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# 16 TRAFFIC AND TRANSPORT

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## 16.1 Introduction

This chapter of the EIAR reports on the likely significant transport and accessibility effects to arise from the construction phase, operational and maintenance stage, and decommissioning phase of the Proposed Development.

The chapter describes the transport and accessibility policy context; the methods used to assess the potential impacts and likely effects; the baseline conditions at and surrounding the site; the likely transport and accessibility effects taking into consideration embedded mitigation; the need for additional mitigation and enhancement; the significance of residual effects; and inter-project cumulative effects.

The chapter is supported by the following technical appendices:

- Appendix 16.1: Traffic survey data;
- Appendix 16.2: AADT Calculations;
- Appendix 16.3: Traffic Impact;
- Appendix 16.4: Cumulative Effects;
- Appendix 16.5: Turbine Delivery and Grid Connection Route Assessment; and
- Appendix 5.2 to EIAR Chapter 5, Project Description: Construction Traffic Management Plan.

The Proposed Development comprises an 11-turbine wind farm on a site located within forested and agricultural lands. It also comprises a Grid Connection Route (GCR) for connection to the national grid, and temporary accommodating works along a Turbine Delivery Route (TDR) to the wind farm, to facilitate the delivery of large components from the port of delivery. The GCR and TDR are both assessed in this EIAR and form part of the planning application.

The key components that are described throughout the EIAR are listed below:

- The wind farm which consists of 11 wind turbines (4 turbines across the Eastern Development Area (Eastern DA) and 7 turbines across the Western Development Area (Western DA));
- The grid connection route and underground cables (also referred to as GCR and UGC); and,
- The turbine delivery route (TDR).

The term 'Proposed Development' collectively describes the above three components. Further information about the Proposed Development is presented in **EIAR Chapter 5: Project Description**.

## 16.2 Statement of Authority

This chapter of the EIAR assesses the likely significant effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction phase, operational and maintenance phase and decommissioning phase of the Proposed Development.

This Chapter of the EIAR has been prepared by the following:

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Chartered Engineer

Ronan is a Chartered Engineer with 19 years' post graduate experience. Projects worked on include roads, drainage and civil infrastructure design and project management for residential, retail, data centres, commercial and wind farm developments from feasibility through to construction.

Ronan has led numerous planning applications and infrastructure designs for a variety of developments. These developments have ranged from small scale residential projects to multimillion Euro retail, data centre and wind farm projects.

Ronan specialises in transportation planning and site assessment, preliminary design and detailed design of development. Ronan has completed a number of Traffic and Transport EIAR chapters on sites throughout Ireland.

The chapter describes: the methodology; the receiving environment at the application site and surroundings; the characteristics of the proposal in terms of physical infrastructure; the potential impact that proposals of this kind would be likely to produce; the predicted impact of the proposal examining the effects of the overall project on the local road network; the remedial or mitigation measures required to prevent, reduce or offset any significant adverse effects; and residual effects.

### **16.3 Consultations**

An EIA Scoping Report was issued to relevant consultees, which included the relevant roads authorities, and no specific issues were raised around traffic and transportation

### **16.4 Methodology**

IEMA (Institute of Environmental Management and Assessment) Environmental Assessment for Road Traffic has been used for the appraisal of traffic impacts likely to arise from the Proposed Development. The Environmental Assessment for Road Traffic offers a systematic approach to the assessment of the traffic impacts for developments on the local highway network.

The Environmental Assessment for Road Traffic provides a checklist for the assessment of environmental impacts arising from the changes in traffic levels during the mobilisation, construction, operational, maintenance and decommissioning phase of the project. These impacts include driver severance and delay, pedestrian severance and delay, pedestrian amenity, accidents and safety and hazardous and dangerous roads.

The sensitive receptors are pedestrians, cyclists and road users that use the local road network. The study area includes links and junctions which provided the most direct access routes to the application site and are, therefore, most likely to be affected by site traffic (construction, operational and decommissioning) traveling to/from the development site.

Any links that do not meet the defined selection criteria have not been considered as part of the study area and have been excluded from further analysis.

A site visit was carried out on the 18<sup>th</sup> of October 2023 to assess the existing local conditions.

Construction Phase

The IEMA Guidelines state that two rules need to be considered when assessing the impact of development traffic on a highway link:

- Include highway links where traffic flows would increase by more than 30% (or the number of heavy goods vehicles (HGVs) would increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows would increase by 10% or more.

Less than a 30% increase is considered to result in imperceptible changes in the environmental effects of traffic. The IEMA Guidelines consider that projected changes in traffic flows of less than 10% create no discernible environmental effect.

Specifically, sensitive areas referred to above may include accident 'black spots', conservation areas, hospitals or links with high pedestrian flows.

This is a similar approach to that outlined in TII's Traffic and Transport Assessment Guidelines (PE-PDV-02045). The Traffic and Transport Assessment Guidelines set out advisory thresholds, with respect to traffic movements, for when a Traffic and Transport Assessment is required as follows:

- 100 trips in / out combined in the peak hours for the proposed development.
- Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.

Should the development exceed 100 trips in / out combined in the peak hours for the proposed development as well as exceeding 10% of turning movements at junctions with and on National Roads or Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive a full Traffic and Transport Assessment would be required.

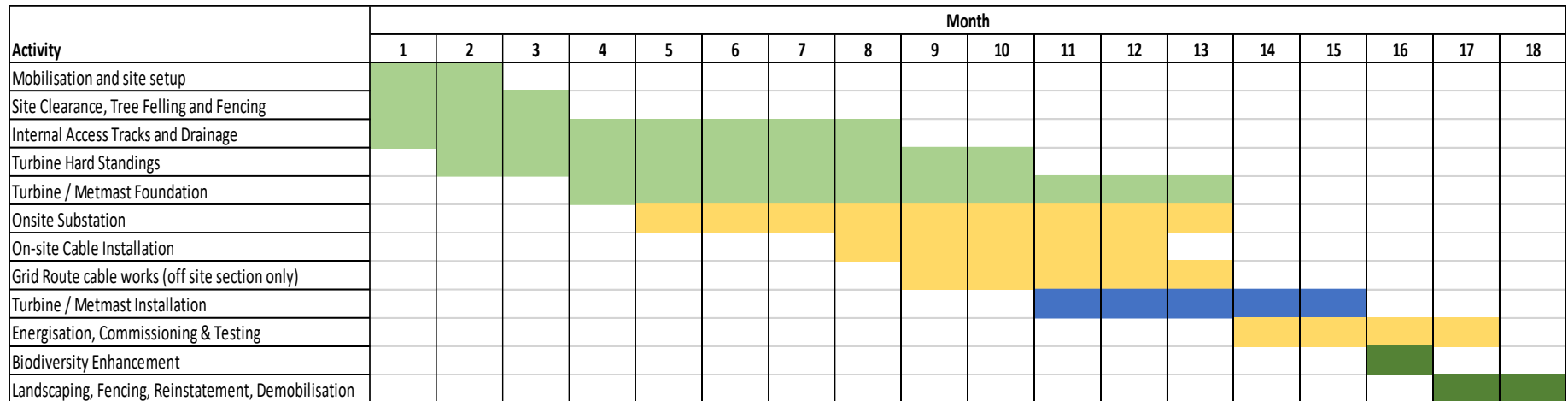
The Construction Phase assessment has been limited to roads immediately adjacent to the application site and any roads further afield where traffic would increase by greater than 30% or 10% at nodes such as accident 'black spots', conservation areas, hospitals or links with high pedestrian flows.

## Operational Phase

The Proposed Development is anticipated to be completed and fully operational in 2030, when all turbines are active. The assessment considers the full quantum of development at this future year.

Estimated trip generation for the Proposed Development was provided for the assessment. Trips were distributed onto the local highway network based upon the directional splits from the 2023 traffic survey data that was commissioned as part of this application. Refer to Appendix 16.3 Traffic Impact for further details.

It is anticipated that the construction of the Proposed Development will take approximately 18 - 24 months. The expected construction programme is presented in Figure 16.1.



**Figure 16.1: Construction Program**

Estimated trip generation for the Proposed Development will be provided as part of this assessment.

#### Effects on Pedestrian /Cyclist

Pedestrian / Cyclist severance, delay, amenity, fear and intimidation will be assessed by considering the baseline traffic flows and future traffic flows. The effect on Pedestrian / Cyclists is directly linked to the increase in traffic levels, the proportion of HGV traffic and vehicle speeds.

#### Driver Delay

This assessment considers the duration of delays or benefits i.e., less time to get through the network as a result of network improvements, occurring to the road users on the local road network based upon the estimated increase in traffic as a result of the Proposed Development during the construction phase and operational phase.

#### Accidents and Safety

An assessment of the effect of the change in traffic flows on the potential increase/decrease in the number of accidents recorded will be undertaken for both the construction phase and operational phase.

## 16.5 Policy Review

The following policies have been applied when developing the methodology for this assessment:

- Environmental Protection Agency (EPA) Guidelines on The Information to Be Contained in The EIAR (2022);
- IEMA Impact Assessment Guide to Delivering Quality Development (2016);
- Transport Infrastructure Ireland (TII) Traffic and Transportation Assessment Guidelines (2014);
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation (1994);
- National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts (PE-PAG-02039) (October 2016) - TII; and
- The Route to Sustainable Commuting NTA (2001).

This chapter of the EIAR has been drafted based on the following legislation, policies and published guidance:

- National Legislation:
  - National Planning Framework (NPF) 2019
- Regional Policy:
  - Clare County Development Plan 2023-2029
- National guidance and industry standards:
  - IEMA Environmental Assessment for Road Traffic, 2023

- Environmental Protection Agency (EPA) Guidelines on The Information to Be Contained in The EIAR (2022)

National Planning Framework Project Ireland 2040 (NPF) 2019

The National Planning Framework (NPF) was published in February 2018, and updated in January 2019, setting out a vision for Ireland in land use and planning terms to 2040. The NPF replaced the National Spatial Strategy, once it was adopted, as the long-term land use and planning vision for Ireland.

National Policy Objective 55 states the following:

‘Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.’

Clare County Council Development Plan 2017-2023

The Clare County Development Plan 2017-20223 has been prepared in accordance with the requirements of the Planning and Development Act 2000 (as amended) and sets out an overall strategy for the proper planning and sustainable development of the County.

One of the major challenges facing the County during the life of this Plan is the need to promote and provide for sustainable transport options, whilst maintaining the effectiveness of the County’s Road network.

Volume 5 of the Clare County Development Plan 2017-20223 sets out a clear strategy with regard to wind energy.

**Volume 5** Clare Wind Energy Strategy This volume comprises a detailed County-wide Wind Energy Strategy, supplemented by maps which set out Clare County Council’s strategy for informing wind energy development, having regard to economic, environmental, and visual issues.

IEMA Environmental Assessment for Road Traffic, 2023

IEMA methodology has been used for the appraisal of traffic impacts from the Proposed Development. It should be noted that Republic of Ireland forms part of the IEMA Regional Network.

The purpose of the IEMA Guidelines is to provide the basis for a systematic, consistent, and comprehensive coverage for the appraisal of traffic impacts for a wide range of development projects.

The EIA process should be a continuous activity running throughout the planning and design stages of a project.

