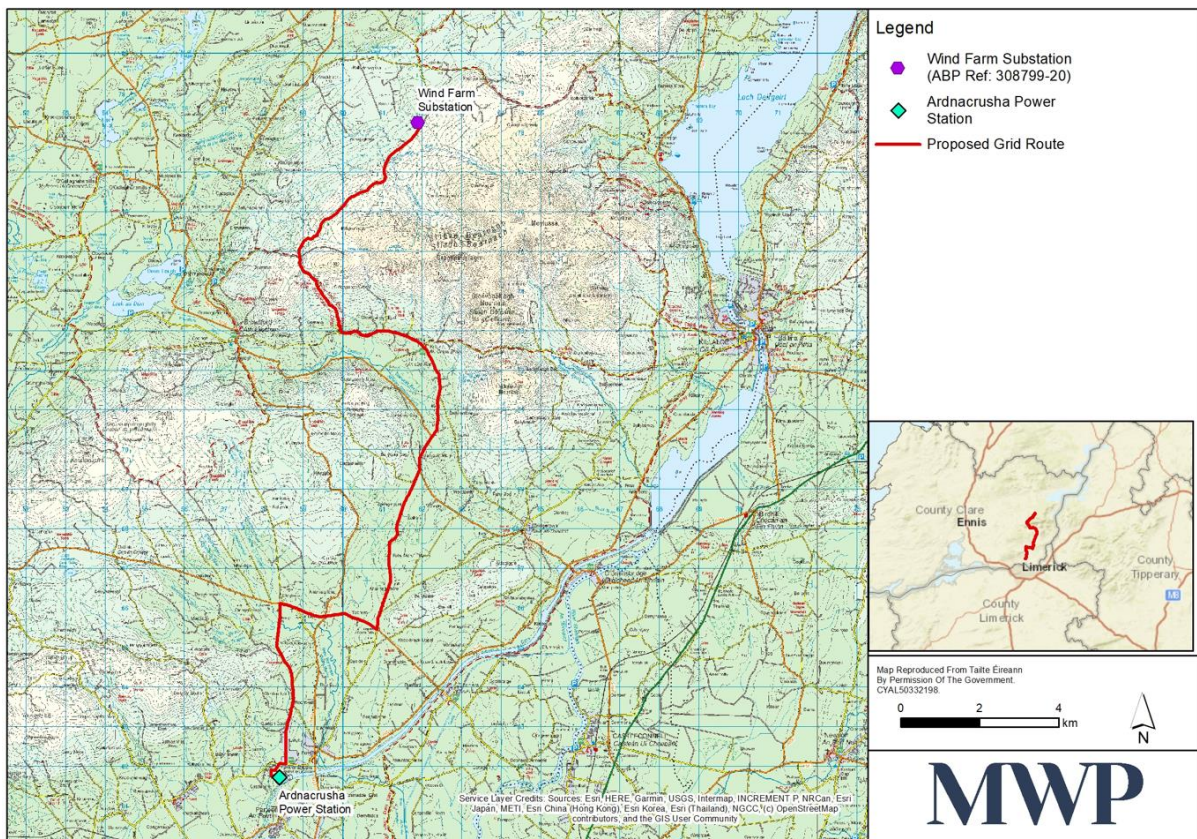


Figure 5-1 Site Location

5.3.2 Settlement Patterns

Settlement patterns in the greater region range from very large urban centres, to small community settlements, to relatively isolated farmsteads.

The city of Limerick and suburbs (population 102, 287; CSO 2022) to the south, and the towns of Ennis (population 27,923; CSO 2022) to the west and Nenagh (population 9,895; CSO 2022) to the east are the largest urban centres relative to the site of the Proposed Development and are the major service and employment centres in the region.

The Proposed Development will pass through the village of Kilbane and along the western fringe of Ardnacrusha village. The route does not pass through any other community settlements. For the most part settlements patterns along the majority of the study area typically comprises a mix of small clusters of ribbon residential development and dispersed one off housing. There are approximately 163 dwellings within 50m of the Proposed Development.

