17 TRAFFIC AND TRANSPORT

17.1 INTRODUCTION

17.1.1 Background and Objectives

This chapter assesses the potential effects of traffic associated with the Project on the public road network and on sensitive receptors in the vicinity of the Project, describes the existing public road and junction network, identifies whether there is any potential for significant effects to arise (both in isolation and in combination with other developments) and outlines the mitigation measures that will be implemented to avoid, reduce, or offset any potential significant effects that might arise. The assessment will consider the potential effects of traffic generated by the Project during the following phases:

- Construction of the Project,
- Construction of proposed Grid Connection.
- Transportation of turbine components on the public road network for two separate route options between Shannon Foynes Port or the Port of Galway (turbine blades only) and the Project.
- Enabling works for the transportation of turbine components on the public road network for two separate route options between Shannon Foynes Port or the Port of Galway (turbine blades only) and the Project.
- Operation and maintenance of the Project.
- Decommissioning of the Project.

17.1.2 Statement of Authority

This chapter of the EIAR has been prepared by John Doogan, Senior Designer at Jennings O'Donovan & Partners Limited who holds a Higher national diploma (Level 7) in Civil engineering from Bolton Street College of Technology. John has over 34 years of road design and traffic experience in Ireland and the UK and has worked on the design, planning and construction of over 30 wind farms projects in Ireland, UK, Europe and Mexico.

This report has been reviewed by David Kiely, Director, Jennings O'Donovan & Partners Limited who holds a BE in Civil Engineering from University College Dublin and MSc in Environmental Protection from IT Sligo. He is a Fellow of Engineers Ireland, a Chartered Member of the Institution of Civil Engineers (UK) and has over 42 years' experience. He has extensive experience in the preparation of Traffic and Transport Assessments, Traffic Management Plans, EIARs and EISs for environmental projects including Wind Farms, Solar Farms, Wastewater Projects and various Commercial Developments. David has also been involved in the construction of over 60 wind farms since 1997.

17.1.3 Site Location, Context and Project

The Permission is being sought by the Developer for the construction of 9 No. wind turbines, a permanent Met Mast, an on-site 110kV Substation with a 'loop in' Grid Connection to the existing 110kV OHL between Charleville and Killonan, and all ancillary works. Temporary accommodation requirements at locations along the TDR are not included in the planning application but are assessed as part of the EIAR.

The proposed works within the Redline Boundary will include the following main components:

- Erection of 9 No. wind turbines with a tip height of 170m. The wind turbines will have a rotor diameter of 150m and a hub height of 95m.
- Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations.
- Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream.
- Upgrade of existing site drainage network and installation of new site drainage.
- Wind Farm Internal Cabling connecting the wind turbines to the electrical substation.
- Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works.
- Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line OHL.
- Erection of a permanent 60m Meteorological Mast for monitoring wind speeds.
- Construction of a Temporary Construction Compound for use during construction.
- Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery).
- 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area.
- Biodiversity enhancement and improvements associated with the Project.
- Landscaping, fencing and all associated ancillary works.

A 10-year planning permission and 35-year operational life from the date of commissioning of the entire wind farm is being sought. However, the onsite Substation and the Grid Connection will be handed over to ESB networks to own and operate. As part of the national

grid infrastructure, permission is sought for the Grid Connection and the Substation in perpetuity.

The EIAR assesses the Project which includes the works within the Redline Boundary as outlined above as well as the temporary accommodation requirements at 6 No. locations along the proposed TDR from Foynes Port. A TDR option from the Port of Galway was also assessed for the delivery of turbine blades only which includes temporary accommodation works at 11 No. locations.

The Location and layout of the Project is shown on **Figure 17.1**. The turbine components for the Project will be shipped to Shannon Foynes Port or to the Port of Galway and transported on the public road network using abnormal load vehicles. The proposed TDR between Shannon Foynes Port and the Project is shown on **Figure 17.2**. The alternative TDR between the Port of Galway Port (turbine blades only) and the Project is shown on **Figure 17.3**.