To ensure the comprehensive coverage of the environmental impacts arising from changes in traffic levels, the IEMA Guidelines identify a checklist of potential impacts such as driver severance and delay, pedestrian severance and delay, pedestrian amenity, accidents and safety, hazardous and dangerous roads etc.

According to the IEMA Guidelines the assessment of the environmental impacts of traffic requires the following stages:

- Determination of existing and forecast traffic levels and characteristics;
- Determining the time period suitable for assessment;
- Determining the year of assessment; and
- Identifying the geographical boundaries of assessment.



Further to the above, the study area would be defined by identifying any link or location where it is considered that significant environmental effects may occur as a result of the proposed scheme.

The IEMA Guidelines state two rules to be considered when assessing the impact of development traffic on a highway link:

- Include highway links where traffic flows would increase by more than 30% (or the number of heavy goods vehicles (HGVs) would increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows would increase by 10% or more.

Less than a 30% increase is considered to result in imperceptible changes in the environmental effects of traffic. The IEMA Guidelines considered that projected changes in traffic flows of less than 10% create no discernible environmental effect.

Specifically, sensitive areas referred to above may include accident 'black spots', conservation areas, hospitals, or links with high pedestrian flows.

EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports, 2022. The Guidelines have the primary objective of improving the quality of EIARs. The guidance presents the terminology of effects which has been applied to this report, where appropriate.

## **16.5.1 Baseline surveys / Data Gathering**

### *16.5.1.1 Technical Scope*

The technical scope of the assessment has considered the potential impacts of the traffic generation during construction phase, operational phase (including maintenance) and decommissioning phase of the Proposed Development on relevant receptors.

### *16.5.1.2 Spatial Scope*

In accordance with the IEMA Guidelines, the study area has been defined by identifying any link or location where it is considered that significant environmental effects could occur as a result of the Proposed Development.

The local highway network study area has been informed by the following two rules, as set out in IEMA Guidelines in 16.4 of this Chapter. Thus,

1. The assessment has been undertaken when the perceived environmental impact is at its greatest during the construction stage, with the expected peak of construction set to occur in Month 8.
2. The assessment has considered the 'Do Nothing scenario', which assumes no proposed development, against the 'Do Something' scenario, which includes the same baseline traffic as the 'Do Nothing' but also includes Proposed Development traffic.

Construction traffic will travel to/from the development area using primary, secondary, and tertiary roads. Key haulage routes are likely to coincide with the primary, secondary, and tertiary roads that lead to the site.

Key nodes along the haulage route have been identified in Figure 16.2.



To quantify the volumes of traffic movements at key points on the road network adjacent to the site, a set of classified turning movement traffic counts were commissioned.

Accordingly, classified counts were carried out on the 17<sup>th</sup> of October 2023 at locations as shown in Figure 16.1.

Note, Site 5 leads to the Eastern DA. Given the proximity of the access road leading to the Western DA, referred to as Site 5a, no traffic counter was placed at this location as the AADT of the junction are likely to be similar. Therefore, the AADT figure for Site 5a is assumed to be the same as Site 5.

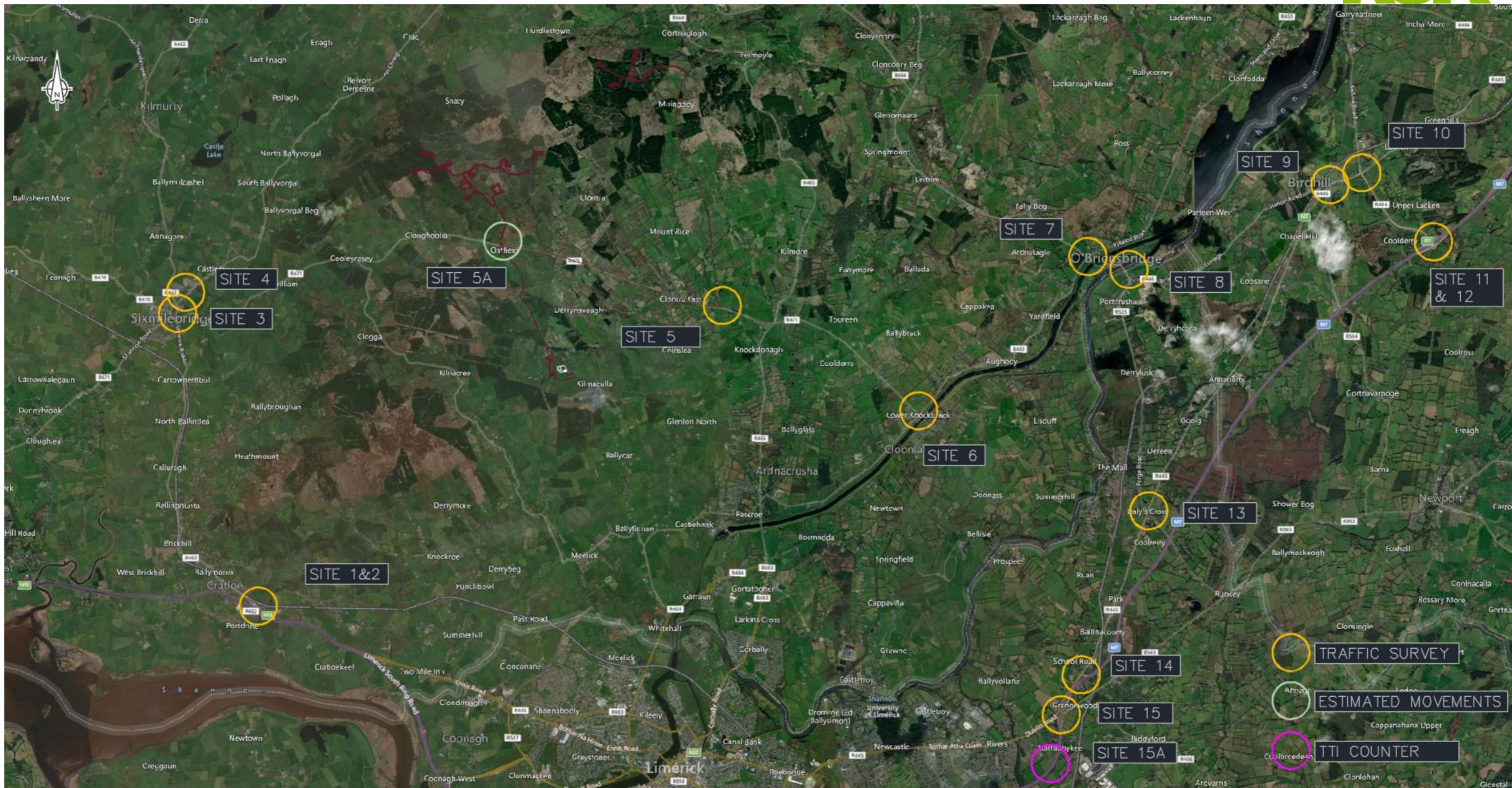


Figure 16.2: Traffic survey locations

These above locations are summarised in Table 16.1.

**Table 16.1: Traffic Survey Locations**

Traffic Count Locations			
Site No	Location	Coordinates	Type
1	Junction 5 N18	X = 549534.972 Y = 660152.569	Off ramp
2	Junction 5 N18	X = 549534.972 Y = 660152.569	On ramp
3	R471/R462	X = 547846.728 Y = 665936.788	Crossroads
4	R462/L3016	X = 547842.751 Y = 666191.057	T-junction
5a	R471/Eastern Site Access	X = 554211.964 Y = 667373.911	T-junction
5	R471/Western Site Access	X = 558526.063 Y = 666120.216	T-junction
6	R471/R463	X = 562386.524 Y = 664072.945	Crossroads
7	R466/R463	X = 565661.023 Y = 667115.899	Crossroads
8	R466/An Tsraid Mhor	X = 566464.567 Y = 666863.883	T-Junction
9	R466/N7	X = 570397.816 Y = 668516.976	Crossroads
10	R494/N7	X = 571020.049 Y = 668752.315	Roundabout
11	N7/M7 Junction 27	X = 572416.554 Y = 667405.331	On Ramp
12	N7/M7 Junction 27	X = 566853.240 Y = 662151.191	On Ramp
13	R445/R525	X = 565530.984 Y = 658946.362	T-Junction
14	R445	X = 565141.840 Y = 658168.471	Roundabout
15	R445/Grangewood	X = 562386.524 Y = 664072.945	Roundabout

#### 16.5.1.3 Temporal Scope

In line with EPA guidance, as outline in EIAR **Chapter 2: EIAR Methodology & Relevant Guidelines**, the duration of effects has been classified using the following: Momentary (seconds to minutes), Brief (<1 Day), Temporary (<1 Year), Short-term (1 to 7 years), Medium-term (7 to 15 years), Long-term (15 to 60 years), Permanent (>60 years).

The assessment has considered impacts arising during the construction stage (approximately 18-24 months) which would be expected to be short-term in nature and from the operational stage which would be expected to be long-term to permanent.

The assessment will consider the future years at which the peak construction traffic of the development occurs and when the Proposed Development is built out and fully operational. Based on **Table 16.1**, peak construction will occur in Month 8 of the construction program.

The assessment scenarios are anticipated to be:

- Existing Baseline – ‘Do-Nothing’;
- Construction Phase - ‘Do-Nothing’+ Construction Traffic;
- Cumulative Impact - ‘Do-Nothing’+ Construction Traffic + cumulative development; and
- Operational Phase - ‘Do-Nothing’+ Operational Traffic.

#### 16.5.1.4 Desktop study

#### 16.5.1.5 Field work

Manual Classified Turning Count was undertaken on 17th October 2023 between 07:00-10:00 and 16:00-19:00.

This data was converted into AADT figures using Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts (PE-PAG-02039) (October 2016) published by TII.

The recorded data, measured in vehicles, is illustrated in the table below along with the expansion factor and corresponding estimate of the AADT.

**Table 16.2: AADT Figures**

Location	Total Two-Way Movements	Factor	AADT (Vehicles)
Site 1	1478	0.449	3292
Site 2	1406	0.449	3131
Site 3	4444	0.440	10100
Site 4	3110	0.440	7068
Site 5a	574	0.440	1305
Site 5	574	0.440	1305
Site 6	2584	0.440	5873
Site 7	4073	0.440	9257
Site 8	2776	0.440	6309
Site 9	2431	0.440	5525
Site 10	3940	0.440	8955
Site 11 & 12	1032	0.449	2298
Site 13	5164	0.440	11736
Site 14	6308	0.449	14049
Site 15*	29642	0.449	66018
Site 16*	N/A	N/A	37095

\* Site 15 has a TII AADT Counter in close proximity to it. The nearest station is Station Id: TMU M07 180.0 E/Site 16 which recorded an AADT of 31,753 for 86.% coverage in 2023. For a full year AADT, this would result in a AADT of c. 37,095. The AADT recorded at is TMU M07 180.0 E also included in the assessment.

Various factors can account for the variance in AADTs measures (TMU M07 180.0 E) and calculated using Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts (PE-PAG-02039) (October 2016). The limitations in the use of Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts (PE-PAG-02039) (October 2016) is outlined in the report.

### 16.5.2 Assessment Methodology

In the case of the proposed development the sensitive receptors have been considered to be pedestrians and cyclists, road users and the local highway network. The study area includes links and

junctions which provide the most direct access routes to the application site and are, therefore, most likely to be affected by traffic arriving and departing the site.