5.3.3 Population Density and Trends

The Proposed Development passes through EDs of Caherhurley, Killokennedy, Fahymore, Cloghera and Ballyglass. (See Figure 5-2).

A review of the 2022 population statistics for each ED shows the overall study area is moderately populated. Table 5-2 and Table 5-3 summarises population statistics for each ED within the study area.

Table 5-2 Electoral Division and Population Density

Electoral Division	Total population
Caherhurley	212
Killokennedy	158
Fahymore	364
Cloghera	586
Ballyglass	6,030

Source: *Census of Population 2022*

The available data on population trends indicates that while some EDs had minor increases in population numbers between 2016 and 2022, other EDs experienced a population decline. **Table 5-3** below shows that all EDs experienced a rise in population in the period 2016-2022.

Table 5-3 Population Trends

Electoral Division	% Change in Population 2011 - 2016	% Change in Population 2016-2022
Caherhurley	- 9.5%	+6.5%
Killokennedy	- 5.3%	+10%
Fahymore	+2.1	+7.0
Cloghera	-1.9	+0.9
Ballyglass	+2.3	+0.6

Source: *Census of Population 2011, 2016 and 2022*

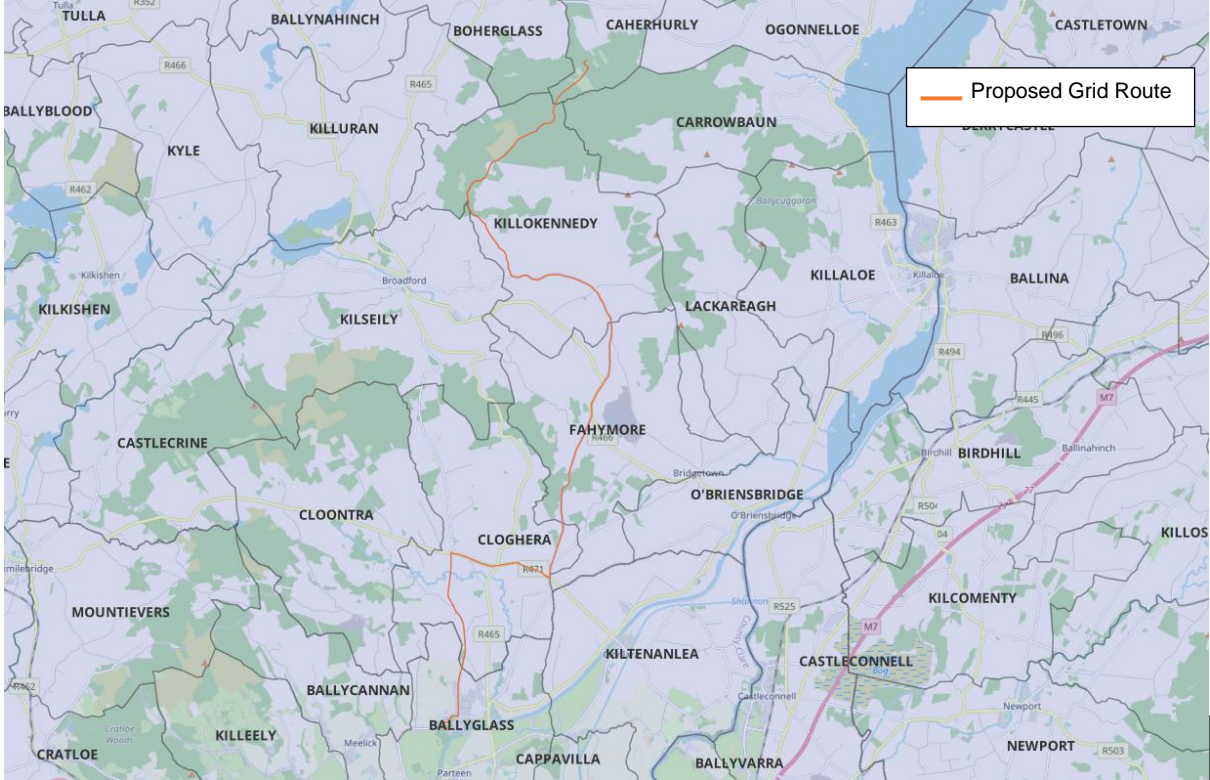


Figure 5-2 Electoral Divisions in Study Area

5.3.4 Public Health

The 2022 Census provided information on the general health profile of the population for each ED. The statistics show that overall the local population has ‘Very Good’ and ‘Good’ health (**Table 5-4**).