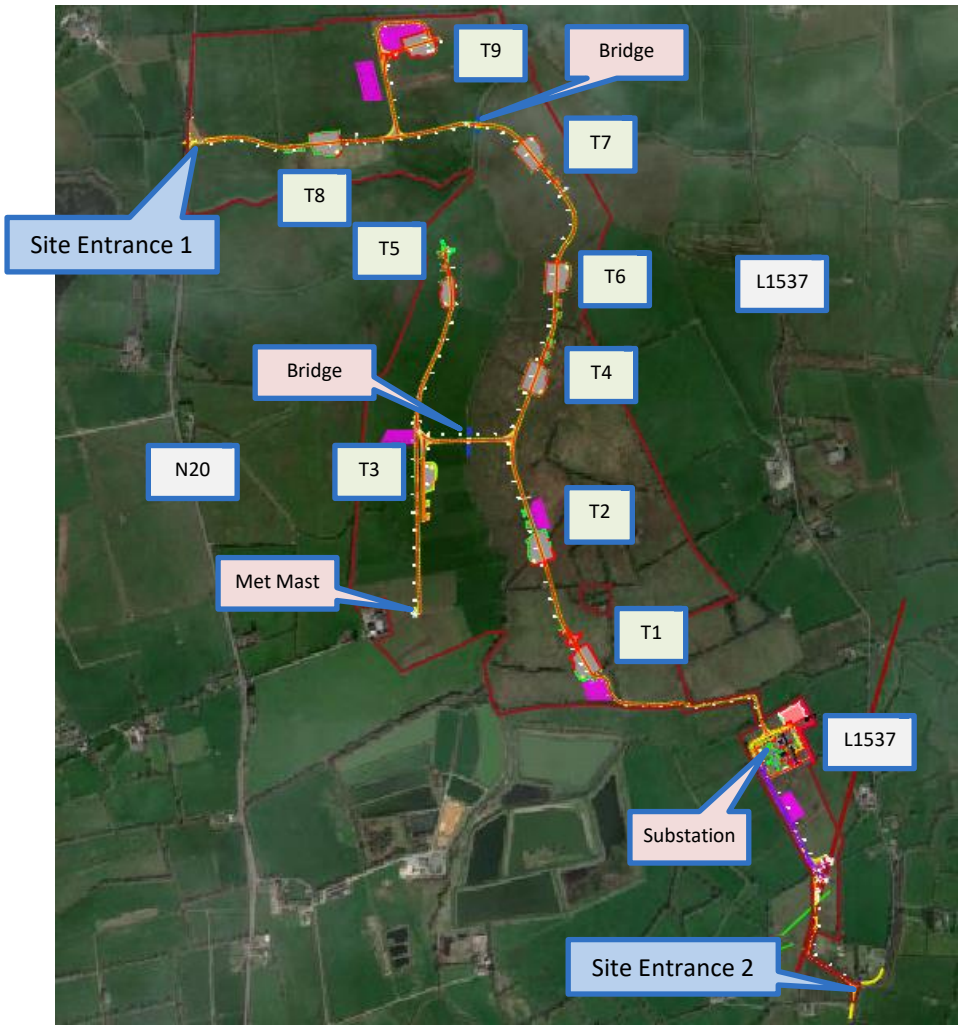


Figure 17.1: Site Layout

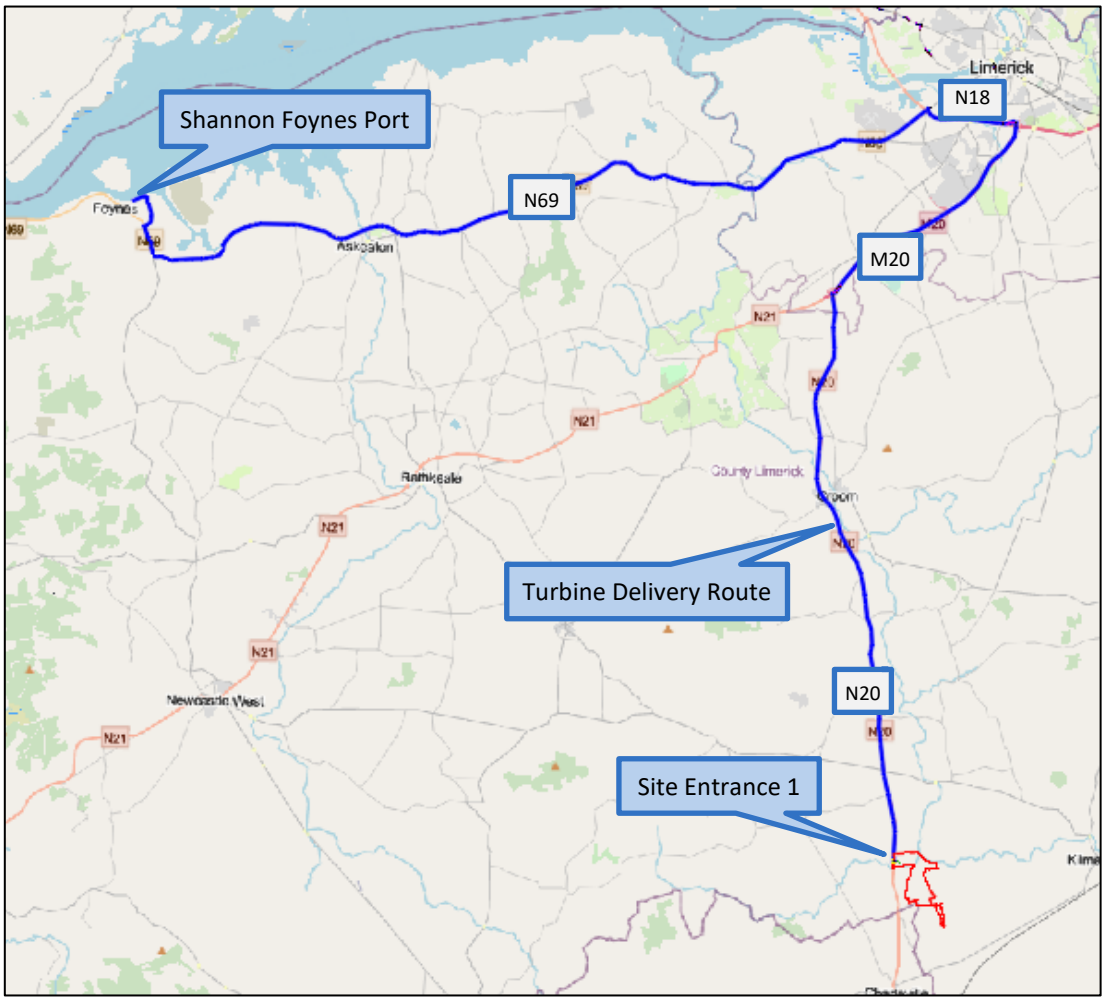


Figure 17.2: Turbine Delivery Route from Shannon Foynes Port

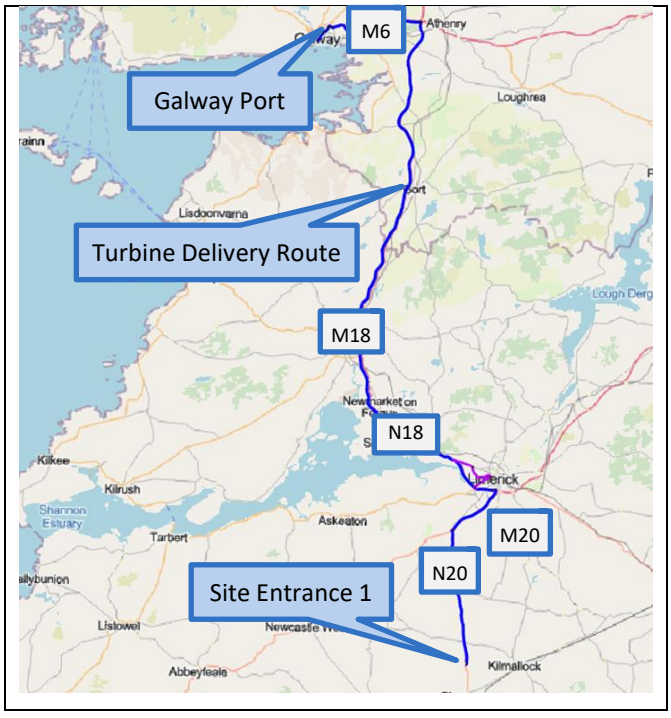


Figure 17.3: Turbine Delivery Route from Galway Port (Turbine Blades Only)

Common acronyms used throughout this EIAR can be found in **Appendix 1.2**. This chapter of the EIAR is supported by Figures provided in **Volume III** and is to be read in conjunction with the following Appendix documents provided in **Volume IV** of this EIAR:

- **Appendix 17.1:** Traffic and Transport Assessment:
- **Appendix 17.2:** Traffic Management Plan:
- **Appendix 17.3**: Swept Path Analysis – Foynes Port
- **Appendix 17.4**: Swept Path Analysis – Galway Port (Turbine blades only)
- **Appendix 17.5**: Road Safety Audit
- **Appendix 17.6**: N20 Site Entrance 1 (Temporary) Junction Design Report
- **Appendix 17.7**: Bridge Inspection Report

17.1.4 Scoping Responses and Consultation

The Project management team contacted relevant stakeholders as part of the scoping process for the wind farm design. The consultation responses are shown in **Table 17.1**.