Any links that do not meet defined selection criteria, have not been considered as part of the study area and have been excluded from further analysis in the assessment of significance of effect section.

### **16.5.3 Assessment Scenarios**

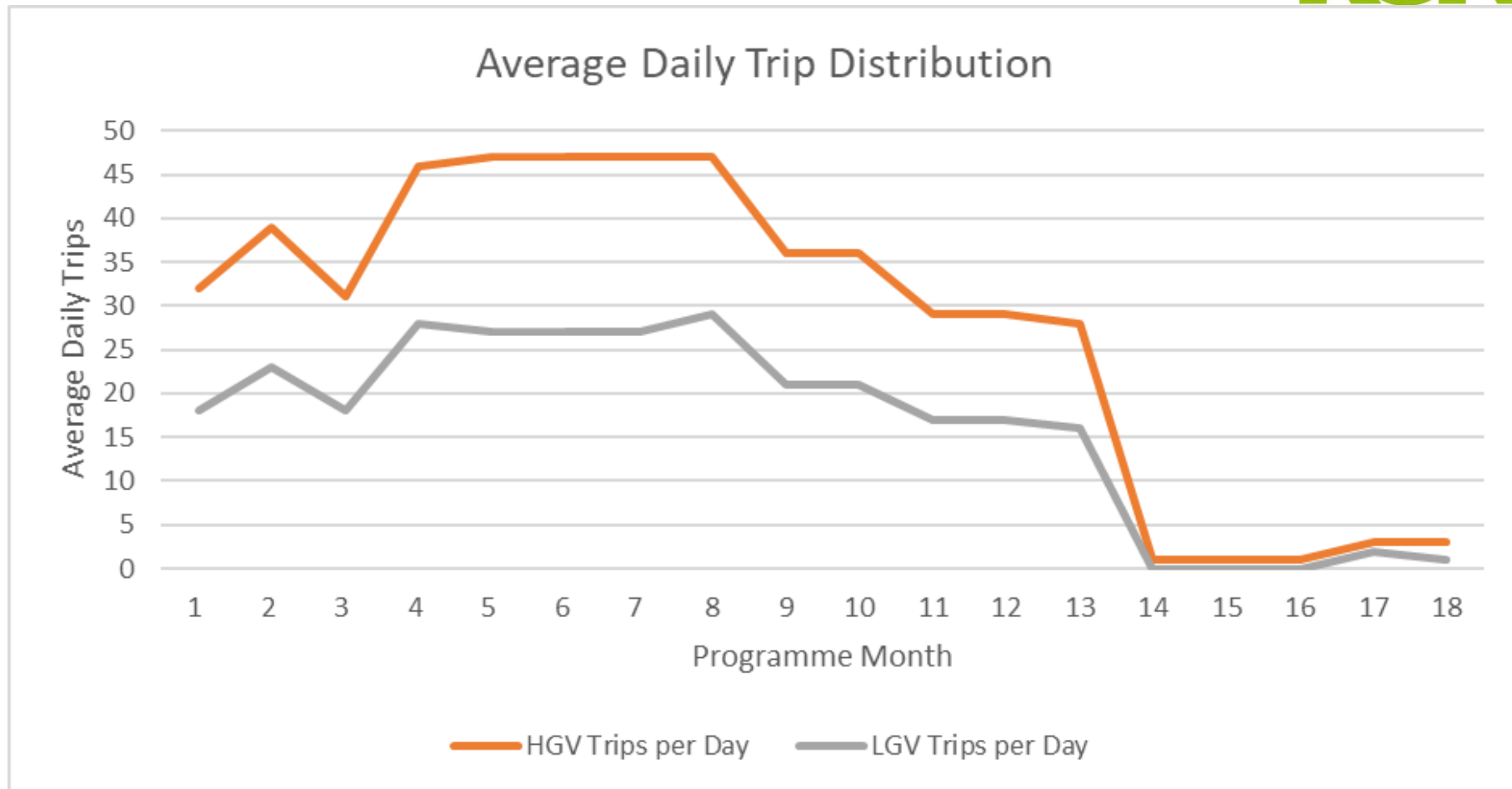
#### **Construction Stage**

The construction traffic assessment has been limited to the roads immediately adjacent to the application site, as defined by the planning boundary, and any roads further afield where traffic increases by 30% or by 10% at nodes such as accident 'black spots', conservation areas, hospitals, or links with high pedestrian flows.

Potential construction traffic impacts from the Proposed Development have been assessed based upon the number of vehicle movements provided by the Project Team.

The assessment focuses on the most intensive year in terms of the number of construction vehicle movements, which has been considered against the 'Do Nothing' and 'Do Something' scenarios.

As mentioned, based on **Table 16.1** and **Figure 16.2** Figure 16.2: Traffic survey locations, the most intensive month during the construction phase in terms of vehicle movements would be Month 8.



**Figure 16.3: Average Daily Trip Distribution**

## **Operational Phase**

The Proposed Development is anticipated to be completed and fully operational in 2030, when all turbines will be operational. The assessment considers the full quantum of development at this future year.

Estimated trip generation for the Proposed Development was provided for the assessment.

Trips were distributed onto the local highway network based upon the directional splits from the classified traffic counts.

## **Pedestrian Severance, Delay, Amenity, Fear and Intimidation**

Pedestrian severance, delay, amenity, fear and intimidation has been assessed by considering baseline traffic flows, future year traffic flows, as well as the potential impact of the proposed development in terms of change in traffic flows on each link within the study area.

Consideration has been given to daily traffic flows (24-hour Annual Average Daily Traffic (AADT)) in respect of pedestrian severance, amenity, fear and intimidation for the construction and operational phases.

## **Driver Delay**

The assessment considers the duration of delays or benefits occurring to road users on the local highway network based upon the estimated increase in traffic resulting from the Proposed Development for the construction and operational phases.

## **Accidents and Safety**

The likely increase or decrease in the number of accidents resulting from the changes in traffic flows and composition for the construction and operational phases has been considered.

## **Cumulative Assessment**

A review of cumulative schemes and their potential impacts on traffic flows on the local highway network has been undertaken. Predicted traffic flows generated by each of the following cumulative schemes have been considered:

1. Ballycar WF
2. Boolynagleragh Lissycasey
3. Boolynagleragh-Boolybrien, Knockatunna and Rathcronev
4. Carrownagowan
5. Castlewaller
6. Fahybeg Onshore Wind Farm
7. Knockshanvo
8. Lackareagh WF
9. Knockshanvo
10. Loughaun North
11. Unknown Windfarm No. 1
12. Unknown Windfarm No. 1



13. Parteen Turbine

14. Vision Care Turbine

The Proposed Development will consist of up to 11 no. Wind Turbines.

All the aforementioned cumulative schemes are located in close proximity to the site.

The traffic data associated with the selected cumulative developments has been sourced from their respective EIARs. Where data does not exist, it has been estimated.

#### **16.5.4 Assessment Criteria**

The EPA and IEMA Guidelines were reviewed in order to identify appropriate significance criteria applicable to the assessment.

Paragraph 4.5 of the IEMA Guidelines states that: “For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible”.

Under EPA guidelines quality effects are described as either:

- Positive – a change which improves the quality of the environment (such as reduction of traffic, travel time or patronage, or provision of a new service, access or facility);
- Neutral – no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error; and
- Adverse – a change which reduces the quality of the environment (such as increase of traffic, travel time, patronage or loss of service or facility).

The significance of pedestrian severance, delay, amenity, fear and intimidation effects has been determined by considering future baseline traffic flows obtained from the traffic surveys, as well as the potential impact of the proposed development in terms of change in traffic flows on each link within the study area by reference to the IEMA Guidelines and applying professional judgment.

#### **Pedestrian Severance**

The IEMA Guidelines acknowledge that the measurement and prediction of severance is extremely difficult and that the correlation between the extent of severance and the physical barrier of a road is not clear.

It notes that there are no predictive formulae which give simple relationships between traffic factors and levels of severance. However, the IEMA Guidelines do accept that in general, marginal changes in traffic flows are, by themselves, unlikely to create or remove severance.

Factors which need to be considered when determining severance comprise road width, traffic flows, speed of traffic, the presence of pedestrian crossing facilities and the number of pedestrian movements across the affected route.

The IEMA Guidelines suggest that:

- Changes in flow of up to 30% would produce slight changes in severance;
- Changes in flow of up to 60% would produce moderate changes in severance; and
- Changes in flow of up to 90% would produce substantial changes in severance.

It is recognised that these are guidelines only and are highly dependent on existing ambient traffic levels.

They are not considered to be definitive measures of severance and should be used with care and regard paid to specific local conditions. The guidelines have been used to inform impact magnitude criteria for the assessment. Professional judgment has been applied to identify the likely scale of effects.

### **Pedestrian Delay**

The IEMA Guidelines note that changes in the volume, composition and/or speed of traffic may affect the ability of people to crossroads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes. The IEMA Guidelines do not set any thresholds for absolute or actual changes in delay, recommending instead that assessors use their judgment to determine the significance of the impact.

The IEMA Guidelines refer to a report published by the Transport Research Laboratory (TRL) as providing a useful approximation for determining pedestrian delay. The TRL research<sup>1</sup> concludes that the mean pedestrian delay was found to be eight seconds at flows of 1,000 vehicles per hour, and below 20 seconds at 2,000 vehicles per hour for various types of crossing condition.

A two-way flow of 1,400 vehicles per hour has been adopted as a lower threshold for assessment (equating to a mean 10 second delay for a link with no pedestrian facilities) in the TRL report.

Below this flow, pedestrian delay is unlikely to be a significant factor. This is deemed to be a robust starting point for narrowing down the modelled routes within the study area and ensuring the routes selected exceeded the suggested threshold of analysis in IEMA Guidelines. It should be noted that for controlled forms of pedestrian crossing the pedestrian delays are less.

As a result, any road with a two-way flow of less than 1,400 vehicles per hour is deemed to have a negligible effect. Roads above this are assessed on the basis of professional judgment.

### **Pedestrian Amenity**

IEMA Guidelines define pedestrian amenity as the relative pleasantness of a journey and may be influenced by fear and intimidation if they are relevant. As with pedestrian delay, pedestrian amenity is considered to be affected by traffic volumes and composition along with pavement width and pedestrian activity. The IEMA Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flows are halved or doubled.

The Guidelines have been used to inform impact magnitude criteria for the assessment. Professional judgment has been applied to identify the likely scale of effects.

#### **Pedestrian Fear and Intimidation**

A number of factors are considered relevant in determining changes in the level of fear and intimidation experienced by pedestrians and cyclists including volume of traffic; percentage of HGVs; speed of traffic; proximity to people; and the availability and quality of pedestrian infrastructure.

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<sup>1</sup> Transport Research Laboratory, 1991. The Estimation of Pedestrian Numbers.

**Table 16.3: Pedestrian Fear and Intimidation Criteria**

Pedestrian Fear and Intimidation Criteria				
Degree of Hazard	Average Traffic Flow over 18hr day (vehicles per hour)	Total 18-hr Flow	HGV	Average Speed (mph)
Extreme	1,800+	3,000+		20+
Great	1,200–1,800	2,000–3,000		15-20
Moderate	600–1,200	1,000–2,000		10-15

The IEMA Guidelines set out the criteria reproduced in **Table 16.3** for measuring the effects of fear and intimidation.