Table 5-4 Health Statistics

Electoral Division	Very Good	Good	Fair	Bad	Very Bad	Not Stated	Total
Caherhurley	120	50	16	2	1	23	212
Killokennedy	80	59	14	3	2	0	158
Fahymore	217	106	25	5	4	7	364
Cloghera	384	149	40	4	0	9	586
Ballyglass	3,200	1,911	513	108	17	281	6,030
Study Area (Total)	4,001	2,275	608	122	24	320	7,350

Source: Census of Population 2022

5.3.5 Economic Activity/Employment

According to the 2022 census of population employment statistics for the region, the work force within the study area is employed in a diverse range of industries (**Table 5-5**). The statistics show that the highest level of employment is within the ‘Public admin/Professional Services’ category of the workforce within the study area. Other key employment sectors include ‘Commerce and Trade’, and ‘Manufacturing Industries’ and ‘Transport/Communication’.

Table 5-5 Electoral Division Population Employment Statistics - Persons at Work by Industry 2022

Electoral Division	Agriculture, forestry, fishing	Building and construction	Manufacturing industries	Commerce and trade	Transport / Communication	Public admin/ Professional Services	Other	Total
Caherhurley	13	6	17	11	3	37	12	99
Killokennedy	6	3	12	8	4	28	9	70
Fahymore	14	10	41	20	12	57	16	170
Cloghera	22	9	56	45	19	103	20	274
Ballyglass	18	90	449	631	284	870	322	2,664
Total (study area)	87	112	470	694	285	890	416	3,277

Source: Census of Population 2022

A review of the 2022 commuters travelling to work data suggests that the majority of the workforce travel to work by car.

Table 5-6 Means of travel to work (CSO, 2022)

Electoral Division	On Foot	Bicycle	Bus, Minibus or Coach	Train, Dart or Luas	Motorcycle or scooter	Car driver	Car Passenger	Van	Other (including lorry)
Caherhurley	1	3	1	0	1	52	4	9	0
Killokennedy	1	0	0	0	0	49	0	6	2
Fahymore	1	2	1	0	0	117	10	14	2
Cloghera	3	2	1	0	0	193	4	29	1
Ballyglass	101	63	84	5	7	1,695	133	112	6
Total (study area)	107	70	87	5	8	2,106	151	170	11

5.3.6 Land Uses

The land-use along the Proposed Development site comprises mainly transport networks, with sections of agriculture and forestry where the Proposed Development deviates off the public road. The surrounding land use is mainly agriculture land, residential and forestry related.

5.3.7 Tourism and Amenities

The tourism and hospitality industry in Ireland is one of the major contributors to the national economy and makes a significant contribution to the vitality and sustainability of a wide variety of local enterprises, particularly in rural areas. In 2019, the most current available data from Tourism Ireland, this industry generated approximately €5.9 billion in revenue².

County Clare is one of the leading tourist counties in Ireland and has an abundance of tourism resources, including natural and cultural attractions. It is evident from a review of various tourism websites that the East Clare area has a substantial tourism offering including activity tourism, specialised tourism, traditional music and cultural heritage.

While there are no tourist attractions pertaining specifically to the site of the proposed wind farm development, there are a number of recreational and cultural amenities in the wider area.

The East Clare Golf Club is located in close proximity to Bodyke village and is a significant recreation and tourism amenity in the area.

The Scarriff Harbour Festival, which takes place annually during the August Bank Holiday weekend attracts a significant number of visitors to the area each year.

Lough Derg, a significant waterbody on the River Shannon, provides all kinds of water sport facilities, including cruising, windsurfing, sail boarding, canoeing and game and coarse angling.