Table 17.1: Consultation Responses

Consultee	Type & Date	Summary of Response	Response to Consultee
Cork County Council	23/05/24	Confirmation of scoping letter	
Limerick County Council - Roads Department	23/05/24	Confirmation of scoping letter	
Limerick County Council - Planning Department	04/07/24	Confirmation of scoping letter	
Transport Infrastructure Ireland (TII)	06/01/22	Thank you for your correspondence of 23 May 2024 regarding the above. Transport Infrastructure Ireland's (TII's) position in relation to your enquiry is as follows. TII will endeavour to consider and respond to planning applications referred to it, given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines, as outlined in the Section 28 Ministerial Guidelines 'Spatial Planning and National Roads Guidelines for Planning Authorities' (DoECLG, 2012). Regard should also be had to other relevant guidance available at www.TII.ie. The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for	Traffic Addressed in this Chapter and in the following Appendices Traffic and Transport Assessment (Appendix 17.1) Traffic Management Plan (Appendix 17.2) Swept Path Analysis – Foynes Port (Appendix 17.3) Swept Path Analysis – Galway Port (Appendix 17.4) Road Safety Audit (Appendix 17.5)

Consultee	Type & Date	Summary of Response	Response to Consultee
		further information, objections or appeals, following the examination of any valid planning application referred. National Strategic Outcome 2 of the National Planning Framework includes the objective to maintain the strategic capacity and safety of the national road network. In addition, Chapter 7 'Enhanced Regional Accessibility' of the National Development Plan, 2021 – 2030, sets out the key sectoral priority of maintaining Ireland's existing national road network to a robust and safe standard for users. This requirement is further reflected in the publication of the National Investment Framework for Transport in Ireland and also the existing Statutory Section 28 'Spatial Planning and National Roads Guidelines for Planning Authorities'. In relation to your EIAR Scoping referral, it is noted that Section 5.1 indicates that the Project includes for upgrade to the existing entrance on the N20, national road. Although the site access location is not detailed in the EIAR Scoping document, TII's records indicate that the site adjoins the N20 at a location where the national road is subject to a 100kph speed limit regime. It is critical that the developer/applicant be aware that official policy concerning access to national roads seeks to avoid the creation of additional access points from new development or the generation of increased traffic from existing accesses (i.e. non-public road access) to national roads, to which speed limits greater than 50 kph apply. Therefore, there are policy and road safety considerations that would need to be resolved in any subsequent application and available alternative arrangements to the local road network should be utilised and not direct access to the national road, contrary to the provisions of official policy. It is noted with concern that the EIAR Scoping Report does not appear to consider or address this potential policy conflict. Section 2.6 of the DoECLG Guidelines provides that planning authorities may apply a less restrictive approach to the management of access to a national road in 'exceptional circumstances' but only as part of the process of reviewing or varying the relevant development plan. However, the current Limerick City and County Development Plan has not provided any agreed 'exceptional circumstances' cases for development accessing a national road, such as that potentially proposed in this EIAR Scoping referral. With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect the national road network. The developer should have regard, inter alia, to the following:	N20 Site Entrance 1 (Temporary) Junction Design Report (Appendix 17.6) To ensure that the Project is in compliance with the Limerick County Development Plan requirements and the Section 28 *Ministerial Guidelines Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012)* a plan-led and evidence-based approach has been taken to the junction design. The Site is located in an area designated as "Preferred" for wind energy development in the CDP. We Numerous access options have been assessed as part of the design process as detailed in Chapter 3 – Section 3.6.4 of the EIA – Alternatives. For the reasons set out, we would consider the requirement for utilising an existing access onto the N20 an "exceptional circumstance". As part of the scheme it is proposed to improve the sightlines for the existing access to improve the safety of agricultural activities exiting the site. As part of the plan-led approach, a Traffic Management Plan (TMP) has been developed detailing that the proposed site entrance on the N20 will require all

Consultee	Type & Date	Summary of Response	Response to Consultee
		• TII notes that the subject site adjoins the N20, national road. Access to the road network shall be developed in accordance with official policy and road safety considerations. As outlined above, access directly to a national road outside a reduced 50 – 60kph speed limit location should be avoided in accordance with the provisions of official policy. Alternative arrangements should be identified to ensure adherence to the provisions of official policy. • Consultations should be had with the relevant Local Authority/National Roads Design Office, with regard to the locations of existing and future national road schemes, including the National Development Plan (NDP) investment objective M20 Cork – Limerick • TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the Project, including the potential haul route. • The developer should assess visual impacts from existing national roads. • The developer should have regard to any EIAR/EIS and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts.	traffic accessing the Site to approach from the North (no crossing of the median for turning into the site) . We will re-instate and install roadside screening post construction and would not envisage that we would need to reuse this entrance, unless in the unlikely event of large component replacement during the operational phase. It is proposed to construct a temporary site access on the N20 to be used only during the delivery of turbine components using abnormal load vehicles. Access to the site for general construction traffic and operational traffic will be from a site entrance on the L1537 Local Road. On completion of the Project construction the temporary N20 site entrance will be reinstated. The temporary access is required due to the geometry of the regional and local roads not being suitable for abnormal load vehicles to access the site via the main site entrance on the L1537. The selection of a temporary site access on the N20 is discussed in Chapter 3 – Section 3.6.4 of the EIA – Alternatives. . It is also noted there is precedent for wind farms using entrances on National Roads – Inchamore Wind Farm, Co. Cork