The IEMA Guidelines stress the need for professional judgment when applying the above criteria. Accordingly, the guidelines have been used to inform impact magnitude criteria for the assessment. Professional judgment has been applied to identify the likely scale of effects.

#### Driver Delay

IEMA Guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system. Professional judgment has been applied to determine the significance of residual effects.

#### Accidents and Safety

There is no formal published guidance for the assessment of accidents and safety. Therefore, professional judgment has been applied to assess the implications of local circumstances and the Proposed Development's likely effect which may increase or decrease the risk of accidents.

### 16.5.5 Receptor Sensitivity/Value Criteria

#### Highway Network

The potential receptors are the users of transport networks within the relevant study area. The sensitivity of a road can be defined by the vulnerability of the user groups who are likely to use it, i.e., the elderly or children.

A sensitive area may be where pedestrian activity is high, near a school, or an accident black spot.

It also takes into account the existing nature of the road, i.e., an existing residential area is likely to be more sensitive than a road capable of carrying larger volumes of traffic such as an R-Road, N-Road or M-Road.

Professional judgement has been used to define the value of receptors in accordance with LA 1047 Section 3.1.

The sensitivity of receptors has been classified as low, medium or high, in accordance with the criteria set out in **Table 16.4**.

**Table 16.4: Receptor Sensitivity**

Pedestrian Fear and Intimidation Criteria	
Sensitivity	Criteria
High	Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians.
Medium	Receptors of moderate sensitivity to traffic flow: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, recreation facilities.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, tourist attractions and residential areas with adequate footway provision.
Very Low	Receptors with very low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

**Impact Magnitude Criteria**

The magnitude of impact has been classified as low, medium or high, in accordance with the criteria set out in **Table 16.5**.

**Table 16.5: Impact Magnitude Criteria**

Impact Magnitude Criteria				
Impact	Assessment Criteria			
	Low	Medium	High	Very High
Severance	Increase in total traffic flows of 30% or under	Increase in total traffic flows of 30% – 60%	Increase in total traffic flows of 60%-90%	Increase in total traffic flows of 90% and above
Pedestrian Severance, Delay, Amenity, Fear and Intimidation	<p>This has been assessed on a case-by-case basis using professional judgement subject to the sensitivity and vulnerability of the receptor.</p> <p>Threshold for judging the significance of changes to pedestrian amenity where the traffic flows is halved or doubled.</p>			
Driver Delay	<p>This has been assessed on a case-by-case basis using professional judgement subject to the sensitivity and vulnerability of the receptor. Impacts are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.</p>			
Accidents and Safety	<p>Accident data for the local area have been reviewed and professional judgement have been applied to assess the implications of potential increase/decrease in traffic.</p>			

**Scale of Effect Criteria**

Impacts have been assessed on the basis of the value/sensitivity of receptors against the magnitude of impact to determine the scale of effect as presented in **Table 16.6**. The matrix has been informed by the EPA Guidelines.

**Table 16.6: Scale of Effect Criteria**

Scale of Effect Criteria				
Magnitude	Sensitivity of Receptors			
	Very Low	Low	Medium	High
Low	Imperceptible	Not Significant	Slight	Slight
Medium	Not Significant	Slight	Slight	Moderate-Significant
High	Slight	Slight	Moderate-Significant	Very Significant
Very High	Slight	Moderate-Significant	Very Significant	Profound

The criteria used to assess whether an effect is significant or not, are given in the EPA Guidelines 2022 and are set out in EIAR **Chapter 2: EIAR Methodology & Relevant Guidelines**. The significance of effects is determined by consideration of the sensitivity of the receptor, the magnitude of impact and scale of the effect. In assessing the significance of an effect, consideration has been given to the quality, duration, probability and type of the effect, and its geographical extent, and the application of professional judgement.

Based on professional judgement, moderate-significant, very significant and profound effects are considered significant in EIA terms.

Where the existing baseline HGV or total traffic flows are very minor, a small increase in vehicles would produce a large change in magnitude whereas in real terms the increase in traffic may still be considered to be negligible or slight. In these instances, appropriate professional and experienced judgements have been made.

#### **Nature of Effect Criteria**

- The nature of the effect has been described as either adverse , neutral or positive as follows:
- Positive – An advantageous effect to a receptor;
- Neutral – An effect that on balance, is neither positive nor adverse to a receptor; or
- Adverse – A detrimental effect to a receptor.

#### **16.5.6 Assumptions and Limitations**

Traffic generated from the proposed development is assigned to the network based on existing directional flows. Directional flows are based on traffic survey data.

## 16.6 Baseline Conditions

### 16.6.1 Existing Baseline

The following paragraphs provide an overview of the current baseline transport and accessibility conditions within the study area considering the following:

- pedestrian and cycle facilities and access;
- public transport accessibility; and
- the operation of the existing highway network.

Consideration is also given to the existing baseline flows where available. This analysis provides the baseline context against which the transport movements and accessibility of the Proposed Development have been assessed.

The proposed site consists of the amalgamation of various landholdings to facilitate the development of 11 wind turbines. The site is in or bound within the townlands of Ballycar (North), Belvoir, Cloghera, Cloonsheerea, Cloontra, Cloontra East, Cloontra West, Crag, Derrynaveagh, Derryninnaan, Drumsillagh or Sallybank (Merritt), Drumsillagh or Sallybank (Parker), Gortacullin, Knockbrack Lower, Knockshanvo, Kyle, Mountrice, Oatfield and Snaty (Massy), Co. Clare.

#### *16.6.1.1 Local Highway Network*

The site will be access via 2 No. site access.

##### **Access No. 1**

The accessed using the L3016 via the R471.

The L3016 is a narrow single track road providing access to agricultural lands and a number of standalone houses/farmyards.

It forms a priority-controlled junction with the R471 to the south and 'Crag' to the north.

There was no posted speed limit on the L3016, however, based on the vertical and horizontal alignment, road width and other characteristics, the 85<sup>th</sup> percentile speed is estimated at between 20km/h to 30km/h.

No facilities for pedestrians or cyclists were noted on the L3016 in the vicinity of the Proposed Development.

No public lighting was noted on the L3016 in the vicinity of the Proposed Development.

##### **Access No. 2**

The Eastern Development Area (EDA) will be accessed using an Unnamed Road via the R471.

The Unnamed Road is a single carriageway road providing access to agricultural lands and a number of standalone houses/farmyards.

It forms a priority-controlled junction with the R471 to the south and 'Crag' to the north with various junctions with local farm tracks off it.

There was no posted speed limit on an Unnamed Road but based on the vertical and horizontal alignment, road width and other characteristics, the 85<sup>th</sup> percentile speed is estimated at between 40km/h to 50km/h.

No facilities for pedestrians or cyclists were noted on the Unnamed Road in the vicinity of the Proposed Development.

No public lighting was noted on the Unnamed Road in the vicinity of the Proposed Development.

#### **R471**

The R471 is a single carriageway road that links Sixmilebridge in the west to Cloonlara in the east.

It is assumed that a speed limit of 80km/h operates along the R471 in the vicinity of the proposed development.

No facilities for pedestrians or cyclists were noted R471 in the vicinity of the Proposed Development.

No public lighting was noted on the R471 in the vicinity of the Proposed Development.

#### **R465**

The R465 is a single carriageway road that links Ardnacrusha in the south to Bodyke in the north.

It is assumed that a speed limit of 80km/h operates along the R465.

### **16.6.2 Public Transport**

#### *16.6.2.1 Bus Services*

There are no bus facilities located in the vicinity of the Proposed Development.

The nearest bus stops (Stop 609561 and Stop 336521) are located c. 8.1km from the Proposed Development.

The 343 bus route services Sixmilebridge providing a service to/from Limerick and Ennis via Shannon. Up to four services per day operate during the morning and evening.

#### *16.6.2.2 Rail*

There are no rail facilities located in the vicinity of the Proposed Development.

The nearest train station is located c. 8.8km from the Proposed Development at Sixmilebridge Train Station.

Sixmilebridge Train Station is an unmanned station providing the following services:

- Dublin Heuston - Limerick and Ennis;
- Galway – Limerick;
- Galway - Limerick (Connections with Cork and Tralee); and
- Waterford - Clonmel - Limerick Junction (Connections with Dublin, Cork, Limerick and Galway).

Clare County Council operates an 84-space car park at Sixmilebridge Train Station.

Sheltered bike parking is also available at Sixmilebridge Train Station.



### **16.6.3 Walking and Cycling Network**

#### *16.6.3.1 Pedestrians and Cyclists*

No pedestrian or cyclists' facilities are located within the vicinity of the Proposed Development.

### **16.6.4 Accident Data**

The RSA has a statutory remit to report on fatal, serious and minor injury collisions on public roads. The RSA receive collision data from An Garda Síochána and produce official statistics to help develop evidence-based road safety interventions.

The RSA are in the process of reviewing our road traffic collision (RTC) data sharing policies and procedures. Record-level RTC data cannot be shared until this review is complete.

Accident data has been requested from the RSA but at the time of writing no accident data has been made available by the RSA.

## **16.7 Receiving Environment**

## **16.8 Potential Effects of the Proposed Development**

### **16.8.1 Do-Nothing Scenario**

If the Proposed Development does not proceed there will be no additional traffic generated or works carried out on the road network and therefore no effects with respect to traffic.

### **16.8.2 Construction Phase**

#### *16.8.2.1 Wind Farm Construction*

Construction activities, including but not limited to ground works, foundation pouring and equipment installation, will result in a temporary uplift in traffic on the local roads network.

The peak construction period would be in Month 8 of the construction program when there would be a maximum of 76 construction vehicle movements per day, as identified in **Table 16.7**.

**Table 16.7: Maximum Daily Construction Stage Trip Generation**

Maximum Daily Construction Stage Trip Generation			
Period	Total Trips per Month	Total Trips Per Week	Total Trips Per Day
Month 1	1283	299	50
Month 2	1595	371	62
Month 3	1250	291	49
Month 4	1888	440	74
Month 5	1907	444	74
Month 6	1907	444	74
Month 7	1907	444	74
Month 8	1939	451	76
Month 9	1451	338	57
Month 10	1451	338	57
Month 11	1162	271	46
Month 12	1162	271	46
Month 13	1130	263	44
Month 14	24	6	1
Month 15	24	6	1
Month 16	8	2	1
Month 17	104	25	5
Month 18	102	24	4
Total	18392	4278	713
Average	1127	263	44
Max	1939	451	76

Light and heavy vehicle construction traffic has been distributed across the surrounding network based on current directional flows at Site Access Route No. 1 (Survey Site 4) and Site Access Route No. 2 (Survey Site 5).

There are no highway links identified in the **Table 16.8** with an increase over 10% in construction vehicle movements.

**Table 16.8: Percentage Increase between Do Nothing and Do Something Construction Phase**

Percentage Increase between Do Nothing and Do Something Construction Phase			
Location	Construction Phase		
	Survey Flows	Development Flows	% Impact
Site 1	3292	7	0.20%
Site 2	3131	7	0.21%
Site 3	10100	21	0.21%
Site 4	7068	14	0.69%
Site 5a	1305	49	5.02%
Site 5	1305	65	5.02%
Site 6	5873	55	0.94%
Site 7	9257	55	0.59%
Site 8	6309	2	0.03%
Site 9	5525	2	0.03%
Site 10	8955	2	0.02%
Site 11 & 12	2298	53	2.31%
Site 13	11736	53	0.45%
Site 14	14049	53	0.38%
Site 15	66018	53	0.08%
Site 15*	37095	53	0.14%

The overall construction program is expected to last for approximately 18-24 months. During this time, the site preparation and ground works, including the grid connection cabling works, will generate additional traffic on the local highway network. This will be adverse, resulting in an increase in traffic levels by up to 5.02% on the R471.