Holy Island (Inis Cealtra), on Lough Derg is one of the most famous monastic sites in Ireland and a significant cultural tourism asset.

There are also numerous walks, cycle trails and pony trekking trails in the area.

The nearest forestry lands offering general public recreational amenities are situated on Crag Hill on the lower slopes of the Slieve Bernagh Mountains overlooking Lough Derg. There are 3 way marked trails in this forest –

² <https://www.tourismireland.com/Research/Visitor-Facts-Figures>

one is a moderate looped walk called the Crag Wood Walk and this trailhead also gives access onto the East Clare Way. A new trail was constructed in 2016 which allows visitors to access Moylussa, the highest point in county Clare.

The East Clare Way is a long-distance trail and is designated as a National Waymarked Trail by the National Trails Office of the Irish Sports Council. It is a 180 km (112-mile) long circular route that begins and ends in Killaloe. The circular route explores the hills and lakes to the west of Lough Derg and takes in the towns and villages of Kilbane, Broadford, O'Callaghans Mills, Tulla, Feakle, Flagmount, Mountshannon and Scarriff. The northern sections of the trail cross the Slieve Aughty Mountains. Approximately 4.7 km of the East Clare way overlaps with the Proposed Development site along the L8218 and the L30302 towards the village of Kilbane.

Located approximately 5km east of the proposed route, there is a national loop walk known as the O'Brien's bridge Riverside walk, which commences near the River Shannon comprises of Parteen Weir Loop, Old Barge Loop, and Errinagh Bridge Loop.

To the southeast of the Proposed Development site, approximately 8.6 km at its closest point, there are several trails known as the 12 o' clock hills looped walks which provide access to the hills of Knockanuarha. These are mainly trails in coniferous woodland. To the Southwest, the Silvermines and Keeper's hill are popular recreation areas, as is the Lough Graney area to the northwest.

Other waymarked trails include the Lough Derg Way and cycle route, and Lough Derg drive in Co. Tipperary and the Arra Mountains Loop. The Lough Derg Way extends 68 km from Limerick City to Dromineer in Co. Tipperary, and passes through Clonlara and O' Briensbridge to the south of the Proposed Development site, and through Killaloe and north through the Arra Mountains to Castletown, and Dromineer, on the eastern shore of Lough Derg. At its closest point the trail is located approximately 7.7 km.

As well as visitor attractions and resources which support outdoor recreational activity there are a range of services in the area which cater to the needs of local residents and visitors such as accommodation including a Glamping site at Kilbane, schools, healthcare facilities, playgrounds, post office, bars and restaurants, and convenience shops.

