

# MWP

## **Chapter 12 Material Assets** **Carrownagowan 110kV Grid Connection**

## 12. Material Assets

### 12.1 Introduction

This chapter considers the potential effects on material assets 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 Environmental Protection Agency's (EPA) 'Guidelines on the information to be contained in an Environmental Impact Assessment Report' (EPA, 2022) describes material assets to be taken to mean 'built services' (i.e. built services networks including electricity, telecommunications, gas, water supply and sewerage), 'waste management' and 'infrastructure' (e.g. roads and traffic). These are all considered within this chapter.

The nature and probability of effects on material assets arising from the Proposed Development has been assessed. The assessment comprises:

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

#### 12.1.1 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.

### 12.2 Methodology

The methodology used for this study included desk-based research of published information and site visits in November 2022 to assemble information on the local receiving environment.

Review of the following sources for information regarding existing built services:

- Gas networks Ireland Dial Before You Dig Maps (DBYD);
- ESB DBYD Maps;
- EIR eMaps open eir Civil Engineering Infrastructure Service; and
- Existing Road maps.

Further information has been sourced from engineer designs from TLI, the appointed grid connection designers as described in **Chapter 1** Introduction.

### 12.2.1 Guidelines and Best Practice

The following publications were consulted as part of the preparation of this assessment:

- EPA’s ‘Guidelines on Information to be contained in Environmental Impact Assessment Reports’ (2022);
- Traffic and Transportation Assessment included in the chapter has been prepared in the context of the following: Clare County Development Plan 2017-2023 (As Varied); The Transport Infrastructure Ireland (TII) ‘Traffic and Transport Assessment (TTA) Guidelines PE-PDV-02045’ May 2014;
- TII’s ‘Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections PE-PAG-02017’ (October 2016); and
- TII’s ‘Rural Road Link Design DN-GEO-03031’ (June, 2017).

### 12.2.2 Study Area

The study area for the built services and traffic impact assessment was based upon the construction footprint/Proposed Development site boundary as outlined in **Figure 1-1, Chapter 1** Introduction.

The study area for the waste impact assessment included the footprint of the Proposed Development site (within which waste will be generated from the construction activities), and licenced waste facilities that are suitable (licensed for waste volume and type) to accept arisings generated by the Proposed Development.

### 12.2.3 Scope of Assessment

**Table 12-1** outlines the issues which the EPA guidance documents suggest may be examined as part of the material assets impact assessment.

**Table 12-1 Material Assets Topics**

Material Asset	Topics to be Covered
Built Services	Electricity Telecommunications Gas Water Supply Infrastructure Sewerage
Roads & Traffic	Construction Phase Operational Phase Unplanned Events (i.e. Accidents)

Accordingly, the scope of this assessment is made 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 each.

#### 12.2.3.1 Assessment Criteria

Determination of the significance of an effect will be made in accordance with the criteria and terminology outlined in the ‘Guidelines on the information to be contained in Environmental Impact Assessment Reports EIAR (EPA, 2022) as outlined in Section 1.7.4 in **Chapter 1** Introduction.

## 12.3 Baseline Environment

### 12.3.1 Sensitivity of Baseline Environment

The sensitivity of the existing environment identifies the ability of the receptor to respond to potential effects and can be determined by describing changes to the environment that could limit the access to, or use of, the material asset. For the purpose of this assessment, the sensitive receptors are regarded as the existing built services network (i.e.. electricity, telecommunications, gas, water supply and sewerage networks), transport network and waste management infrastructure capacity within the study area.

Terminology used to describe the sensitivity of the receptor are as per the EPA ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ (EPA, 2022). As descriptors for sensitivity are not outlined within Irish guidance for these environmental factors, the descriptors are based on professional judgement.

#### 12.3.1.1 Transport Infrastructure

Criteria used when applying a sensitivity for the traffic analysis within this chapter are outlined in **Table 12-2**.

**Table 12-2 Examples of Sensitivities Assigned to Different Transport Networks**

Sensitivity	Description
High	Motorway/National transport network
Medium	Regional transport network
Low	Local transport network
Negligible	N/A

#### 12.3.1.2 Built services Infrastructure/Network

Examples of the sensitivities used for existing built services infrastructure within this chapter are outlined in **Table 12-3**.

**Table 12-3 Examples of Sensitivities Assigned to Different Built services Networks**

Sensitivity	Description
High	<ul style="list-style-type: none"> <li>Electricity network 220 kV and above.</li> <li>Transmission gas pipeline (high pressure).</li> </ul>
Medium	<ul style="list-style-type: none"> <li>Distribution gas network (medium pressure).</li> <li>Electricity network 38 kV and 110 kV.</li> </ul>
Low	<ul style="list-style-type: none"> <li>Low pressure gas pipeline.</li> <li>Low/medium voltage electricity network 230 v and 400 v.</li> <li>Telecommunications network.</li> <li>Water supply network.</li> <li>Drainage network including foul sewerage.</li> </ul>
Negligible	N/A

### 12.3.1.3 Waste

Assessment of waste impacts does not follow the approach of identifying receptors and determining their sensitivity that is typically used for other environmental aspects. Attempting to identify receptors is problematic since:

- Waste producers have a legal duty of care to manage their waste in accordance with regulations and to ensure that any waste leaving the site of generation is transferred to a suitably licensed, permitted or certified facility for further treatment or disposal;
- Facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a license. Impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for such facilities; and
- Waste collectors are required by the Waste Management (Waste Collection Permit) Regulations 2007 as amended, to have and comply with conditions of a permit to collect waste. Offaly County Council was appointed the National Waste Collection Permit Office (NWCPO) in 2012 and is responsible for administering waste collection permits in the Republic of Ireland.

The receptor for this assessment is therefore the waste management infrastructure with capacity in the study area.

### 12.3.2 Transport Infrastructure

The Proposed Development will be installed initially within the wind farm site for approximately 4.2 km. The Proposed Development will then be installed within approximately 0.89 km of existing wind farm access roads. From here the Proposed Development will traverse approximately 2.3 km of consented third party lands. The Proposed Development will then travel approximately 16.96 km along a series of public roads to the existing substation in Ardnacrushna, passing through the townlands of Caherhurly, Killokennedy, Cloongaheen West, Cloongaheen East, Kilbane, Killeagy (Goonan), Ballymoloney, Cloonygonry Beg, Ballyquin Mor, Springmount, Leitrim, Fahy More (South), Aharinaghmore, Ballybrack, Tooreen, Aharinaghbeg, Cloghera, Trough, Knockdonagh, Roo West, Lakyle, Glenlon South, Castlebank and Ballykeelaun. The Proposed Development will then traverse approximately 0.52km of consented third party lands in order to access the existing substation in Ardnacrushna.