The effect will be temporary, lasting the duration of this phase of the construction program with a moderate impact.

It is considered that the above effects represent a worst-case daily scenario, based on the estimated construction program and the assumption that all deliveries are made via one route.

In accordance with the IEMA Guidelines, the assessment would focus on the highway network where a potential increase in traffic of greater than 30% has been identified.

In accordance with IEMA Guidelines, projected changes in traffic flows of less than 10% create no discernible environmental effect. Therefore, the effects to transport and access during construction would be temporary, slight and adverse in EIAR terms for:

- Pedestrian Severance, Delay, Amenity, Fear and Intimidation; and
- Driver Delay;

For Accidents and Safety, the effects to transport and access during construction would be temporary, moderate-significant, adverse and not significant in EIAR.

#### 16.8.2.2 Wind Turbine Delivery Route

An assessment of viability of delivering wind farm components from Foynes to the development site is considered in Turbine Delivery & Grid Connection Route Assessment (**Appendix 16.5**).

Pinch points were identified using a combination of a desktop survey and visual surveys of the shortlisted routes.

The following routes were considered:

1. Option 1: Foynes – Limerick Tunnel – Six Mile Bridge - Site
2. Option 1A: Foynes – Limerick Tunnel – Ballinphunta - Site
3. Option 2: Foynes – N18 – M7 – Grangewood – Daly Cross – O’Briens Bridge – Cloonlara - Site
4. Option 3: Foynes – N18 – M7 – Grangewood – Coolderry– Cloonlara - Ballina – Site
5. Option 3a: Foynes – N18 – M7 – Grangewood – Coolderry– Cloonlara – Killaloe Bypass - Site

To assess the most suitable port for the Turbine Delivery Route, the following filtering criteria were used:

1. Capable of landing and storing turbine equipment;
2. Access to local M-Roads and N-Road; and
3. Close to the site.

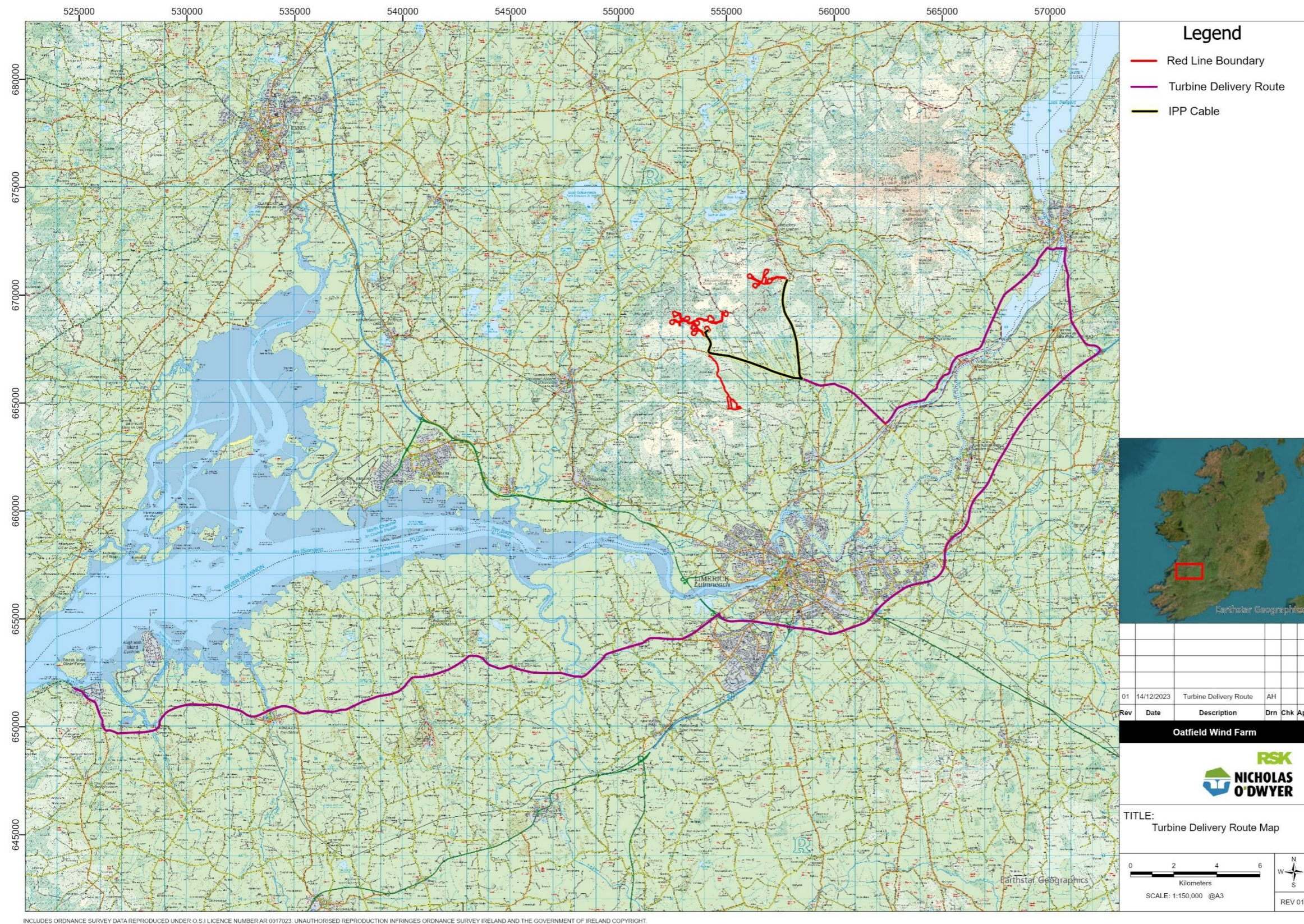
It is known that the Port of Foynes has been used by other operators for the importation, storage and transport of windfarm equipment via the N69.

This is evident by the fact that some of the measures required to accommodate the transport of windfarm equipment, such as temporary surfaces through roundabouts and traffic signs in retention sockets, is currently in place along the N69 towards Limerick.

Based on the assessment of Routes 1-3As listed above, turbines and turbine equipment will be transported from the Port of Foynes along the following route:

Foynes – N18 – M7 – Grangewood – Coolderry– Cloonlara – Killaloe Bypass – Site (Option 3a).

This route is illustrated in the figure below.



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**Figure 16.4: Turbine Delivery Route**

This route optimises the balance between using appropriate road infrastructure i.e., M-roads, N-roads, etc and reducing the number of L-roads used.

The use of the Turbine Delivery Route is dependent on completion of the Killaloe By-Pass. This is expected to be finished prior to transport. At the time of writing, it is anticipated that the Killaloe By-Pass will be open in March 2025.

**Table 16.9: Wind turbine import trip generation**

Wind turbines import trip generation	
Component	No.
Number of HGV to carry Wind Turbine Blades	33
Number of HGV to carry Wind Turbine Drive Train	11
Number of HGV to carry Wind Turbine Nacelle with Transport Frames	11
Number of HGV to carry Wind Turbine Hub	11
Number of HGV to carry Wind Turbine Tower sections	33
Various other parts	11
Total Number of HGV to carry Wind Turbine Parts to site	110

A total of 110 movements (120 two-way movement) is attributed to the import of wind turbine competent to the development site over the 18-24 month construction program.

These movements have been included in the assessment presented **Table 16.10**.

### 16.8.2.3 Grid Connection Route

Orsted proposes to connect the Proposed Development into either the existing Ardnacrusha to Ennis 110kV Overhead Line (Option A) or the existing Ardnacrusha to Drumline 110kV Overhead Line, Option B), via a loop in 110kV double circuit underground cable to Loop-in masts at Ballycar North. Both options are included for planning purposes and have been assessed in the EIAR.

This route is illustrated **Figure 16.5**.

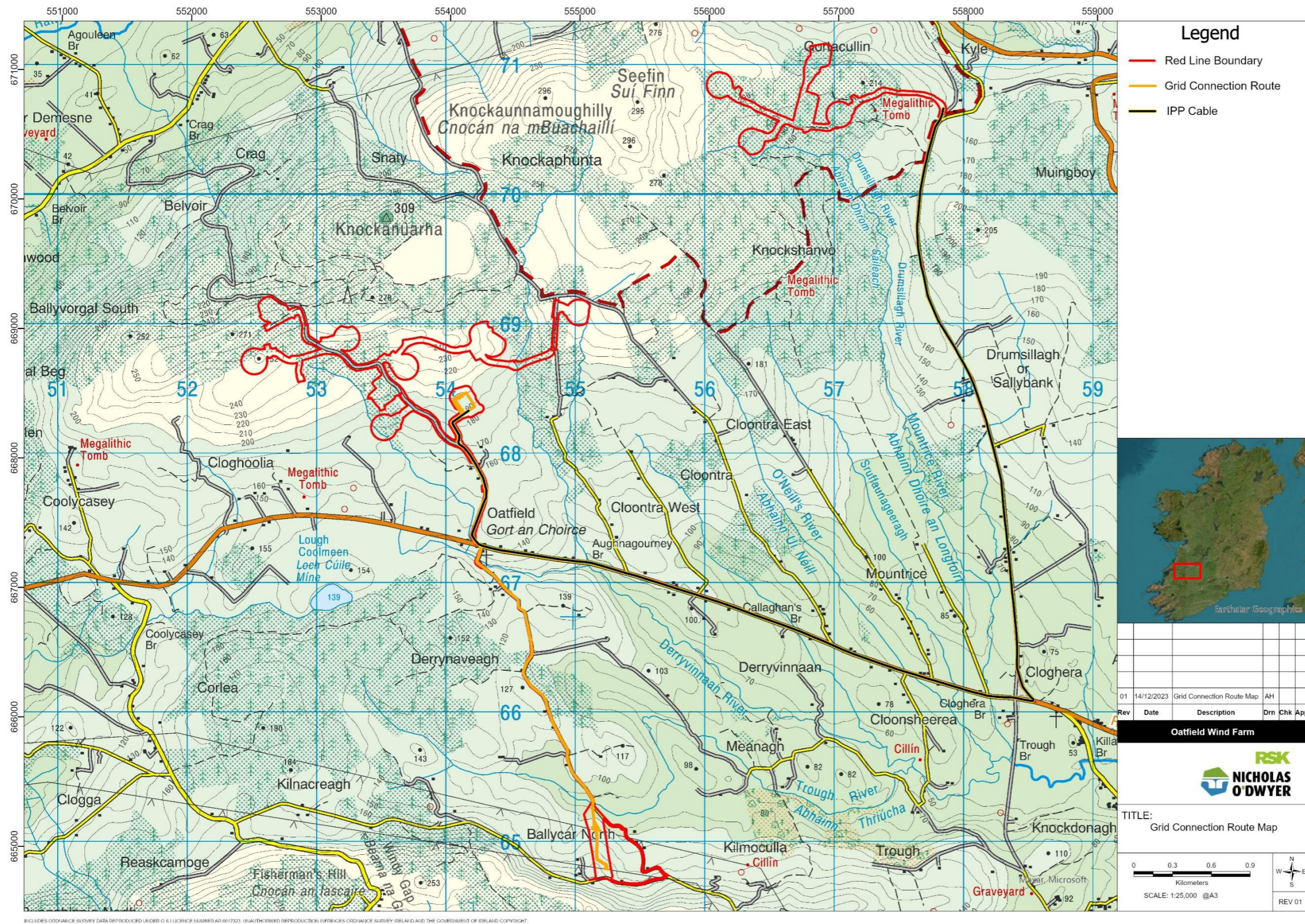


Figure 16.5: Proposed Grid Connection Route

### 16.8.3 Operational Phase

Once the Proposed Development is operational it is estimated that there will be approximately 6 - 8 staff members employed on site with a similar number of vehicle trips.