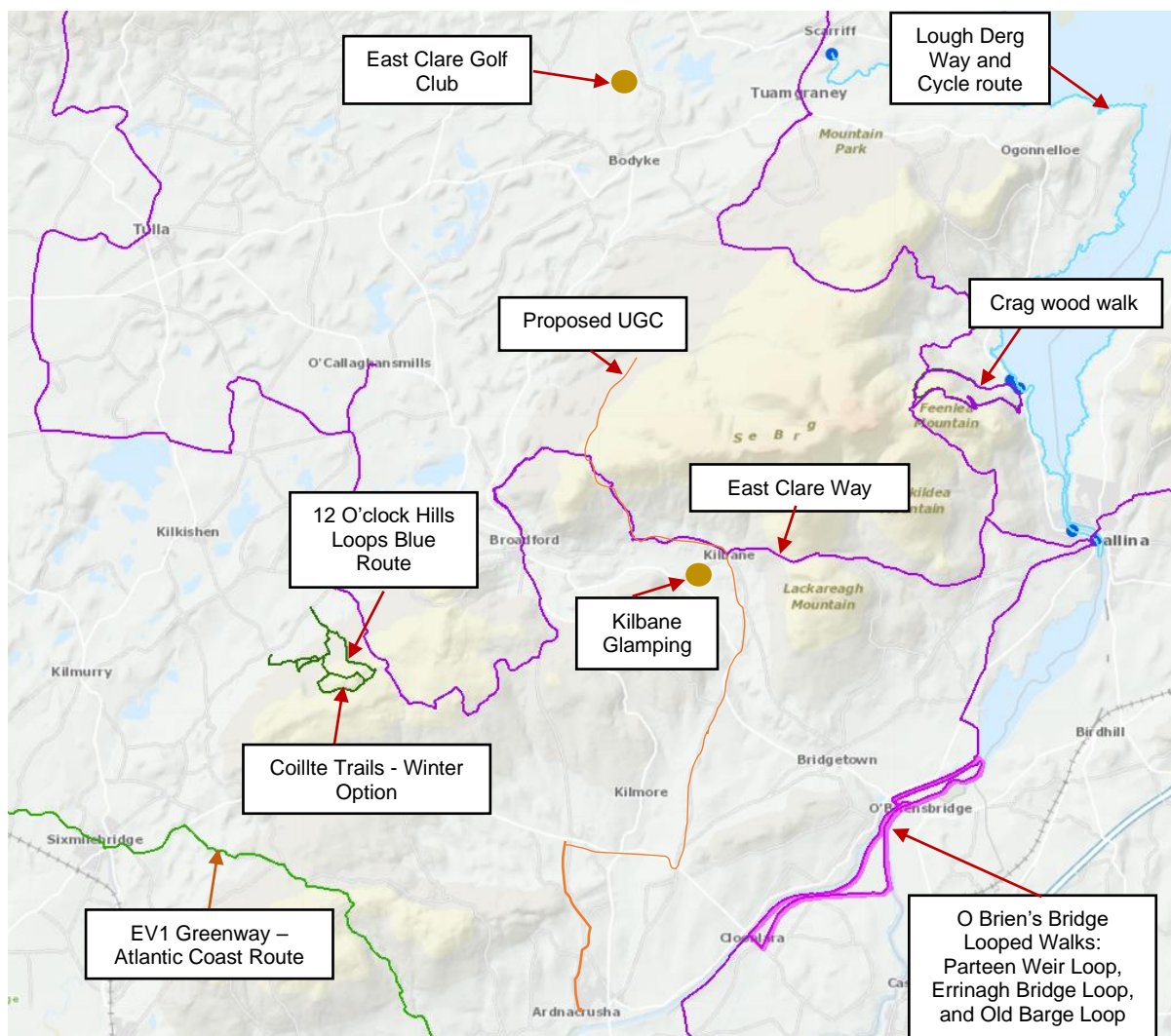


Figure 5-3 Tourism and Amenities along the Proposed Development site

5.4 Assessment of Impacts and Effects

5.4.1 Construction Phase

5.4.1.1 Employment

It is not likely that the Proposed Development would directly or indirectly result in any reduction in existing economic activity of the area during any phase of the development.

During the construction phase, aggregates, concrete and surface dressing supplies will be obtained from local quarries and suppliers, thus supporting the local economy. There is also potential economic opportunities for local companies and businesses to provide a ranges of services including plant hire.

The Proposed Development is likely to have a **temporary, neutral** and **imperceptible** effect on economic activity during the construction phase.

In the construction phase, it is envisioned that resources and labour will be sourced in the region where possible. It is estimated that the construction phase will take approximately 6-8 months and may employ approximately up to 10-25 persons, which will have a positive, temporary effect on employment.

Overall, the Proposed Development is likely to have an *imperceptible* effect on employment during the construction phase.

5.4.1.2 Settlement Patterns

There will be no loss of residential dwellings and therefore there will be no displacement of the existing population. There will be no mass in-migration associated with the Proposed Development.

It is expected that construction personnel will primarily be local to the region. A minor number of key employees involved in the construction, may decide however to temporarily re-locate to the area. The Proposed Development is likely to have a *temporary, neutral* and *imperceptible* effect on population and human settlement during the construction phase.