A description of the public roads which the Proposed Development will traverse is outlined below:

The Proposed Development runs between the Carrownagowan wind farm on site substation (ABP Ref. 308799) and an existing Gas Insulated Substation (GIS) in Ardnacrushna. The proposed route is shown in **Figure 1-1, Chapter 1** Introduction. The L8218 Local road is a gravel road less than 3.0m wide. The Proposed Development continues in a southern direction along the L30302 Local road, which is approximately 3.5m wide and goes through the village of Kilbane. The Proposed Development then travels south along the L7004 Local road which is approximately 3.5m wide. After this the Proposed Development will meet the R466 Regional road which runs between Tulla and O'Briensbridge. The R466 is approximately 7.3m wide on the length of the Proposed Development. The Proposed Development then continues south on the L3004 Local road, which varies between 4.0m and 5.5m. After approximately 4.2km, it meets the R471 Regional Road, where it forms a Stop controlled crossroads. At this crossroads (Harols Cross), the Proposed Development travels west along the R471 for a distance of 2.6km. The R471 is approximately 5.5m wide throughout the length of the Proposed Development. It meets the R465 Regional road and forms a Stop controlled crossroads as the minor arm. There are a number of residential accesses in the vicinity of the crossroads. The Proposed Development continues east along the R471, turning south onto the L-70661 Local road. The L-70661 is approximately 3.0m wide with a gravel surface. It joins the L-7066 Local road and continues for a distance of 0.7km south until it reaches the L-3054 Local road. The

L7066 has an asphalt surface and is approximately 5.0m wide. The L-3054 is approximately 6.0m wide and has a number of residential accesses along the Proposed Development. The L-3054 meets the L-3056 Local road within a 60 km/hour urban speed limit. From here the grid connection turns south to enter the Ardnacrusha 110kV substation.

On-site classified road traffic volumes were recorded by Malachy Walsh and Partners on Friday 23<sup>rd</sup> November 2018 as part of the EIAR for the now consented Carrownagowan Wind Farm, adjacent to the Proposed Development site on the R352 Regional road for the consented wind farm application. These were factored on the basis of TII’s automatic traffic counter data to establish typical 2019 peak hour and Annual Average Daily Traffic (AADT) volumes for the latest full year, 2018, on the local rural road network. The factored typical baseline traffic volumes are provided in **Table 12-4**. These are total two-way vehicles at the road locations identified. The volumes of peak hour Heavy Goods Vehicles (HGVs) and the proportions (%) of AADT HGVs are also provided.

**Table 12-4 2018 - Counted Traffic Volumes**

Road Location	Total Vehicles (HGVs)	
	2019 Peak Hour	2018 AADT (% HGVs)
R352	840 (47)	8065 (5.6%)
R465 at L8821-0	363 (19)	3365 (3.2%)
L8821-0	47 (1)	>500 (1%)

The on-site classified counts have been grown as per the TII Publication , Project Appraisal Guidelines for National Roads, Unit 5.3 Travel Demand Projections for the Midwest region as identified in the located Geographical Regions in the respected document. This was undertaken to estimate opening year traffic volumes as no later vehicle volumes were available. **Table 12-5** outlines the Link-Based Growth Rates<sup>1</sup> for the various growth sensitivity scenarios.

**Table 12-5 - Annual Link Growth Factors**

Region	Low Sensitivity Growth				Central Growth				High Sensitivity Growth			
	2013-2030		2030-2050		2013-2030		2030-2050		2013-2030		2030-2050	
Mid-West Limerick, Clare, North Tipperary	LV		HV		LV		HV		LV		HV	
		1.0066	1.0221	0.9962	1.0135	1.0099	1.0237	1	1.0176	1.011	1.0242	1.0018

Note: LV= Light Vehicle, HV= Heavy Vehicle

Based on the above, the classified on road traffic counts have been adjusted based on a conservative central growth scenario (the rural location dictates low sensitivity growth, however, to achieve a robust approach, central growth has been applied). The adjusted opening year (2024) traffic volumes are outlined in **Table 12-6** below.

**Table 12-6 Predicted Opening Year (2024) Traffic Volumes**

Road Location	Total Vehicles (HGVs)	
	2024 Peak Hour	2024 AADT (% HGVs)
R352	882(53)	8867 (6.35%)
R465 at L8821-0	381(21)	3830 (5.51%)

<sup>1</sup> Link Based Growth Rates refers to the annual growth rate applied to vehicular volumes on roads (referred to as links). It is affected by the type of road, the region it is in and will differ for different periods of time (usually given per annum for 20 year periods).

L8821-0	49(1)	493 (2.04%)
---------	-------	-------------

The rural road link capacity of the R352 within its 80 km/hour rural speed limit zone, estimated on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for its typical road carriageway width of 7.3m is provided in **Table 12-7**. The TII rural road link capacity is an AADT capacity.

**Table 12-7 Estimated R352 TII Rural Road Link Capacity (2018)**

R352 80 km/hour Rural Road	TII Rural Road Link		
	Type	Carriageway Width (m)	AADT Capacity (Vehicles)
R352 at Spencil Hill	Type 1 Single	7.3	11,600

The estimated existing rural road link AADT volume/capacity ration for the R352 in the vicinity of the Proposed Development site is provided in **Table 12-8**, on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for the latest full year 2024.

**Table 12-8 Estimated R352 TII Rural Road Link 2024 AADT Volume/Capacity Ratio**

R352 80 km/hour Rural Road	2024 AADT Vehicles	AADT Capacity (Vehicles)	AADT Volume/Capacity Ratio
R352	8867	11,600	76%

The R352 is operating within its estimated rural road link AADT capacity, with a 2024 volume/capacity ration of 76%.

The rural road link capacity of the R465 within its 80 km/hour rural speed limit zone, estimated on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for its typical road carriageway width of 6.0m, is provided in **Table 12-9**. The TII rural road link capacity is an AADT capacity.

**Table 12-9 Estimated R465 TII Rural Road Link Capacity**

R465 80 km/hour Rural Road	TII Rural Road Link		
	Type	Carriageway Width (m)	AADT Capacity (Vehicles)
R465 at Bodyke	Type 3 Single	6.0	5,000

The estimated existing rural road link AADT volume/capacity ration for the R352 in the vicinity of the Proposed Development site is provided in **Table 12-10**, on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for the latest full year 2018.

**Table 12-10 Estimated R465 TII Rural Road Link 2024 AADT Volume/Capacity Ratio**

R465 80 km/hour Rural Road	2024 AADT Vehicles	AADT Capacity (Vehicles)	AADT Volume/Capacity Ratio
R465	3830	5,000	77%

The R465 is operating well within its estimated rural road link AADT capacity, with a 2024 volume/capacity ration of 77%.

The estimated existing Local road link AADT volume/capacity ration for the L8821-0 in the vicinity of the Proposed Development site is provided in **Table 12-11**, on the basis of the for the latest full year 2018.

**Table 12-11 Local Road Capacity**

L8821-0 Local Road	2024 AADT Vehicles	AADT Capacity (Vehicles)	AADT Volume/Capacity Ratio
L8221-0	493	1700	29%

The L8221-0 is operating well within its estimated Local road link AADT capacity, with a 2024 volume/capacity ration of 29%.

### 12.3.3 Built services Infrastructure

#### 12.3.3.1 Grid Capacity and Electrical Infrastructure

EirGrid is the national electricity Transmission Systems Operator (TSO) in Ireland. In its role as TSO, EirGrid is responsible for the grid infrastructure required to support the development of Ireland’s economy. EirGrid’s Transmission Development Plan (TDP) 2018-2027 is the plan for the development of the Irish transmission network and interconnection over the ten years from 2018. This ten year plan presents projects that are needed for the operation of the transmission network. The grid developments have been planned to ensure that the intended grid reinforcements facilitate the connection of significant amounts of wind generation.