During the operational phase the effect on the surrounding local highway network will be adverse and long term but will be imperceptible based on a projected maximum of 16 trips to and from the site per day generated by maintenance staff.

### 16.8.4 Decommissioning Phase

The design life of the wind farm is 35 years, after which time the Applicant will decide whether the turbines will be replaced by newer more efficient turbines (which would be subject to a separate planning application) or if decommissioning will be carried out.

If the site is decommissioned, cranes will disassemble each turbine tower and all equipment.

All infrastructure including turbine components will be separated and removed off-site for re-use, recycling and waste disposal, where possible. The turbine and associated equipment will be broken down into smaller parts to allow for transport off site using standard HGVs.

It is anticipated that the turbine foundations and hard-standing areas will be left in place and covered with peat/soil/topsoil or other suitable materials.

It is proposed to leave the access roads in situ at the decommissioning stage which may allow for an amenity value to be associated with the site.

It is considered that leaving the turbine foundations, access tracks and hard-standing areas in situ will cause less environmental damage than removing and recycling them. However, if removal is deemed to be required all infrastructure will be removed with mitigation measures similar to those during construction being employed. The decommissioning will be managed on a phased basis in order to minimise the disruption to the amenity use of the site.

## 16.9 Mitigation Measures

### 16.9.1 Do-Nothing Scenario

If the Proposed Development does not proceed there will be no additional traffic generated or works carried out on the road network and therefore no effects with respect to traffic.

### 16.9.2 Construction Phase

The successful completion of the Proposed Development will require significant coordination and planning and a comprehensive set of mitigation measures will be put in place before and during the construction phase to minimise the effects of the additional traffic generated by the Proposed Development. The range of measures will include the following which are also set out in the Construction Traffic Management Plan (**Appendix 5.2 to EIAR Chapter 5: Project Description**):

- A detailed **Construction Traffic Management Plan (CTMP)**, incorporating all the mitigation measures set out in the TMP submitted as part of the CTMP, will be finalised and agreed with the relevant road authorities and An Garda Síochána prior to construction works commencing on site. The detailed TMP will include the following:



- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management.
- **Delivery Programme** – a programme of deliveries will be submitted to Clare County Council in advance of the delivery of the turbine components to site.
- **Communications:** Local residents in the area will be informed of any upcoming traffic related matters e.g., temporary lane/road closures (if required) or any night deliveries of turbine components, via letter drops and door knocks. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or Local Authority during normal working hours. An "out of hours" emergency number will also be provided.
- **Travel Plans** – Given the site location, the assessment above has assumed the worst case i.e., that construction workers will drive to the site. The Main Contractor will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking.

#### *16.9.2.1 Site Access and Egress*

Site access will be provided on R471. These will coincide with the future development access.

An access gate will be provided during the construction state of the Western Development Area as Western Development Area is accessible by public road. The Eastern Development Area can only be accessed via a private road and not access gate will be provided.

The contractor shall provide advanced warning signs, in accordance with Chapter 8 of the Department of the Environment's Traffic Signs Manual 2019, on the approach to proposed site access locations a minimum of one week prior to construction works commencing at the site.

There will be heras fencing secured to a minimum height of 2 metres alongside the construction compound areas or solid panel hoarding in areas with high/low viewing panels to help reduce unauthorised access to the construction compound.

This fence will be checked daily and maintained as necessary and it will be the responsibility of the Site Manager to open and lock the gates each working day to ensure the site is not left open and unattended at any time.

Access to the construction site will be limited to authorised persons. The site will be secured at all times with security being employed by the main contractors to ensure no unauthorised access.

Where possible, construction traffic and non-construction traffic will be separated for all modes of transport. Where the construction programme requires mixing of traffic, additional temporary traffic management measures will be put in place.

#### *16.9.2.2 National Road Network*

Access to the site along the National Road Network will be via the M7, M18, and N18. It is anticipated that the majority of construction related traffic will travel along the M7, M18, and N18 at which point construction traffic will enter the regional/local road network i.e., R471.

### *16.9.2.3 Regional & Local Road Network*

The majority of access / egress to proposed sites shall be facilitated from the local road networks. To mitigate against possible restrictions in visibility requirements, it is proposed that the contractor shall use a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location, if required. The site marshal, referred to above, will be responsible for this.

The site will be accessed via 2 No. access points via the L3016 and an Unnamed Road. These roads will be accessed via the R471.

The contractor shall utilise a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location outlined above. The site marshal, referred to above, will be responsible for this.

The proposed Access from R471 will be used for works traveling via public transport.

### *16.9.2.4 Access*

Access to the site will be in the location of the proposed development accesses each of which will be accessed via the R471. The contractor will ensure a visibility splay that is appropriate for the local speed limit.

### *16.9.2.5 Local Schools*

Haulage routes will avoid passing local schools at the start and end of the school day.

### *16.9.2.6 Signage*

The contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site.

Proposed signage may include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Department of Transport's Traffic Signs Manual, Chapter 8 – Temporary Traffic Measures and Signs for Roadworks.

In summary, the contractor will be required to ensure that the following elements are implemented:

- Consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements;
- Provision of temporary signage indicating site access route and locations for contractors and associated suppliers; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

### *16.9.2.7 Traffic management for road works*

The Applicant is currently reviewing the positions of any incoming services that maybe affect as a result of the proposed development. This will be done in conjunction with the relevant service providers.

If work must be done in the Public Highway the Main Contractor will ensure that the Main Contractor obtains the necessary licences and permits in time for the works to proceed on time.

The Main Contractor will procure street works accredited and approved contractors to carry out the utility works. In accordance with plans and drawings submitted to the planning authority, and subject to

the necessary approval of Uisce Éireann and in agreement with the Roads and Transport Department of the Local Authority (FCC), road works are required to facilitate the Proposed Development. As per drawing 16139- Proposed Drainage layout, it will be necessary to connect to the existing 375mm Foul drainage pipe and surface water (size unspecified) on the R471.

A specific Traffic Management Plan (TMP) will be required by the Local Authority in conjunction with the application for a road opening licence, in advance of carrying out these road works. The TMP design and service will be provided by an independent specialist and will deal with the efficient management of traffic and pedestrians, mitigating all potential safety risks to users, whilst maintaining effective operation of the carriageway.

#### *16.9.2.8 Pedestrians*

Hoarding will be checked daily with a weekly thorough inspection. Any defects will be attended to immediately.

The Main Contractor will ensure that there is adequate protection in place to prevent concrete splashing beyond the site boundary when the concrete slabs are being poured. The Main Contractor will carry out a task specific briefing prior to every pour above ground level.

The gateman and traffic marshals will ensure public safety when vehicles are entering and exiting the site. The public will not be allowed to access the site unless they follow the dedicated pedestrian access route on to site. They will be fully protected with appropriate PPE until they reach the security cabin. There is no unauthorised access beyond this point.

#### *16.9.2.9 Programming*

In order to reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that:

- The contractor will be required to liaise with the management of other construction projects and the Local Authorities to co-ordinate deliveries.
- The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g., avoiding pouring of concrete on the same day as material deliveries in order to reduce the possibility of numbers of construction delivery vehicles arriving on site simultaneously, resulting in build-up of traffic on the road network.
- The contractor will be required to schedule deliveries to and from the proposed site such that traffic volumes on the surrounding road network are kept to a minimum.
- HGV deliveries to the Proposed Development site will be suspended on the days of any major event in the area that have the potential to cause larger than normal traffic volumes.
- The contractor will be required to interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals.
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practicable.
- Deliveries of materials to site will generally be between the hours of 08:00 and 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays. There may be occasions where it is necessary to make

certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

The construction period for the Proposed Development is anticipated to be approximately 18-24 months from the commencement of the site works. This is subject to change and dependent on market conditions.

#### *16.9.2.10 Recommended Traffic Management Speed Limits*

Adherence to posted/legal speed limits will be emphasised to all staff/suppliers and contractors during induction training.

Drivers of construction vehicles/HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50km/h. Special speed limits of 30km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

#### *16.9.2.11 Spoil*

Spoil will be removed from site using 8-wheeler muck away lorries. The lorries will arrive at site and will be marshalled onto the site by the traffic marshals. The lorries will be loaded with an excavator. The lorries will be covered prior to leaving site. The traffic marshal will escort the vehicle off site and once the vehicle is on its way, the next vehicle will be called in.

#### *16.9.2.12 Road Cleaning*

It shall be a requirement of the works contract that the contractor will be required to carry out road sweeping operations to remove any project related dirt and material deposited on the road network by construction/delivery vehicles. All material collected will be disposed to a licensed waste facility.

#### *16.9.2.13 Road Condition*

The extent of the heavy vehicle traffic movements and the nature of the payload may create problems of:

- Fugitive losses from wheels, trailers or tailgates; and
- Localised areas of subgrade and wearing surface failure.

The contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive losses from a vehicle during transportation to and from site, including but not limited to:
  - Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss;
  - Utilisation of enclosed units to prevent loss; and

- The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

In addition, the contractor shall, in conjunction with the Local Authority:

- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.
- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.
- Where requested by the Local Authority prior to the commencement of construction operations, pavement condition surveys will also be carried out along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the Proposed Development, on-going visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant Local Authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

Upon completion of the construction of the Proposed Development, the surveys carried out at preconstruction phase shall be repeated and a comparison of the pre and post construction surveys carried out. Where such comparative assessments identify a section of road as having been damaged or as having deteriorated as a result of construction traffic, the construction related damage will be repaired.

#### 16.9.2.14 Vehicles

The following is a non-exhaustive list of possible vehicles that will be used:

- Abnormal Load HGV;
- HGV;
- Rigid Truck;
- Box Van;
- Panel Van;
- Concrete Truck;
- Concrete Pump Truck;
- Mobile Crane (various sizes);
- JCB (various sizes);
- Excavators (various sizes);

- Dump Truck;
- Specialist vehicles maybe required on occasion; and
- Details of size and weights of vehicles will be confirmed on appointment of a Main Contractor.

#### *16.9.2.15 Dust and Dirt Control*

The contractor will be obliged to implement the mitigation measures outlined in the **EIAR Chapter 17: Air Quality Chapter** in respect of dust / dirt control.

#### *16.9.2.16 Noise Control*

The contractor will be obliged to implement the mitigation measures outlined in the **EIAR Chapter 13: Noise and Vibration** in respect of noise control.