5.4.1.3 Land Use Patterns

The land-use along the Proposed Development site comprises mainly transport network, except where it deviates off the road into existing access tracks (within Ardnacrusha), private forestry access tracks, private agricultural lands and permitted internal wind farm access roads. The surrounding land use is mainly agriculture land, residential and forestry related. The construction works, estimated to be 6-8 months, will require a road opening licence and temporary traffic management measures along the grid route, including alternating one-way stop/go traffic and temporary road closures with local diversion routes. This will result in disruption to existing traffic and access for local landowners and property owners/residents in the vicinity of the route.

The active construction area for the Proposed Development will be small, ranging from 100 to 200 m in length at any one time, and it will be transient in nature as it moves along the route. The construction works will therefore have a *temporary, slight* and *negative* effect for road users, local landowners and property owners/residents in the vicinity of the route.

Overall, it is considered that during the construction phase there is likely to be a *temporary, negative* and *not significant* negative effect on land use

5.4.1.4 Baseline Population and Demographic Trends

The Proposed Development will not have a significant effect on population numbers of the area. There will be no loss of residential dwellings and therefore there will be no displacement of the existing population. There will be no mass in-migration associated with the development.

It is expected that construction personnel will primarily be local to the region. A minor number of key employees involved in the construction, may decide however to temporarily re-locate to the area in the short-medium term. During the operational phase of the Proposed Development, it is envisaged that any operators and maintenance personnel will be sourced locally. Overall, throughout construction phase, it is expected that the Proposed Development will have a *neutral* effect on population numbers.

5.4.1.5 Human Health

Construction works not only pose safety risks but can also give rise to potential impacts on general amenity affecting health and wellbeing. General amenity is to do with the pleasant, amenable qualities of a place as it is used and perceived by the people who reside, frequent or view it. There are a number of general elements that contribute to, or detract from, the amenity of an area. Nuisances such as noise, dust and traffic are potential factors for the devaluation of amenity.

The potential wellbeing and nuisance effects of the Proposed Development on the local human environment have been identified as follows:

- Dust emissions from construction activities
- Noise emissions during construction activities
- Traffic nuisance during construction activities
- Visual impacts during construction activities

Each of these issues has been fully assessed and is documented in other chapters of the EIAR as set out in **Table 5-7**. These assessments were reviewed to inform this study and it is concluded having regard to these environmental factors, under which human health effects might occur, there will be no significant effects on human health as a result of the Proposed Development as discussed in the following sections.

Table 5-7 Nuisances issues and relevant assessment

Development Phase	Potential Nuisance / Health & Safety Issue	Addressed in EIAR Chapter
Construction Phase	Noise emissions and vibration	Chapter 9
	Dust emissions	Chapter 11
	Traffic nuisance	Chapter 12
	Visual impacts	Chapter 14

Noise

Chapter 9 Noise and Vibration of this EIAR considers the effects of noise emitted for the Proposed Development against national guidelines.

The construction phase has the potential to generate noise emissions which could cause disturbance to local noise sensitive areas. The results of the construction noise predictions indicate that noise generated during the construction phase will not exceed the acceptable construction noise limit at any dwelling location, for the duration of the construction phase. The noise assessment proposes measures to reduce the amount of noise reaching the noise sensitive areas in accordance with BS528-1:2009, Code of Practice for noise and vibration control on construction.

As outlined in **Chapter 9**, there will be a *temporary, slight to moderate negative* effect at noise sensitive receptors near construction works areas.

Air Quality

There is the potential for temporary, negative effects in terms of dust emissions during the construction phase of the Proposed Development as outlined in **Chapter 11** Air Quality and Climate.

Vehicle and fugitive dust emissions will occur primarily during construction. Dust generated during the construction phase is not likely to significantly affect the local air quality. Given the distances to the nearest sensitive receptors, dust levels will not exceed the recommended TA Luft 350mg/m³/day guide-limit. There is, however, the possibility of nuisance dust occurring in the vicinity of the site entrances and along the local public road which could affect road users. This is considered a temporary minor negative impact and mitigation will be needed, which is proposed in **Chapter 11** Air Quality and Climate.