The plan sets out a number of planned reinforcement projects of the Transmission Network in Clare including redevelopment of the 110 kV Station at Ardnacrusha. The development strategy has stated that it is vital that this new electricity infrastructure is built to ensure that the region meets the standards required for a safe and secure electricity system and to cater for connecting the electricity generated by the region’s huge renewable energy resources.

Ardnacrusha 110kV Substation is situated within the property of Ardnacrusha Power Station located at Parteen close to the Limerick Clare border. The 110kV substation has recently been upgraded to a new 110kV GIS busbar. There are currently four 110kV feeders which will allow enough MW capacity for the proposed 110kV generation connection.

**Figure 12-1** and **12-2** shows ESB infrastructure in the southern section of the Proposed Development site, provided by ESB networks, where the largest concentration of electricity infrastructure is found. The following ESB networks are located in this section:

- 38 kV & higher voltage overhead lines;
- 10KV/20KV medium voltage overhead lines;
- 400V/230V low voltage overhead lines; and
- 10KV/20/KV/400V/230V underground cable route.



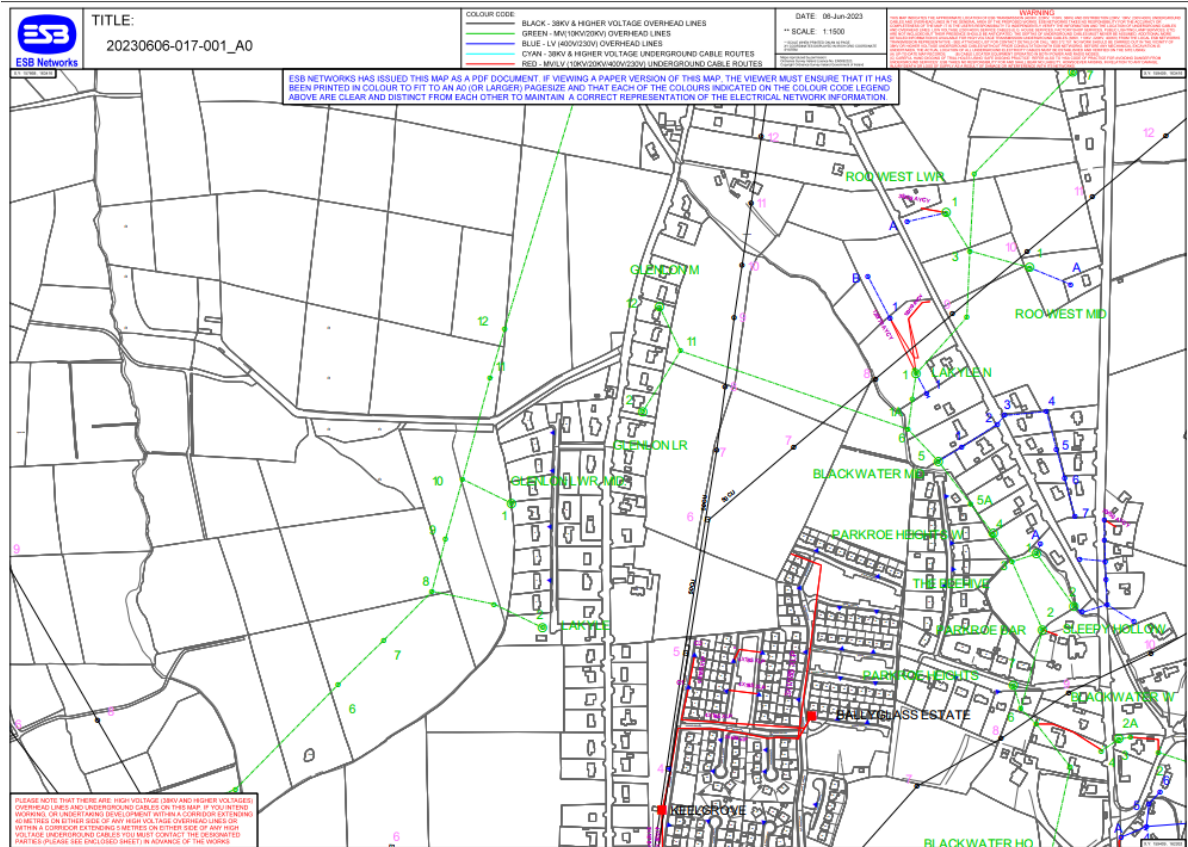


Figure 12-2 Existing ESB Infrastructure (Source: ESB Networks)

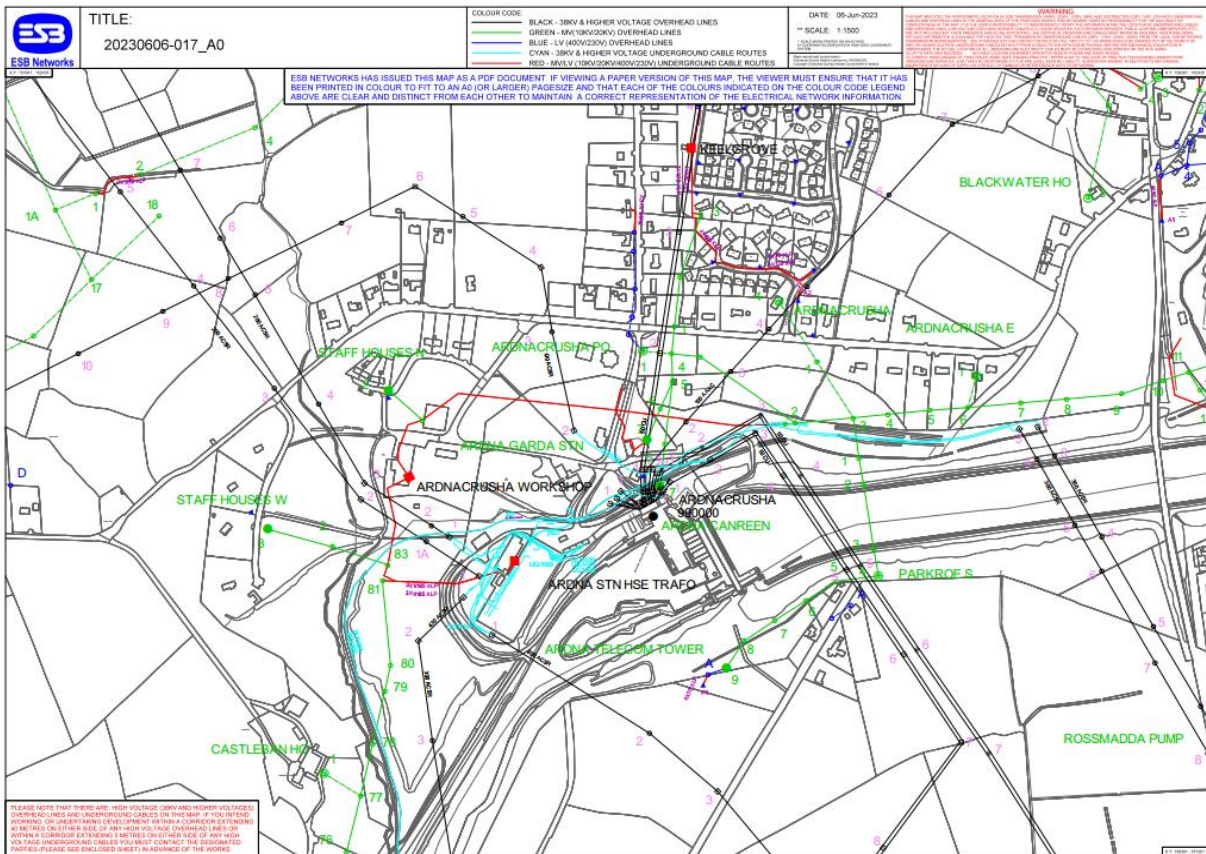


Figure 12-1 Existing ESB Infrastructure (Source: ESB Networks)