#### *16.9.2.17 Protection of Surface Waters*

The contractor will be obliged to implement the mitigation measures outlined in the Hydrology Chapter of EIAR in respect of the protection of the surface water.

#### *16.9.2.18 Co Ordination*

The Main Contractor will establish a holding area on the site that could accommodate up to 2 concrete trucks, the Main Contractor will also provide a traffic marshal at the site. The holding area will be utilised to prevent congestion of the R471 from construction traffic.

All vehicles will be tracked by the traffic marshals who will report back to the logistics manager. The logistics manager will control the deliveries with help from the traffic marshals and the gateman. Unscheduled vehicles will be turned away. If deliveries are taking longer to offload, then the following deliveries will be notified of any timing issues.

A copy of the delivery schedule will be issued to the traffic marshals, gateman and contractors' supervisors every morning so that everyone is aware and can make provision for when their delivery arrives.

The traffic marshals will be trained and competent and they will undergo ongoing assessments by the logistics manager to ensure that they are carrying out their duties with due care diligence.

#### *16.9.2.19 Refuelling*

Construction plant and equipment will only be parked over-night within the site compound. Construction plant and equipment will be checked daily for any visual signs of oil or fuel leakage, as well as wear and tear.

Fuel will not be stored on site for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. For any liquid other than water, this will be stored in suitable tanks and containers which will be housed in the designated area surrounded by bund wall of sufficient height and construction so as to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund.

Where Contractors require to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent

escape of fluids to the river. No refuelling is permitted on site, i.e., within the river or adjacent due to risk of spillage.

The Local Authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase. Spill kits will be maintained on site at all times.

All small plant such as generators and pumps bunded and stood in drip trays capable of holding 110% of their tank contents.

Waste oils, empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996.

#### *16.9.2.20 Site Tidiness and Housekeeping*

Construction works will be carried out according to a defined schedule agreed with the client and the relevant contractors, with regard to the hours of work outlined above. Any delays or extensions required will be notified at the earliest opportunity to the client and Contractors.

Contractors will ensure that road edges and footpaths are swept on a regular basis.

Any and all waste materials arising during the works will either be immediately taken to a location from which discharge to local water courses cannot take place, or temporarily stored/covered to prevent washout.

All Contractors will be responsible for the clearance of their plant, equipment and any temporary buildings upon completion of construction. The site will be left in a safe condition.

#### *16.9.2.21 Monitoring, Inspection and Record Keeping*

The contractor will be obliged to implement the mitigation measures outlined in the Construction and Environmental Management Plan and the Construction Traffic Management Plan with respect to monitoring, inspections and record keeping .

#### *16.9.2.22 Road Closures*

During the course of the works, it is not anticipated that road closures will be required for any extended period of time. Temporary or partial road closures may be required to facilitate utility connections such as watermain, foul water, surface water, etc.

Should works be required on the external road network, road opening licences will be sought from the Local Authority via the Road Management Office.

In areas where existing carriageways are narrow, it is anticipated that Temporary Traffic Management measures such as temporary traffic lights will be utilised to facilitate traffic.

#### *Enforcement of Construction Traffic Management Plan*

All project staff and material suppliers will be required to adhere to the CTMP (which is a live document). As outlined above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the CTMP.

#### *16.9.2.23 Details of Working Hours and Days*

All deliveries will be notified to the Contractor's Project Manager/Traffic Management Co-ordinator in advance with specific times identified. These will be collated and held in a diary by the Co-ordinator

who will manage the deliveries daily . The Co-ordinator will highlight any clashes and anticipated busy periods to streamline the processing of deliveries.

On arrival at the agreed locations, drivers must wait and ring for attention in accordance with the relevant site signage. They will then be escorted to the appropriate location for unloading by the contractor's Banksmen.

Unloading will be carried out at one of the material storage areas. All deliveries, where possible, must be able to be unloaded by forklift or mechanical means.

In accordance with Condition 18 of Board Order ABP-307889-20, site development and building works shall be carried out only between the hours of 0700 to 1900 Mondays to Fridays inclusive, between 0800 to 1400 hours on Saturdays and not at all on Sundays and public holidays.

There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times. Where possible, advance warning will be given to Clare County Council in writing if construction activities occur outside of these hours. These will be kept to a minimum.

All access roads used by contractors will be monitored for mud and any construction materials and cleared using a shovel and broom and if required a mechanical road sweeper.

#### *16.9.2.24 Emergency Procedures During Construction*

The contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer. All construction traffic shall be notified of the incident (where such occurs off site);
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en-route.

#### *16.9.2.25 Complaints Handling*

The Main Contactor will maintain a log of site complaints detailing:

- Name and address of complainant
- Time and date complaint was made.
- Likely cause or source of nuisance
- Weather conditions, such as wind speed and direction
- Investigative and follow -up actions.



The Main Contractor will appointment a Liaison Officer as a single point of contact to engage with the local community and respond to concerns. It will be the role of the Liaison Officer to keep local residents and businesses informed of progress and timing of particular construction activities that may impact on them.

#### 16.9.2.26 *Communication*

The contractor shall ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval;
- On-going reporting relating to the condition of the road network and updates to construction programming; and
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures, etc., which may conflict with proposed traffic management measures.

#### 16.9.2.27 *Turbine Delivery Route*

Traffic management measures specific to the Turbine Delivery Route include the following:

- Identification of a delivery routes and schedules, as illustrated in **Figure 16.4**;
- Details of the alterations required to the infrastructure identified in this report and any other minor alteration identified (hedgerows etc.); and
- A Test Run to be carried out by the appointed haulage contractor to prove the route in advance of delivery of any turbine equipment.

The transportation of large components is challenging and can only be done following extensive route selection as outlined in the Turbine Delivery and Grid Connection Route Assessment. Post planning, extensive route proofing will be carried out consultation with An Garda Síochána, the local authority and the appointed haulage contractor.

Where possible, and with the agreement of the relevant stakeholders, such as roads authorities and An Garda Síochána Traffic Corp, turbine components will be transported at night when traffic is lightest. Transportation of turbine components will only occur when a specific permit for the transport of oversized cargo has been issued.

In some cases, temporary accommodation works are required along the turbine delivery route (TDR) such as hedge or tree cutting, temporary relocation of powerlines/poles, lampposts, signage and local road widening. Any updates to the road will be carried out in advance of turbine deliveries and following consultation and agreement with the relevant Local Authorities and Roads Authority.

It is not anticipated that any sections of the local road network will be closed, although there may be delays to local traffic at various locations if the deliveries are made during daylight hours. During these periods it may be appropriate to operate local diversions for through traffic.

At a minimum, all of the deliveries comprising abnormally large loads will be made outside the normal peak traffic periods to avoid disruption to local traffic.

#### **16.9.2.28**      *Grid Connection Route*

Underground grid route connection works to on-site substation will involve the installation of ducting, joint bays, drainage and ancillary infrastructure and the subsequent running of cables predominantly along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches.

On public roads, it is expected that full road closures will be put in place to facilitate cabling works in combination with lane closures, partial road closures and stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time especially in built up areas.

These works shall be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section.

It is anticipated that there will be two cables laid in parallel in one trench in some areas.

There will be no overlap of the cable works in the public road with the turbine deliveries or construction of onsite infrastructure.

The minimum road width requirement for 2 lane traffic is between 4.8m and 6.0m meters depending on vehicle mix. Using a minimum of 3.0m for a lane, there will sections of the route that will require lane closure to allow for passing traffic. This is likely to be done using a stop/go system along the works area.

The proposed grid connection trench will be 600mm wide and 1200mm deep. Where the proposed grid connection cable route encounters minor culverts, the ducts will be installed above or below the culvert depending on its depth in accordance with current construction methodologies.

### **16.9.3 Operational Phase**

Due to the very low volumes of traffic forecast to be generated during this stage of the development, no mitigation measures are required.

### **16.9.4 Decommissioning Phase**

In the event that the wind farm is decommissioned after 35 years of operation, a decommissioning plan, including material recycling/disposal and Traffic Management Plan will be prepared for agreement with the Local Authority prior to decommissioning of the wind farm.

## **16.10 Residual Effects**

### **16.10.1 Do-Nothing Scenario**

If the Proposed Development does not proceed there will be no residual effects.

### 16.10.2 Construction Phase

During the construction phase of the Proposed Development, it is predicated that the additional traffic that will appear as indicated in **Figure 16.2**, which will have a moderate and short-term effect on existing road users, will be minimised with the implementation of the mitigation measures outlined in **Section 16.9.2**. This includes the implementation of a CTMP which will be implemented by the appointed Main Contractor.

Works required for the grid connection will require the laying of cables in the ground which will generally be installed in a trench at the side or in the corridor of the road, which will result in local, temporary delays to traffic at each site mobilisation. It is unlikely that any road closures will be required.

While traffic delays will be incurred resulting in a slight, temporary impact on local traffic, and potentially on local businesses, it is noted that only a short section of the cable route, and the trips that pass through it, will be affected each day.

#### 16.10.2.1 *Effects on Pedestrians /Cyclists*

During the construction phase of the Proposed Development, it is predicated that a maximum of 47 HGV trips per day will appear on the delivery route indicated in **Figure 16.4**, which will have a moderate and short-term effect on pedestrian and cyclists, which will be minimised with the implementation of the mitigation measures outlined in **Section 16.9.2**.

#### 16.10.2.2 *Driver Delay*

During the construction phase, it is predicated that driver delay will increase as additional traffic enters the road network locally as a result of construction activities at the development site.

These delays will peak during the installation of the grid connections.

Driver delay will be moderate and short-term during the Construction Phase, which will be minimised with the implementation of the mitigation measures outlined in **Section 16.9.2**.

#### 16.10.2.3 *Accidents and Safety*

During the construction phase, it is predicated that risk of an accident occurring will increase along with the potential severity in injury due to the increase in HGV activity.

At accident 'black spots', conservation areas, hospitals or links with high levels of vulnerable road user activity the impact of accidents and safety will be significant and short-term during the Construction Phase, which will be minimised with the implementation of the mitigation measures outlined in **Section 16.9.2**.

Based on the implementation of mitigation measures the residual construction effects are as follows:

- Not significant, adverse effects and short term for Pedestrian Severance, Delay, Amenity, Fear and Intimidation that are not significant in EIA terms;
- Not significant, adverse effects and short term for Driver Delay that are not significant in EIA terms; and
- Slight adverse effects for Accidents and Safety that are not significant in EIA terms.

### 16.10.3 Operational Phase

No additional mitigation would be required; therefore, the residual operation effects remain as reported in the assessment of effects section, i.e.:

- Imperceptible, adverse effects for Pedestrian Severance, Delay, Amenity, Fear and Intimidation that are not significant in EIA terms;
- Imperceptible, adverse effects for Driver Delay that are not significant in EIA terms; and
- Imperceptible, adverse effects for Accidents and Safety that are not significant in EIA terms.

As stated above, all impacts from the operation of the proposed development would be permanent whilst the site remains operational, although would be reversible should the site cease operation.

### 16.10.4 Decommissioning Phase

No additional enhancement measures would be required for the Decommissioning Phase.

Should the Applicant decide to decommission the windfarm after its predicated operational life span, a Decommissioning Plan will be prepared and implemented in order to minimise the residual effects during this stage.

The decommissioning phase will employ similar mitigation measures as the construction phase.

As the expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and materials only, the residual effect is considered to be slight and temporary.