Consultee	Type & Date	Summary of Response	Response to Consultee
		• The developer, in preparing EIAR, should have regard to TII Publications (formerly DMRB and the Manual of Contract Documents for Road Works). • The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (National Road Authority (NRA), 2014). • The EIAR should consider the 'European Communities (Environmental Noise) Regulations, 2018, (S.I. no. 549 of 2018)', and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (NRA, 2014)'). • It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site, with reference to impacts on the national road network and junctions of lower category roads with national roads. In relation to national roads, TII's 'Traffic and Transport Assessment Guidelines' (2014) should be referred to in relation to Project with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of TII's TTA Guidelines, which addresses requirements for sub-threshold TTA. Any improvements required to facilitate development should be identified. It will be the responsibility of the developer to pay for the costs of any improvements to national roads to facilitate the private development proposed, as TII will not be responsible for such costs. • The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required. • In the interests of maintaining the safety and standard of the national road network, the EIAR should identify	(N22) and Derrinlough Wind Farm, Co. Offaly (N62). Delivery of turbine components at site entrance 1 will take place outside peak traffic times on the N20 The proposed temporary access on the N20 will be used for turbine delivery only. All general construction traffic will access the site Via the L1537 local road. Traffic management and speed reduction measures during enabling works and turbine delivery under Garda escort at the site entrance are discussed in the TMP (Appendix 17.2). The temporary N20 entrance will be Fully reinstated following construction. Details of the reinstatement are shown in the Junction Design Report (Appendix 17.6) and on the planning drawings. The design team consulted Limerick City and County Council staff on 08 July 2024 with details of the proposed N20 junction configuration A Traffic and Transport Assessment (Appendix 17.1) Traffic Management Plan (Appendix 17.2), Swept Path Analysis – Foynes

Consultee	Type & Date	Summary of Response	Response to Consultee
		the methods/techniques proposed for any works traversing/in proximity to the national road network. • TII recommends that the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Where abnormal 'weight' loads are a feature of the development, e.g., turbine or substation components, separate structure approvals/permits and other licences may be required in connection with the proposed haul route. All national road structures on the haul route through all the relevant County Council administrative areas should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal 'weight' load proposed. In addition, the haul route should be assessed to confirm capacity to accommodate abnormal 'length' loads and any temporary works required are identified. The national road network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contractors (MMaRC) and local road authorities, in association with TII. The applicant/developer should also consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul route traverses, to ascertain any operational requirements, including delivery timetabling, etc., to ensure that the strategic function of the national road network is safeguarded. Where temporary works within any MMaRC Boundary are required to facilitate the transport of turbine components to site, the applicant/developer shall contact thirdpartyworks@tii.ie in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place. Additionally, any damage caused to the pavement on the existing national road arising from any temporary works due to the turning movement of abnormal loads (e.g., tearing of the surface course, etc.) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the road authority prior to the commencement of any development on site.	Port (Appendix 17.3), Swept Path Analysis – Galway Port (Appendix 17.4), Road Safety Audit (Appendix 17.5) and Junction Design Report (Appendix 17.6) have been carried out for the Project. Landscape and visual impacts are assessed in Chapter 10 of the EIA Cumulative effects relating to traffic are assessed in this chapter The design team have referenced TII publications including policy documents, technical documents and specifications on the TII website www.TII.ie Noise assessed in Chapter 11 of the EIA A Traffic and Transport Assessment has been carried out for the Project and is included in Appendix 17.1.