In the surrounding area of the Proposed Development, there are 10KV/20KV medium voltage and 400V/230V low voltage overhead lines.

### 12.3.3.2 Gas Distribution Network

Figure 12-3 and Figure 12-4 from Gas Networks Ireland display current gas infrastructure within the study area. The map shows inserted distribution pipes (medium pressures) along Lackyle Heights where the Proposed Development is located.

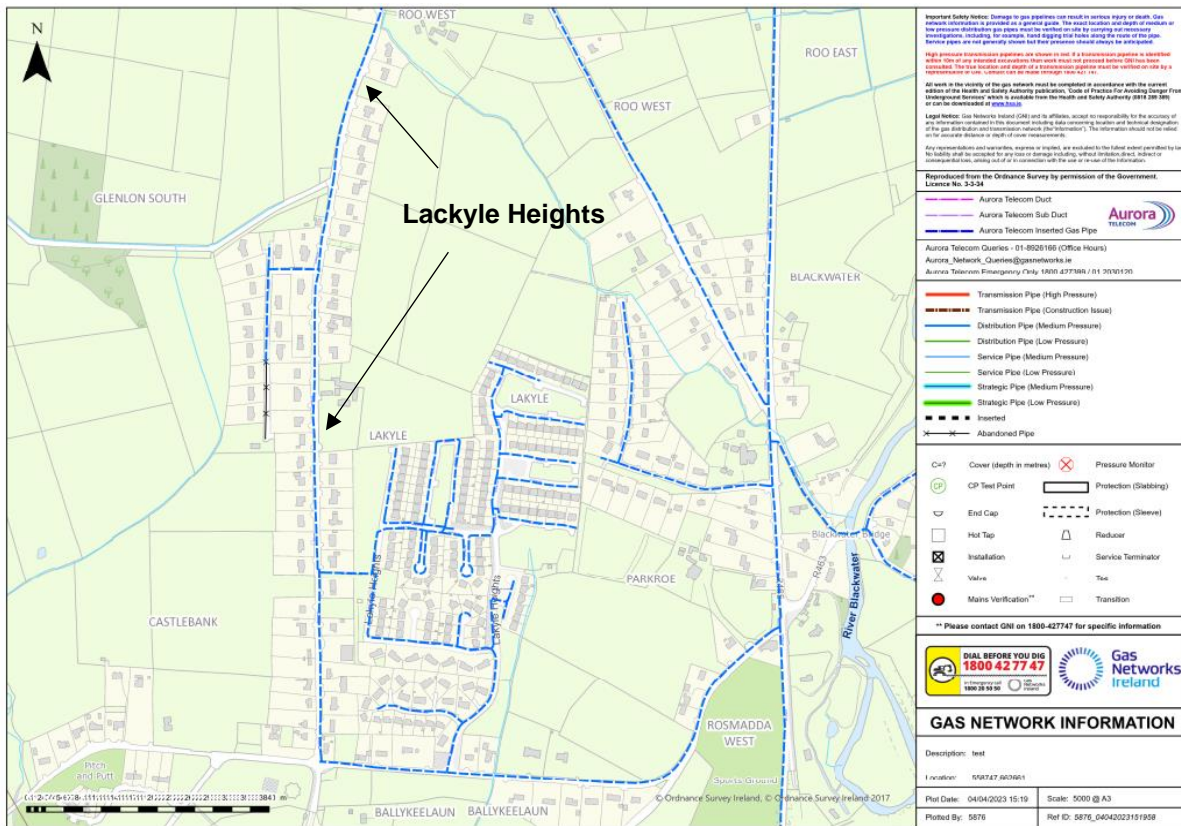


Figure 12-3 Gas Network Map

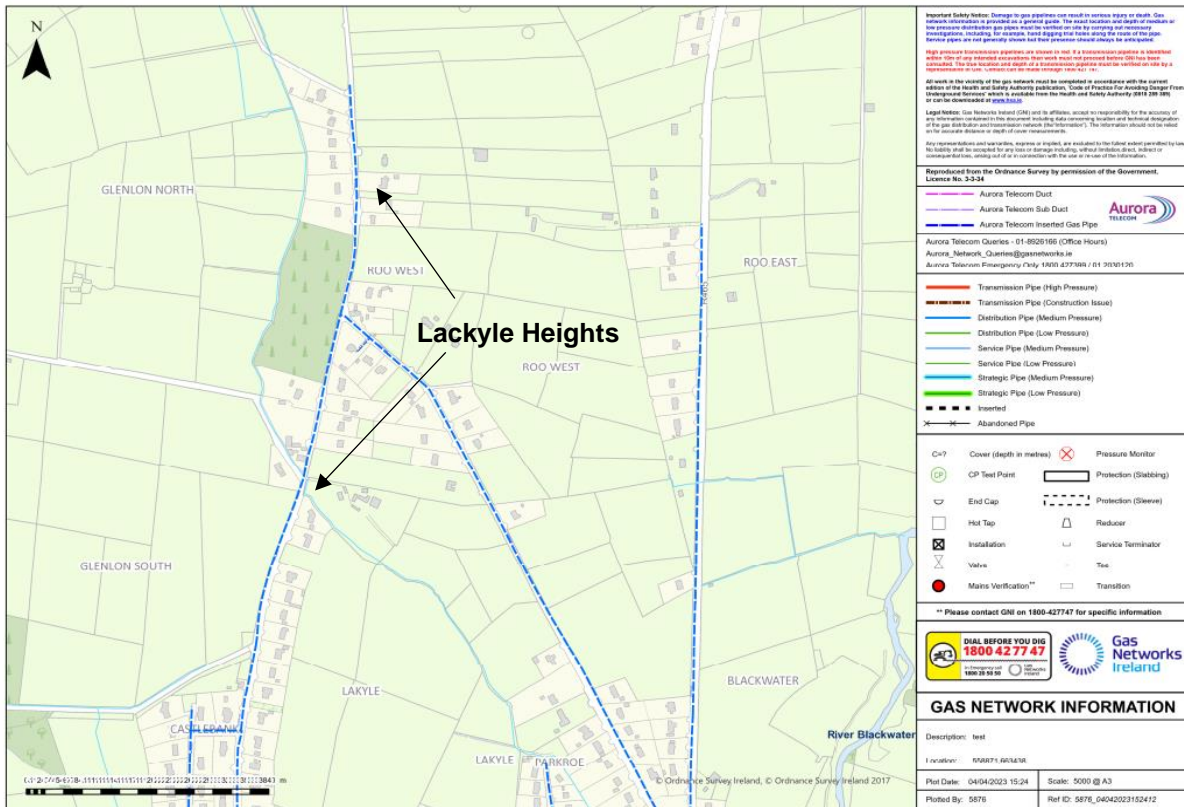


Figure 12-4 Gas Network Map

### 12.3.3.3 Water Supply Network

There is water supply infrastructure within the study area.