### 16.10.5 Summary of Residual Effects

**Table 16.9** provides a summary of the potential effects identified as a result of the proposed development.

**Table 16.10: Summary of the Potential Effects Identified**

Summary of the Potential Effects Identified	
Item	Outcome
None identified	None identified

## 16.11 Monitoring

The proposed turbine delivery and construction material haul routes will be monitored during the construction phase to identify any damage which may have been caused by construction traffic.

In order to monitor this, the Main Contractor, in conjunction with the Local Authority shall ensure the following:

- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.

- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.
- Where requested by the Local Authority prior to the commencement of construction operations, pavement condition surveys will also be carried out along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the Proposed Development, on-going visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant Local Authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

Upon completion of the construction of the Proposed Development, the surveys carried out at preconstruction phase shall be repeated and a comparison of the pre and post construction surveys carried out. Where such comparative assessments identify a section of road as having been damaged or as having deteriorated as a result of construction traffic, as mentioned, the construction related damage will be repaired.

## 16.12 Cumulative Effects

### 16.12.1 Inter Project/Cumulative Effects

As explained EIAR **Chapter 2: EIAR Methodology & Relevant Guidelines**, intra-project cumulative effects are discussed in EIAR **Chapter 20: Impact Interactions and Cumulative Effects**.

**Table 16.11** provides a summary of the likely cumulative effects resulting from the Proposed Development with other identified projects.

**Table 16.11: Cumulative Effects**

Cumulative Effects				
Cumulative Development Project	Construction		Operation	
	Cumulative Effects Likely?	Reason	Cumulative Effects Likely?	Reason
Ballycar Wind Farm	No	Currently at pre- application stage .	No	Currently at pre-application stage.
Boolynagleragh Lissycasey	No	Outside 20km radius of site.	No	Outside 20km radius of site.
Boolynagleragh-Boolybrien, Knockatunna and Rathcronev	No	Outside 20km radius of site.	No	Outside 20km radius of site.
Carrownagowan Wind Farm	No	Granted in 2022 with an 18-month construction program. With limited overlap in haul routes/TDR/GCR it is considered that there will be limited interaction during the construction phase.	No	It is considered that there will be limited interaction during the operational phase.
Castlewaller	No	Planning permission expired in 2022	No	Planning permission expired in 2022
Fahybeg Onshore Wind Farm (appealed)	Yes	Located close to site with an expected similar planning and construction phases. Likely to have overlapping haulage route/TDR/GCR.	Yes	Located close to site with an expected similar operational phase.
Knockshanvo Wind Farm	No	At pre planning stage. Construction programs unlikely to overlap.	No	Construction would not be ongoing during operational stage of the proposed development.
Lackareagh Wind Farm	No	At pre planning stage. Construction programs unlikely to overlap.	No	Construction would not be ongoing during operational stage of the proposed development.
Loughaun North	No	Application refused	No	Application refused
Unknown Windfarm No. 1	No	Outside 20km radius of site.	No	Outside 20km radius of site.

Cumulative Effects				
Cumulative Development Project	Construction		Operation	
	Cumulative Effects Likely?	Reason	Cumulative Effects Likely?	Reason
Unknown Windfarm No. 1	No	Outside 20km radius of site.	No	Outside 20km radius of site.
Parteen Turbine	No	Site is operational.	No	Background traffic included in survey flows.
Vision Care Turbine	No	Site is operational.	No	Background traffic included in survey flows.

### **16.12.2 Do-Nothing Scenario**

If the Proposed Development does not proceed there will be no cumulative effects.

### **16.12.3 Construction Phase**

Whilst there would be an increase in traffic resulting from the cumulative schemes during the construction phase, overall, there are no significant effects anticipated as a result of the cumulative impacts and therefore no mitigation is proposed.



**Table 16.12: Cumulative Impact**

Location	Construction Phase				
	Survey Flows	Development Flows	% Impact	Cumulative Flows	Cumulative Impact %
Site 1	3292	7	0.20%	7	0.41%
Site 2	3131	7	0.67%	7	0.43%
Site 3	10100	21	0.14%	21	0.42%
Site 4	7068	14	0.69%	14	0.41%
Site 5	1305	49	5.02%	49	7.44%
Site 6	1305	65	5.02%	65	10.04%
Site 7	5873	55	0.94%	55	1.87%
Site 8	9257	55	0.59%	55	1.19%
Site 9	6309	2	0.03%	2	0.06%
Site 10	5525	2	0.03%	2	0.07%
Site 11 & 2	8955	2	0.02%	2	0.04%
Site 13	2298	53	2.31%	53	4.62%
Site 14	11736	53	0.45%	53	0.90%
Site 15	14049	53	0.38%	53	0.76%
Site 15	66018	53	0.08%	53	0.16%

#### **16.12.4 Operational Phase**

Whilst there would be an increase in traffic resulting from the cumulative schemes during the construction phase, overall, there are no significant effects anticipated as a result of the cumulative impacts and therefore no mitigation is proposed.

#### **16.12.5 Decommissioning Phase**

Whilst there would be an increase in traffic resulting from the cumulative schemes during the decommissioning phase, overall, there are no significant effects anticipated as a result of the cumulative impacts and therefore no mitigation is proposed.

**Table 16.13: Summary of Assessment of Effects – Traffic and Transport**

Potential Effect	Beneficial / Adverse / Neutral	Extent (Site / Local / National / Transboundary)	Short term/ Long term	Direct / Indirect	Permanent / Temporary	Reversible / Irreversible	Significance of Effects (according to defined criteria)	Proposed Mitigation	Residual Effects (according to defined criteria)
<b>Construction Phase</b>									
Construction Impact	Adverse	Local	Short term	Direct	Temporary	Irreversible	See below	Implement recommendations of Construction Traffic Management Plan	
Pedestrian /Cyclist Impact	Adverse	Local	Short term	Direct	Temporary	Irreversible	Increase in Pedestrian Fear and Intimidation	Implement recommendations of Construction Traffic Management Plan	Reduces the overall Pedestrian Fear and Intimidation compared to when no mitigation measures are applied.
Driver Delay	Adverse	Local	Short term	Direct	Temporary	Irreversible	Increase in driver delay	Implement recommendations of Construction Traffic Management Plan/Turbine delivery to be scheduled out of hours./ Minimise the number of roads to be closed during the grid connection works. Implement temporary traffic management plans.	Reduces the overall Increase in driver delay compared to when no mitigation measures are applied.
Accidents and Safety	Adverse	Local	Short term	Direct	Temporary	Irreversible	Increases the likelihood of RTP including those involving Vulnerable Road Users	Implement recommendation of Construction Traffic Management Plan	Reduces the overall amount and severity of accidents to when no mitigation measures are applied.
<b>Operational Phase</b>									
Operational Impact	Adverse	Local	Long term	Direct	Permanent	Reversible	None	None	None
Pedestrian /Cyclist Impact	Adverse	Local	Long term	Direct	Permanent	Reversible	None	None	None
Driver Delay	Adverse	Local	Long term	Direct	Permanent	Reversible	None	None	None
Accidents and Safety	Adverse	Local	Long term	Direct	Permanent	Reversible	None	None	None
<b>Decommissioning Phase</b>									
Decommissioning Impact	Adverse	Local	Short term	Direct	Permanent	Irreversible	See below	Implement recommendation of Decommissioning Plan	
Pedestrian /Cyclist Impact	Adverse	Local	Short term	Direct	Permanent	Irreversible	Increase in Pedestrian Fear and Intimidation	Implement recommendation of Decommissioning Plan	The volume of decommissioning relate vehicles will be significantly less than during the construction phase.  Reduces the overall Pedestrian Fear and Intimidation compared to when no mitigation measures are applied.
Driver Delay	Adverse	Local	Short term	Direct	Permanent	Irreversible	Increase in driver delay	Implement recommendation of Decommissioning Plan.	The volume of decommissioning relate vehicles will be

Potential Effect	Beneficial / Adverse / Neutral	Extent (Site / Local / National / Transboundary)	Short term/ Long term	Direct / Indirect	Permanent / Temporary	Reversible / Irreversible	Significance of Effects (according to defined criteria)	Proposed Mitigation	Residual Effects (according to defined criteria)
								<p>Foundations and cables to remain in insitu.</p> <p>The volume of de-commissioning relate vehicles will be significantly less than during the construction phase.</p>	<p>significantly less than during the construction phase.</p> <p>Reduces the overall Increase in driver delay compared to when no mitigation measures are applied.</p>
Accidents and Safety	Adverse	Local	Short term	Direct	Permanent	Irreversible	Increases the likelihood of RTP including those involving Vulnerable Road Users	<p>Implement recommendation of Decommissioning Plan.</p> <p>Foundations and cables to remain in insitu.</p> <p>The volume of de-commissioning relate vehicles will be significantly less than during the construction phase</p>	<p>The volume of de-commissioning relate vehicles will be significantly less than during the construction phase.</p> <p>Reduces the overall amount and severity of accidents to when no mitigation measures are applied.</p>

## **16.13 Summary of Assessment**

### **16.13.1 Background**

This chapter has detailed the potential transport and accessibility effects due to the construction, operational (including maintenance), and decommissioning phases of the Proposed Development. The assessment takes into account the relevant national and local guidance and regulations.

There is minimal pedestrian and cycle infrastructure adjacent to the proposed development. Along the haulage routes, there are various standards of pedestrian and cycle infrastructure. Each node has various road widths and footpath widths with differing levels of public lighting.

There is limited public transport located in proximity to the development site with the nearest node located c. 8km west.

Regardless, it will not be possible for future employees of the application site to walk, cycle or use public transport and complete their journeys by such alternatives to the private vehicle. The application site is wholly car dependent.

### **16.13.2 Construction Effects**

The peak construction period would be in Month 8 of the 18-month construction program with a maximum of 76 construction vehicle movements per day, of which 47 will be HGVs and 29 will be LGVs. This results in a maximum uplift in traffic volumes as a result of construction activities of c. 5%.

These 76 movements include movements associated with the delivery of turbine equipment and the construction of the grid connection.

In accordance with IEMA Guidelines, projected changes in traffic flows of less than 10% create no discernible environmental effect.

A CTMP would require construction traffic including both construction plant and material deliveries to be programmed to avoid peak traffic periods on the surrounding local and strategic road network and minimise any effect on the local highway network, pedestrian and cycle users. No additional mitigation would be required for the construction stage.

Therefore, it is considered that residual effects to transport and access during construction would be temporary, imperceptible, adverse and not significant in EIA terms.

### **16.13.3 Operational Effects**

The Proposed Development would be fully operational in 2030 and is anticipated to generate between 6 and 8 trips ( 12-16 two-way trips) per day.

In accordance with IEMA Guidelines, projected changes in traffic flows of less than 10% create no discernible environmental effect.

Overall, it is considered that residual effects on transport and access during operation are imperceptible, adverse and not significant in EIA terms.

No additional mitigation would be required for the operation stage.

#### **16.13.4 Cumulative Effects**

The cumulative effects of the Proposed Development, and neighbouring schemes has been considered within the traffic assessment.

Whilst there would be an increase in traffic resulting from the cumulative schemes during both the construction and operation phases, overall, there are no significant effects anticipated as a result of the cumulative impacts and therefore no additional mitigation measures, other than what has been previously outlined, is proposed.