With the effective implementation of standard dust management measures to control and reduce dust no significant, negative effects, in terms of a community nuisance is likely to occur. As outlined in **Chapter 11** Air

Quality and Climate, dust and emissions from the construction works will likely result in a **temporary, imperceptible** and **negative** effect on sensitive receptors for the duration of the construction phase.

Traffic and road usage

Potential impacts on the surrounding road network will arise principally during the construction phase.

The construction works, estimated to be 6-8 months, will require a road opening licence and temporary traffic management measures along the grid route, including alternating one-way stop/go traffic and temporary road closures with local diversion route as outlined in **Chapter 12** Material Assets and the Traffic Management Plan in **Appendix 2-3**. This will result in disruption to existing traffic and access for local landowners and property owners/residents in the vicinity of the route. The works however will be temporary and appropriate traffic control and management systems will be in place to minimise as far as possible traffic disruption to road users. Once the works are complete, the road will be reinstated. The construction works will therefore have a **temporary, negative** and **moderate** effect for road users and local landowners and property owners/residents in the vicinity of the route.

Visual Impacts

A landscape and visual impact assessment was carried out in relation to the proposed development (Refer to **Chapter 13** of this EIAR).

As outlined in **Chapter 13**, the active construction area will be along a 100-200m stretch of any roadway at any one time. The visual effects of the grid connection where it is in the road corridor or track are only evident during the construction stage. Once any areas which were disturbed are re-vegetated these areas will appear similar to what they were before. The chapter concluded that the Proposed Development will result in **temporary to short term, not significant** visual effects. Short-term, adverse visual effects are expected to arise where the proposed grid connection runs off road in the northern part of the study area and will reduce after this as vegetation re-establishes.

5.4.1.6 Amenity

The construction of the Proposed Development will travel southwards adjacent to the L8218 and then eastwards along the L30302 to the village of Kilbane. This section of the Proposed Development is part of the East Clare way designated walking route. Therefore, approximately 4.7 km of the East Clare walking trail will be effected during the grid construction due to noise generated. Access for walkers and users of the road network will however not be restricted. As a result, the Proposed Development will likely result in **temporary, negative** and **slight to moderate** effect on this amenity.

Chapter 13 describes the assessment of landscape and visual impacts. Due to the nature of the proposed development, the fact that it is a cable located underground, the main landscape and visual effects will occur during the construction phase. These effects will be extremely localised. Overall, this assessment concluded that the Proposed Development will likely have a **not-significant** visual effect and **imperceptible to not significant** landscape effect and will include some disturbance to the road corridor as well as some limited offroad sections through grassland and forestry plantation in the north of the study area.

5.4.2 Operational Phase

The purpose of the Proposed Development is to facilitate the exportation of electricity, from the permitted Carrowmagowan Windfarm when it is constructed and operational, to the national grid. Given the type of development, no impacts on population and human health are anticipated during operation. There are no

significant operational emissions associated with the development during maintenance works. The operational phase of the electrical connection will not present direct full-time employment opportunities. The employment opportunities will be associated with the wind farm operation. Other than the permanent land take within the off-road sections of the grid route there will be no changes to land use. The public road network will be fully reinstated in line with the standards set out by the Department of Transport, Tourism and Sport Guidelines on the Opening, Backfilling and Reinstatement of Trenches on Public Roads (April 2017). The Proposed Development will result in *negligible* effect on Population and Human Health.

5.4.3 Do-Nothing

The do-nothing option would avoid all the negative, imperceptible and moderate negative effects during the construction phase but also not produce the positive environmental operational benefits of the Proposed Development.

5.4.4 Cumulative Impacts and Effects

A review was undertaken of relevant existing and permitted projects and activities occurring in the environs of the Proposed Development site (**Appendix 1-5**, Volume III) that could act in combination with the Proposed Development to determine whether any potential cumulative effects may arise.

When in-combination impacts are assessed, it is necessary to identify the types of impacts that may ensue from the project under consideration and from other sources in the existing environment that cumulatively are likely to affect aspects of the environment.