Consultee	Type & Date	Summary of Response	Response to Consultee
		Any Road Safety Audit requirements should be addressed. • Any grid connection and cable routing proposals should be developed to safeguard proposed road schemes, as TII will not be responsible for costs associated with future relocation of cable routing where proposals are catered for in an area of a proposed national road scheme. In that regard, consideration should be given to routing options, use of existing crossings, depth of cable laying, etc. In the context of the existing national road network, in accordance with the National Planning Framework National Strategic Outcome No. 2 'Enhanced Regional Accessibility', there is a requirement to maintain the strategic capacity and safety of the network. This requirement is further reflected in the NDP, the National Investment Framework for Transport in Ireland and also the existing Statutory Section 28 'Spatial Planning and National Roads Guidelines for Planning Authorities'. There is around 99,000km of roads in Ireland. The national road network, which caters for strategic inter-urban travel, consists of only approx. 5.4% of this. There is a critical requirement to ensure the strategic capacity and safety of this national road network is maintained and significant Government investment already made in the national road network is safeguarded. The provision of cabling along the national road network represents a number of significant implications for TII and road authorities in the management and maintenance of the strategic national road network and TII is of the opinion that grid connection cable routing should reflect the foregoing provisions of official policy. Section 12.4.1.1 'Accelerate Renewable Electricity Generation' of the Climate Action Plan 2024 (CAP24) outlines the objective of reaching 80% of electricity demand from renewable sources by 2030 through a range of measures, including: *"All relevant public bodies will carry out their functions in a manner which supports the achievement of the renewable electricity targets, including, but not limited to, the use of road and rail infrastructure to provide a route for grid infrastructure where this is the optimal solution".* (Climate Action Plan 2024, p.163) Consistent with CAP24, for all renewable energy developments requiring grid connection to the national grid, TII recommends that a full assessment of all route	A Road Safety Audit has been carried out for the Project and is included in Appendix 17.5. The findings of the Road Safety Audit have been considered in the design of the Project. A Traffic Management Plan has been carried out for the Project and is included in Appendix 17.2. Turbine Delivery Haul route Assessments have been carried out for the Project and are included in Appendix 17.3 and 17.4. Vehicle weights do not exceed 180 tonnes and structures on the haul route with spans not exceeding 50m are not subject to a Category 3 structural assessment as defined in Section 1.3 of DN-STR-03001 published by TII for exceptional abnormal loads. Abnormal load vehicles in convoys will be spaced to minimise loading on all structures along the TDR. All PPP operators will be contacted prior to

Consultee	Type & Date	Summary of Response	Response to Consultee
		alternatives for grid connection takes place, including alternatives to public road, where appropriate. In TII's experience, grid connection accommodated on national roads has the potential, inter alia, to result in technical road safety issues such as differential settlement due to backfilling trenches and can impact on ability and cost of general maintenance, upgrades and safety works to existing national roads. Having regard to the foregoing, in TII's opinion, the grid connection routing, where it is proposed to utilise the road network, must demonstrate that the route proposed represents the 'optimal solution'. In addition, there is a finite road space available to accommodate all utilities in the road network and TII recommends that a co-ordinated approach to grid connection routing in this area is achieved to avoid risk to the effective delivery of renewable energy projects. Other consents or licences may be required from the road authority for any trenching or cabling proposals crossing the national road. TII requests referral of all proposals agreed and licensed between the road authority and the applicant, which affect the national road network. Cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII. Any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network. Notwithstanding any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice. I hope that this information is of assistance to you. **Yours sincerely,** _____ **Andrew Moore** **Senior Regulatory & Administration Executive**	transportation of turbine components. Garroose bridge is listed on the National Inventory of Architectural Heritage (NIAH 21904703) and is on the proposed Haul Route for materials. Due to the proximity to the proposed site entrance 2 and proposed traffic volumes, an inspection and structural assessment on the bridge was undertaken, see **Appendix 17.7**. The assessment concludes that "*the triple arch bridge is currently in a relatively good structural condition. Our assessment indicates that the bridge is capable carrying the loads exerted on it by standard roadworthy vehicles.* Recommendations from the RSA have been Implemented into the Project design. All Grid Connection works are within the site boundary. No grid connection works are taking place on the National, Regional or Local road networks.
Department of Transport	03/01/24	**Re: Request for Scoping Opinion on information to be included in the preparation of an Environmental Impact Assessment Report (EIAR) for Garrane Green Energy Limited, for development in the townlands of Garrane, Ballynagoul & Creggane, Charleville & Killmallock, Co. Limerick**	Traffic Addressed in this Chapter and in the Traffic and Transport Assessment