There are 2 no. Group Water Schemes (GWS), and their subsequent abstraction points are mapped within 5km of the very northern section of the Proposed Development. The Bodyke GWS is situated ~3.3km north-northwest of the Proposed Development, as well as Raheen Road GWS ~ 4.2km northeast of the Proposed Development. There are no other groundwater supplies including group schemes mapped within 10km of the Proposed Development site.

Private well locations (accuracy of <50m only) were reviewed using Geological Survey Ireland (GSI) well database ([www.gsi.ie](http://www.gsi.ie)). GSI mapped wells with accuracy greater than 50m were not assessed due to the poor information/accuracy regarding their location. There are 12 no. mapped wells identified within 2 km of the Proposed Development site. All wells are for private use and the majority (8 no.) are located upgradient of the Proposed Development.

### 12.3.3.4 Drainage

There are no known significant stormwater or sewerage effluent sewers in the study area. It is assumed the majority of people within the northern section of the study area utilise septic tanks. The local environs surrounding the Proposed Development site are bisected by numerous land drains and ditches which typically traverse along field boundaries of a number of adjacent agricultural lands.

### 12.3.3.5 Telecommunications

Mapping of the existing telecoms infrastructure has been sourced from the Eir Maps open Eir Civil Engineering Infrastructure Service<sup>2</sup> which enables users to view and request maps of telecoms infrastructure. Eir's eMaps shows a run of trenches containing in-service buried conduits (pipes / duct) and telecommunication cables. The maps also show a run of in-service overhead telecommunication cables. These underground and overhead cables accommodate the fiber and copper cables needed to deliver nationwide fixed, mobile and broadband services.

The Commission for Communications Regulation (ComReg)<sup>3</sup> site map in **Figure 12-3** shows mobile communication masts (highlighted in green circle) in the surrounding areas of the study area. There are no masts located within the study area.

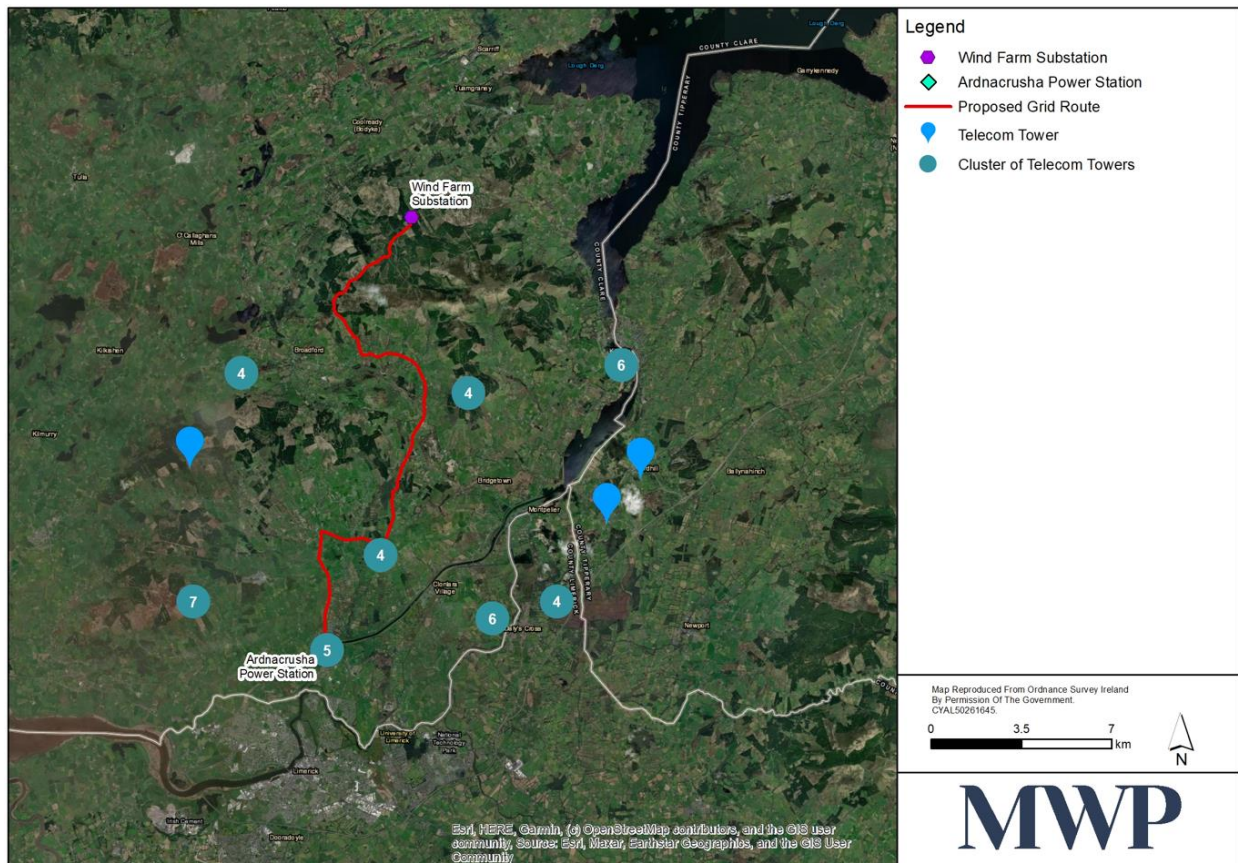


Figure 12-5 Comreg Map (Source: Commission for Communications Regulation Site Viewer)

### 12.3.4 Waste Infrastructure

There is a network of waste collection, treatment, recovery, and disposal infrastructure within the Southern Waste Region to manage waste efficiently in the surrounding area. Waste facilities in the waste study area include Clare Waste & Recycling at Tuamgraney, Inagh Central Waste Management Facility in Ballyduff Beg, Inagh and Enva, located at Smithstown Industrial Estate in Shannon, Co. Clare.

<sup>2</sup> <https://cei.openeir.ie/emaps/> Accessed 10/05/2023

<sup>3</sup> [Service Coverage - Commission for Communications Regulation \(comreg.ie\)](https://www.comreg.ie/) accessed 10/05/2023

## 12.4 Assessment of Impacts and Effects

### 12.4.1 Construction Phase

#### 12.4.1.1 Transport Infrastructure

##### Traffic Volumes

There will be an increase in local traffic during the construction phase (estimated to take 6-8 months) of the Proposed Development due to construction workers commuting to and from the Proposed Development site each morning and evening, as well as construction vehicles on the existing road network.