Construction of the Proposed Development will result in increased traffic on the local road network, noise emissions from construction vehicles and equipment and from fugitive dust resulting from ground-disturbance activities. Given the generally imperceptible, neutral effects on population and human health associated with the Proposed Development, no significant cumulative effects are expected during the construction phase.

The construction works are estimated to take approximately 6-8 months and will overlap with the consented Carrownagowan Wind Farm works. However, given the sequencing of the construction of works, i.e. portions of the grid connection within the wind farm lands will be constructed with the wind farm access roads during the initial phase of construction works, the potential for significant cumulative effects is very low.

Forestry operations will continue for the duration of the construction phase in the wider area. Forestry operations will take place with the commercial forestry stand which is at a remove from the grid works area. Any cumulative impact can be avoided through timing during the felling licence process.

The Proposed Development has the potential to interact with the proposed Fahey Beg Wind Farm Development Grid Connection and the Drummin Solar Farm Grid Connection (See **Figure 1-2** and **1-3**, **Chapter 1** Introduction).

As outlined in **Chapter 1**, each project that progresses with a grid connection located within the public road network will have to apply to the local authority for a road opening licence, where timelines will be agreed, and connections sequenced. Early engagement with the local authority will allow them to decide on how the sections of public road are managed during the laying of the UG grid trenching, so as to avoid disruption. In the event that the Fahy Beg UG Grid and the Proposed Development works need to be done at similar times within the public road network then the Local Authority through the Road Opening Licence process will agree the best solution. The solution may be to close a short section of road and do a traffic diversion, or it may dictate each developer stagger the duration of the overlap on the public road so as to control and manage impacts locally; thereby avoiding any significant cumulative effects.

Any interaction with these developments and the Proposed Development within Ardnacrusha substation will be controlled by the Ardnacrusha Eirgrid Station Manager who will implement their own traffic management measures thereby avoiding potential cumulative impacts.

Once operational there will be no potential significant emissions or impacts associated with the Proposed Development, therefore there can be no cumulative impact with any other project.

5.5 Mitigation Measures

The potential for significant effects on the human environment will principally arise during the construction phase from traffic, noise and dust effects. Mitigation in relation to these issues are outlined in their respective Chapters of this EIAR. No additional mitigation is proposed here for those particular aspects.

There is no likelihood of any significant effects associated with the operational phase of the Proposed Development, therefore no mitigation is proposed.

5.6 Residual Impacts and Effects

- It is not likely that the Proposed Development will directly or indirectly result in any reduction in existing economic activity of the area during any phase of the development.
- There will be no loss of residential dwellings and therefore there will be no displacement of the existing population or change in settlement patterns.
- In terms of impacts to neighbouring lands and land-uses it is considered that the Proposed Development does not pose a significant risk to either existing or future land-uses. All existing land use practices can co-exist with the Proposed Development. There will be no severance, loss of rights of way or amenities as a result of the Proposed Development
- With the implementation of standard traffic management measures as set out in **Chapter 12** Material Assets, traffic nuisances will be kept to a minimum.
- With the implementation of standard best management construction activities as set out in **Chapter 11** Air and Climate, dust levels will remain within recommended acceptable guide limits.
- With the implementation of mitigation measures as set out in **Chapter 9** Noise and Vibration, noise nuisances will be kept to a minimum and within acceptable noise limits.

Overall, there will be no significant residual effects on population and human health as a result of the Proposed Development.

5.7 Summary

As with any development, the construction activities can cause a nuisance to the local community and are likely to pose temporary minor disturbances locally. The most notable of these disturbances relates to the generation of additional traffic on the local networks. Here noise and safety implications are also a concern. However, disturbances associated with the additional volumes of traffic will principally be confined to the construction phase and will cease on completion of works. The construction phase will be managed to minimise the impact on the human environment and the local residents. No significant negative effects on the local human environment are expected.

There are no predicted adverse operational impacts associated with the Proposed Development which would result in significant negative effects on the local human environment.

5.8 References

- EC. (2017). *Guidance on the preparation of the Environmental Impact Assessment Report*, European Commission.
- EPA. (2022). *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*, Environmental Protection Agency.