Consultee	Type & Date	Summary of Response	Response to Consultee
		The Department of Transport makes the following comments on consultation request relating to the Scoping Report for the proposed Garrane Wind Farm, Co. Limerick. It should be noted that the Department considers the construction involved in providing this development and especially, the connection cables to the national grid, may have effects on both the environment and the Regional and Local Road network. Where the developer proposes the placement of any cables (or additional cables) in one or more trenches within the extents of the (regional and local) public road network, it is necessary to consider the following: • Their presence within the public road will likely significantly restrict the Road Authority in carrying out its function to construct and maintain the public road and will likely add to the costs of those works post construction. • Their installation within the lands associated with the public road may affect the stability of the road. In particular where the road is a "legacy road" (where there is no designed road structure and the subgrade may be poor or poorly drained) the design needs to take account of all the variable ground conditions and not be based on a sample of the general soil conditions. • The possible effect on the remaining available road space (noting that there may be need to accommodate other utilities within the road cross-section in the future). • The necessity to have the power in the cables switched off where the Road Authority considers this necessary in order to carry out its function to construct and maintain the public road. The Department consider it important that the examination of the proposal should include consideration of the following: • Examination of all available technologies (including both Overhead Line (OHL) and Underground Cable (UGC) options or combinations of both) and route options other than the routing of cables along the public road, • Examination of options for connection to the national grid network at a point closer to the wind farm in order to reduce the adverse impact on public roads,	(Appendix 17.1) and the Traffic Management Plan in Appendix 17.2 No grid connection works associated with the Project are taking place on the public road network.

Consultee	Type & Date	Summary of Response	Response to Consultee
		• Details of where within the road cross section cables are to be placed so as to minimise the effect on the Roads Authority in its role of construction and maintenance, • Examination of details of any chambers proposed within the public road cross section so as to minimise the effect on the Roads Authority in its role of construction and maintenance, • Elimination of permanent jointing bays from beneath the road pavement to protect the integrity of the road structure for the safety of those driving on the public road by eliminating hard spots and also preserve the road width for other utilities, • Prevention of the attachment of cables to all bridge structures and culverts by diverting them beneath or away from these structures and, • Rationalisation of the number of cables involved (including existing electric or possible future cables) and their diversion into one trench, in order to minimise the impacts on the road network and the environment along the road boundary (hedgerows). The Department considers the following should be considered when applying conditions to any approval: 1. A condition requiring the specific approval of the local authority to the detail of the final route of cables through the public road space. If during construction there is a need to deviate from the detailed design then the approval of the local authority would again be sought. This would assist in minimising the impact on the public road. 2. A condition requiring the developer to comply with all appropriate standards and, inter alia the Guidelines for Managing Openings in Public Roads, 2017 in order to ensure orderly development. 3. A condition requiring that the location of the cables would be recorded as exactly as possible (maybe using BIM type technology) so as to facilitate the further use of road space for utilities and the maintenance/construction of the public road by the Roads authority. This record should include as constructed surveys of all infrastructure altered, added, removed or relocated and exact detail of the road construction including any drains or other features encountered. The record should be lodged	

Consultee	Type & Date	Summary of Response	Response to Consultee
		with the local authority and with the ESB Networks for retention on their records. 4. A condition to require the elimination of permanent jointing bays from under the road pavement to protect the integrity of the road structure, thereby improving safety for those driving on the public road by eliminating hard spots and preserving the road width for other utilities. 5. A condition requiring the developer to route cables away from bridge structures and specifically preventing the developer from attaching cables to road bridges. This would allow for the future maintenance of bridges without interruption of the electricity supply along the cables. 6. A condition requiring the replacement of culverts that have been excavated during the cable duct placement operation. The replacement culverts should be designed appropriately and include an allowance for the effects of climate change. 7. A condition requiring the developer to notify the Roads Authority of the owner of the cables (Owner) and the controller (Power Controller) of the power transmitted along the cables. In addition, the condition should require Owner and Power Controller to notify the Roads Authority of any change in ownership of the cables or change of Power Controller transmitting power along the cables. In all instances the Owner and Power Controller should be required to maintain an agreed contacts list with the Roads Authority. *Central Policy, Coordination and Reform* **An Roinn Iompair** *Department of Transport* **Lána Líosain, Baile Átha Cliath, D02 TR60** Leeson Lane, Dublin, D02 TR60 T +353 (0)1 604 1177 gcu@transport.gov.ie www.gov.ie/transport	

17.2 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

17.2.1 Assessment Methodology

This assessment of the impact and effects on the traffic generated by the Project on the existing public road network and its sensitive receptors has been carried out using the following methodology:

- Policy and guidance review.
- Desk study, including review of available maps and published information.
- Site visit (driving the route) including review of road network to be used.
- Classified traffic count data.
- Vehicle speed survey.
- Topographical Survey of potential 'constraints.
- Swept Path Analysis of the TDR (Included in **Appendix 17.3** and **Appendix 17.4** of this report).
- Establishment of Baseline Scenario and existing traffic flows / junction capacity.
- Traffic and transport Assessment of junctions in the vicinity of the Site (Included in **Appendix 17.1** of this report).
- Evaluation of potential effects.
- Evaluation of the significance of these effects.
- Identification of measures to avoid and mitigate potential effects (**Section 17.4).**

The methodology for the assessment has been based primarily on guidance from TII publication PE-PDV-02045, Traffic and Transport Assessment Guidelines and Guidelines on the Information to be Contained in Environmental Impact Assessment Reports published by the Environmental Protection Agency (EPA). A full list of policy and guidance documents relating to this assessment is given in **Table 1.2**.