The proposed on site working hours for the construction works are between 8.00 a.m. and 8.00 p.m. weekdays and 6.00 p.m on Saturday (if required) (subject to planning consent and local authority stipulated conditions), subject to seasonal variations and shorter working days in winter. Work is normally undertaken on a five or six day week including Saturdays, depending on the contractors programme, weather and availability of resources. No work will be conducted on Sundays or Bank holidays except in exceptional circumstances or in the event of an emergency.

Site personnel will travel to the Proposed Development site prior to 7.30 a.m. and depart from site from 8.30 p.m., on weekdays, outside the peak traffic hours. The expected peak staff will be up to 25 personnel, who will generate approximately 25 car and van trips, both to and from the Proposed Development site each working day, on the basis of an average worst case vehicle occupancy rate of 1.0 personnel per vehicle.

**Table 12-12** lists the vehicles and equipment required during the construction phase. **Table 12-13** outlines the anticipated vehicle movements per day during the construction phase.

**Table 12-12 List of Vehicles Required for Works**

Equipment/vehicles	Traffic Generated
HDD 3 Tonne Drilling Rig	1
Duct Reel Trailer	1
Vans	4
Track machines varying sizes	2
Flatback trucks	2
Road sweeping unit	1
Dumpers	2
Mini – digger	1
Employees cars/vans	25
<b>Total</b>	<b>39</b>

**Table 12-13 Vehicle Movements per day**

Vehicle	Traffic Generated
Flatback trucks	2
Employee cars	13
Vans	4
Concrete truck	1

Vehicle	Traffic Generated
Materials delivery truck	1
Waste removal trucks	10
<b>Total</b>	<b>31</b>

Note: Vehicle movements per day reflect the fact that some vehicles will be site based, where others will be coming and going from the Proposed Development site each day depending on the nature of work, location etc.

The volume of traffic generated by the transportation requirements during the construction phase of the Proposed Development will be minimal (**Table 12-12**) and will be within the carrying capacity of the existing road network as described in **Section 12.3.2**. The additional traffic volumes during the construction works will likely result in a *negative, temporary* and *negligible* effect on existing traffic infrastructure of *low – medium* sensitivity; therefore, the significance of the effect on the existing road infrastructure during construction works will likely be *not significant*.

### Traffic Management Measures

#### Single lane closures

A detailed description of traffic management required for the Proposed Development is provided in the Traffic Management Plan (TMP) (**Appendix 2-3**, Volume III). Single lane closures will be required as part of the grid connection construction works. It is envisaged that 100-200m of the Proposed Development will be construction each day and therefore single lane closures will move with the works. The Single lane closure will be controlled by way of either a stop-go system, a priority yield system or by temporary traffic lights.

Details of the single lane closures are to be confirmed at the construction stage, in agreement with Clare County Council. At this stage, it is considered that the following roads will have single lane closures during the construction of the Proposed Development with approximate lengths shown:

#### Regional Roads in County Clare

- R466: The L-3022 / R466 junction at Ballyquin Beg to the R466 / L-3044 junction at Springmount (900 metres)
- R471: R471/L-70661 junction to the R471/L-3048 Junction (400 m).

#### Local Roads in County Clare

- L-3056-0: The L-3054 / L-3056 junction at Lakyle to the Ardnacrushna Power Station at Castlebank (200 metres).

#### Full Road closures

A detailed description of traffic management required for the Proposed Development is provided in the TMP (**Appendix 2-3**, Volume III). It is proposed that the following roads will have road closures during the construction works with approximate lengths shown:

#### Proposed Regional Road Closure in County Clare

- R471: R465 / R471 Junction to the R471 / L-3048 junction at Cloghera (800 metres)
- R471: R471 / R465 Junction to the R471 / L-3044 junction at Tooreen (1.4 kilometers)

#### Proposed Local Road Closures in County Clare

- L-30302-0: The L-3030 / L-30302 junction at Violethill to the L-30302 / L-7004 junction at Cloongaheen West (5.0 kilometres)

- L-7004-17: The R465 / L-7004 junction at Broadford to the L-7004 / L-3022 junction at Kilbane (5.0 kilometres)
- L-3022-8: The L-3022 / L-7004 junction at Kilbane to the L-3022 / R466 junction at Ballyquin Beg (2.4 kilometres)
- L-3044-0: The R466 / L-3044 junction at Springmount to the L-3044 / R471 junction at Harols Cross Roads (4.2 kilometres)
- L-70661-0: The R471 / L-70661 junction at Cloghera to the L-70661 / L-7066 junction at Trough (1.3 kilometres)
- L-7066-0: The L-70661 / L-7066 junction at Trough to the L-7066 / L-7068 junction at Roo West (700 metres)
- L-3054-0 (1st Section): The L-7068 / L-3054 junction to the L-3054 / L-3052 Junction at Roo West (600 metres)
- L-3054-0 (2nd Section): The L-3054 / L-3052 Junction at Roo West to the L-3054 / L-3056 junction at Lakyle (1.5 kilometres).

### ***Diversions***

Diversions will be implemented to provide an alternative route for road closures during construction. Road closures will be sequenced in order to prevent unnecessary delays to the public and allow the appointed contractor to achieve their construction timeline. Information and directional signage will be provided to inform the public of road closures and direct them along diversion routes. Local access will be maintained for residents where possible.

It is envisaged, pending confirmation at construction stage in agreement with Clare County Council, that the following roads will provide a diversion for the proposed road closures where approximate diversion lengths are shown.

See Drawings **05641-DR-250** to **05641-DR-258** for map of below proposed traffic diversions.

- L-30302-0: Diversion to be made via the L-3030 Local road, the R465 Regional road and the L-7004 Local road in County Clare (4.2 kilometres)
- L-7004-17: Diversion to be made via the R465 Regional road, the R466 Regional road and the L-3022 Local road in County Clare (5.8 kilometres)
- L-3022-8: Diversion to be made via the L-3022 Local road and the R466 Regional road in County Clare (3.4 kilometres)
- L-3044-0: Diversion to be made via the R466 Regional road, the R463 Regional road and the R471 Regional road in County Clare (11.7 kilometres). Diversion to be made for north bound travel, via the R471 Regional road, the R464 Regional Road and the R466 Regional Road (16.8 kilometres).
- R471-148: Diversion to be made via the R465 Regional road, the R463 Regional Road and the L-3046 Local road in County Clare (7.2 kilometres). Diversion for east bound travel via the R465 Regional Road, the R466 Regional Road, the R463 Regional Road and the R471 Regional Road (27.8 kilometers).
- R471-148: Diversion to be made via the R465 Regional road and the L-3048 Local road in County Clare (1.5 kilometres). Diversion for west bound travel via the R471 Regional road, the L-3046 Local Road, the R463 Regional Road, the R465 Regional Road and the L-3048 Local Road (8.8 kilometers).

- L-70661-0: Diversion to be made via the R471 Regional road, the L-7070 Local road and the L-70662 Local Road in County Clare (3.0 kilometres). Diversion for east bound travel via the R471 Regional Road, the R465 Regional Road, the L-7068 Local Road and the L-7066 Local Road (4.0 kilometers).
- L-7066-0: Diversion to be made via the R471 Regional road, the R465 Regional and the L-7068 Local road in County Clare (4.2 kilometres)
- L-3054-0 (1st Section): Diversion to be made via the L-7068 Local road, the R465 Regional road and the L-3052 Local road in County Clare (4.0 kilometres)
- L-3054-0 (2nd Section): Diversion to be made via the L-3052 Local road, the R465 Regional road, and the L-3056 Local road in County Clare (2.3 kilometres).

The traffic management measures during the construction works will likely result in a **negative, temporary** and **low** effect on existing traffic infrastructure of **low – medium** sensitivity; therefore, the significance of the effect on the existing road infrastructure during construction works will likely be **not significant**.

### Road Pavements

In general, heavy vehicle traffic volumes generated by the Proposed Development construction could result in damage to existing road pavements on public roads, including at vehicle turning, accelerating and decelerating locations. Road pavements will be regularly monitored and reinstated in accordance with the requirements of Clare County Council if damaged. Prior to works commencing a pre-construction survey will be carried out photographing/videoing and noting any existing damage or defects to structures or road surfaces.

The additional heavy vehicle traffic volumes will likely result in a **negative, temporary** and **negligible** effect on the existing road pavements on public roads of **low – medium** sensitivity; therefore, the significance of the effect on the existing road infrastructure during construction works will likely be **imperceptible**.

#### 12.4.1.2 Built services Infrastructure

The construction methodology of providing a cable route under and along local road networks is well established and accepted nationwide. Excavations (see description of trenching in **Chapter 3** Civil Engineering) not carried out with best practice measures as outlined in the Construction Methodology, and as outlined in the CEMP (**Appendix 2-2**, Volume III), could cause negative effects to built services infrastructure. The appointed contractor will be obliged to conduct the works in accordance with Clare County Council and service provider requirements.

During the construction phase of the Proposed Development, it will be necessary to excavate close to existing underground services such as water mains, gas networks, telecommunications, or existing cables.

In advance of any construction activity, the contractor will undertake detailed surveys and scans of the Proposed Development site to confirm the presence of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation methods and to schedule a suitable time to carry out works. Some minor alignment alterations may be required if previously unknown services are encountered which will likely result in brief suspension of services. Although the exact number of interruption days for particular utility customers cannot be ascertained at this stage, any service interruptions are likely to be brief and occur rarely if required and will generally occur for a set number of hours per day.

Any excavation or relocations of existing built services infrastructure will likely result in a **negative, brief** and **low** effect on the existing built services networks of **low – medium** sensitivity; therefore, the significance of the effect on the built services network during construction works will likely be **not significant**.

During the construction phase, electricity will be supplied using onsite generators. Therefore, there will be no additional power demands on the existing network.



No public water or wastewater utility infrastructure is required at the Proposed Development site. Water needs for construction activities will be low and limited to dust suppression. It is proposed that this water requirement will be imported in vacuum tankers. The volumes of water required are minimal and will have no impact on existing water supply built services.

#### 12.4.1.3 Waste Management

As outlined in **Chapter 2** Description of the Proposed Development, it has been calculated that there will be approximately 22,204 m<sup>3</sup> of material excavated during the construction of the Proposed Development. All soils and sub soils generated from excavation works within the public road network sections will be disposed of to a licenced facility. Road excavation will generate small quantities of tarmacadam which will require off-site disposal by a permitted waste contractor. Available facilities include Clare Waste & Recycling at Tuamgraney, Inagh Central Waste Management Facility in Ballyduff Beg, Inagh and Enva, located at Smithstown Industrial Estate in Shannon, Co. Clare.

Given the volumes of waste materials generated, it is anticipated that the generation of waste from the Proposed Development will likely result in a *neutral, temporary* and *negligible* effect on waste management infrastructure in the region. The significance of effect from the generation and management of solid waste streams arising from the Proposed Development is therefore considered *imperceptible* as no significant reduction or alteration in the capacity of waste infrastructure at a national scale is anticipated.

### 12.4.2 Operational Phase

#### 12.4.2.1 Transport Infrastructure

During the operational phase, there will be periodic maintenance on site. This would generate a relatively low volume of vehicles, including occasional heavy vehicles.

Once commissioned, the service, maintenance and repair of the electric connection will generate minimal and local traffic. The effect of this on the local traffic will likely be *neutral, long-term, negligible* and therefore of *imperceptible* significance.

#### 12.4.2.2 Built services Infrastructure

Due to the type of development, there will be no impacts on existing built services networks/infrastructure during the operational phase.

#### 12.4.2.3 Waste Management

Due to the type of development, no waste will be generated during the operational phase.

### 12.4.3 Do-Nothing

If the Proposed Development did not proceed, there would be no change to the existing material assets, other than ongoing maintenance of existing built services and road network.

### 12.4.4 Cumulative Impacts and Effects

Cumulative effects relate to the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects. The existing and planned developments are discussed in **Section 1.7** of the Introduction to the EIAR.

#### 12.4.4.1 Transport Infrastructure

##### Construction phase

The Proposed Development has the potential to interact with the proposed Fahey Beg Wind Farm Development Grid Connection in two locations and in one location within Ardnacrusha with the Drummin Solar Farm Grid Connection (**Figure 1-2** and **1-3, Chapter 1**).

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 underground grid trenching, so as to avoid disruption. In the event that the Fahy Beg underground grid and the Proposed Development construction 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.

A TMP and a CEMP will be in place for each grid route and will accompany each Road Opening licence application and this will also be reviewed and agreed with the Local Authority.

##### Operational phase

No significant cumulative effects in relation to traffic and transport associated with the operational phase of the grid connection and the Carrowmagowan wind farm, plus other wind farms in the region are anticipated. With the infrequent, low volumes of traffic during the operational life of the connection, no cumulative impact in combination with the wind farms it will serve is envisaged.

#### 12.4.4.2 Built services Infrastructure

##### Construction Phase

Based on the review of planning applications outlined in **Appendix 1-5**, Volume III, there are no planning applications that will significantly increase demand on built services supply networks during the construction phase. All the existing approved planning applications will be subject to appropriate planning and regulatory consents, thereby reducing the likelihood of any likely significant cumulative effects. As outlined above, the Proposed Development has the potential to interact with the Fahey Beg Wind Farm Development Grid Connection in two locations and in one location within Ardnacrusha with the Drummin Solar Farm Grid Connection. However, as outlined in **Section 12.4.4.1**, significant cumulative effects can be avoided.

The cumulative effects of the Proposed Development on existing built services networks with other surrounding permitted, planned and existing developments will not be significant during both the construction phase.

##### Operational Phase

The proposed 110kV underground grid connection cabling to the existing Ardnacrusha substation within the hydro power complex will likely form an integral part of the local electricity network. During the operational phase, the Proposed Development cumulatively with the consented Carrowmagowan Wind Farm will complement the national grid development strategy and help in contributing to the region's expected overall wind generation. The proposed 110kV underground grid connection cabling to the existing Ardnacrusha substation within the hydro power complex will likely form an integral part of the local electricity network.

The Proposed Development will assist in meeting increases in electricity demand nationally by exporting electricity into the electricity market. It will contribute to ensuring that adequate electricity supplies are available to support economic activity and growth in a manner fully compatible with Government energy and environmental policies. The Proposed Development will provide a potentially positive cumulative effect on the electricity supply infrastructure when considered cumulatively with the consented Carrownagowan Wind Farm.

#### **12.4.4.3 Waste Management**

##### **Construction Phase**

It is anticipated that the Proposed Development will likely result in a negligible effect on waste management infrastructure in the region during the construction phase. The majority of the planning applications that could potentially have a construction period likely to coincide with the Proposed Development, including the Fahey Beg Wind Farm Development Grid Connection and the Drummin Solar Farm Grid Connection are not anticipated generate a large quantity of waste.

Therefore, cumulative effects with other permitted, planned and existing developments, including the consented Carrownagowan Wind Farm, from the generation of waste on existing waste management infrastructure in the region will not be significant.

##### **Operational Phase**

There will be no waste generated during the operational phase.

### **12.5 Mitigation Measures**

#### **12.5.1 Construction Phase**

##### **12.5.1.1 Transport Infrastructure**

The following best practice measures are proposed to ensure a safe and regulated traffic management system is enforced and are outlined within the TMP (**Appendix 2-3**, Volume III).

- All signage relating to the proposed construction traffic routes for construction traffic will be agreed with Clare County Council;
- Well planned and executed materials delivery programme avoiding peak traffic on typical days will be ensured (i.e. local school start and finish times);
- Adequate parking will be provided on site for employees to ensure parking will not occur on the public road; and
- A road sweeping vehicle will be provided as required to remove any mud that is deposited on the local road in the vicinity of the site access.

##### **12.5.1.2 Built services Infrastructure**

Although it has been determined that the significance of effects on the existing built services network will likely be not significant, the following best practice measures will be implemented during the construction phase:

- All relevant bodies i.e. ESB Networks, EirGrid, Gas Networks Ireland, Eir, Clare County Council etc. will be re-contacted and drawings for all existing underground services along the Proposed Development sought prior to the commencement of the Proposed Development.

- Any underground services encountered will initially be surveyed for levels in order to determine if there is adequate cover available for ducting to pass over these services. A minimum clearance of 300mm is required from the bottom of the ducting to the top of any underground service as per ESB Networks requirements. If this clearance cannot be achieved, the ducting will pass below the service with a minimum 300mm clearance maintained from the top of the ducting to the bottom of the service.
- If the required separation distances cannot be achieved by either going above or below the underground service, then a number of alternative construction options are available (crossing in flat formation, HDD). All excavations will be kept within the public roadway boundaries i.e. in road or grass margins.
- Works during the construction phase, including service diversions and realignment will be carried out in accordance with relevant guidance documents, including Gas Networks Ireland's publication 'Safety advice for working in the vicinity of natural gas pipelines'; the ESB's Code of Practice for Avoiding Danger from Overhead Electricity Lines', 2008 and the HSA 'Code of Practice for Avoiding Danger from Underground Services', 2010;
- The Contractor will be obliged to put measures in place to ensure that there are no significant interruptions to existing services and all services and built services are maintained unless this has been agreed in advance with the relevant service provider; and
- Any construction works in the vicinity of utility networks will be carried out in accordance with the utility providers method statement and service providers Codes of Practice, as well as best practice in accordance with the CEMP submitted in **Appendix 2-2**, Volume III.

### 12.5.1.3 Waste Management

Notwithstanding the effect from the generation and management of solid waste streams arising from the Proposed Development being assessed as imperceptible during the construction phase, the following best practice measures will be implemented:

- Waste is to be managed in accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and section 21A of the Waste Management Act 1996, as amended, as follows: (a)Prevention; (b)re-use; (c)Recycling; (d)Other recovery (including energy recovery); and (e) Disposal;
- All waste to be removed from site is to be undertaken by authorised waste contractors and transported to an authorised facility in accordance with best practice.

### 12.5.2 Operational Phase

No mitigation measures are required.

## 12.6 Residual Impacts and Effects

### 12.6.1 Transport Infrastructure

With the implementation of the best practice measures outlined in **Section 12.5.1.1**, the Proposed Development will still result in additional traffic volumes (within carrying capacity of the road network), temporary road closures and diversions during the construction phase.

No mitigation measures were therefore deemed necessary; however, best practice measures will be followed. The residual effect on transport infrastructure in the area will remain imperceptible and not significant.

There will be no residual effects during the operational phase of the existing transport infrastructure.

### 12.6.2 Built services Infrastructure

With the implementation of best practice measures outlined in **Section 12.5.1.2**, the Proposed Development could still require the suspension of services to facilitate some minor alignment alterations if previously unknown services are encountered during the construction phase. Therefore, the residual effect on the existing built services infrastructure will remain not significant as no mitigation is necessary to reduce the effect of the suspension of services during the construction phase.

There will be no residual effects during the operational phase of the built infrastructure.

### 12.6.3 Waste Management

With the implementation of the best practice measures outlined in **Section 12.5.1.3**, the Proposed Development will still generate solid waste during the construction phase; therefore, the residual effect on waste management infrastructure in the region will remain imperceptible as no mitigation is necessary to reduce the effect from the generation of waste during the construction phase.

There will be no residual effects during the operational phase.

## 12.7 Risk of Major Accidents and Disasters

As outlined in **Chapter 2**, the risk of the Proposed Development causing a major accident or disaster/or being vulnerable to a major accident of disaster is low.

Poor driving conditions caused by events such as adverse weather could result in a Road Traffic Accident (RTA) involving construction vehicles and road users, which could cause significant harm to workers and road users. However, as outlined in **Chapter 2** Description of the Proposed Development, control measures will be in place to reduce risk of a major accident throughout the construction phase; for example, the suspension of construction activities should the conditions be unsafe, as defined in the CEMP (**Appendix 2-2**, Volume III). The effective implementation of the CEMP will therefore reduce the risks to an acceptable level during the construction phase of the Proposed Development.

Once completed, the Proposed Development will be an underground buried electrical service contained within a number of PVC ducts. Grid cables being buried underground by definition, cannot interact with above ground activities or the existing environment. Therefore, there is no opportunity for the grid cables contained within ducts and buried underground to cause a major accident or disaster.

## 12.8 Summary

No significant effects on the existing transport, built services and waste infrastructure from the Proposed Development will occur during construction or operational phases.

The assessment also confirms that there will be no significant cumulative effects as a result of the Proposed Development when assessed in conjunction with all other existing, approved or proposed projects.

## 12.9 References

- EPA. (2022). *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*. Environmental Protection Agency.
- CCC. (2017). *Clare County Development Plan 2017-2023 (As Varied)*, Clare County Council.
- TII. (2014). *Traffic and Transport Assessment (TTA) Guidelines PE-PDV-02045*, Transport Infrastructure Ireland.
- TII. (2016). *Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections PE-PAG-02017*, Transport Infrastructure Ireland.
- TII. (2017). *Rural Road Link Design DN-GEO-03031*, Transport Infrastructure Ireland.