Traffic generated by existing developments, permitted developments and known proposed plans and projects are cumulatively assessed in the Traffic and Transport chapter of the EIAR and in the Traffic and Transport Assessment (TTA) in **Appendix 17.1**. This includes plans and projects that are pending a decision from the planning authority, An Bord Pleanála and other known projects which are in the advanced stages of being prepared to be submitted for planning and have the potential for in combination effects and including the evaluation of residual effects following implementation of mitigation measures. Further details of the assessment are provided in the following sections.

Planning Policy and Guidelines / Guidance

In addition to the EIAR standards outlined in **Chapter 1: Introduction**, this assessment has been prepared and carried out in accordance with guidance contained in the documents shown in **Table 17.2**.

Table 17.2: Policy and Guidance

Policy / Author	Title	Policy
Limerick City and County Council	Limerick Development Plan 2022 - 2028	Chapter 7 Sustainable Mobility and Transport Chapter 11 Development Management Standards
Department of Transport, Tourism and Sport and Department of Environment, Community and Local Government	The Design Manual for Urban Roads and Streets (DMURS)	This document outlines guidelines on the design of urban roads and streets in terms of street networks, street signage, pedestrians and cyclists, carriageways (widths, surfaces, junctions etc.), policies and plans, design process and audits (safety and quality).
Transport Infrastructure Ireland (TII)	Standards and Technical Documents	A full list of the TII standards and specifications are found on the TII website at the following link, www.tiipublications.ie/current-documents/2024-/Current-Documents-(May-2024).pdf a summary of the TII specifications and standards used during the design of the Project are listed below.
Transport Infrastructure Ireland (TII)	Introduction (INT)	GE-1NT-01029 Introduction to the TII publications system
Transport Infrastructure Ireland (TII)	Planning & Development (PDV)	Traffic & transport assessment guidelines
Transport Infrastructure Ireland (TII)	Environment (ENV)	Management of waste / landscape treatment / invasive species / Air quality / noise
Transport Infrastructure Ireland (TII)	Geometry (GEO)	Road link design / junction design / cross sections & headroom
Transport Infrastructure Ireland (TII)	Pavement (PAV)	Pavement and foundation design / materials / skid resistance
Transport Infrastructure Ireland (TII)	Drainage (DNG)	Road drainage
Transport Infrastructure Ireland (TII)	Policy (POL)	TII policy guidelines
Transport Infrastructure Ireland (TII)	Project Appraisal Guidelines (PAG)	Travel demand projections and calculations
Transport Infrastructure Ireland (TII)	Road equipment (REQ)	Design and assessment of road restraint systems

Policy / Author	Title	Policy
Transport Infrastructure Ireland (TII)	Safety (STY)	Guidance for road safety audits
Transport Infrastructure Ireland (TII)	Specification For Works (SPW)	Specification for materials and workmanship
Transport Infrastructure Ireland (TII)	Standard Construction Details (SCD)	Details for road construction
Department of the Environment and Local Government and Department of Transport	Traffic Management Guidelines 2012	This document outlines guidelines for traffic management and sustainability, consultation and monitoring, speed management, junctions, vulnerable road users, public transport and parking. The guidelines recommend that consultation is carried out for schemes that involve a long construction period or area. The guidelines outline the relevant legislation governing different types of road works. The guidelines outline safety measures to be taken in the design of roads and junctions. The guidelines outline the arrangements for temporary traffic management where construction and improvement of roads is taking place and who should be consulted in planning for roadworks and the factors to consider.
Department of Transport, Tourism and Sport	Guidelines for Managing Openings in Public Roads (Second Edition, April 2017)	The document prescribes standards in respect of the work of forming openings, backfilling and the reinstatement of road surfaces and the associated materials to be used on all roads other than National Roads. It also prescribes procedures and requirements in relation to the use of MapRoad Roadworks Licensing (MRL) and its use for all road openings in public roads other than those openings carried out by a road authority.
Department of Transport	Traffic Signs Manual www.trafficsigns.ie	Temporary traffic measures and signs for roadworks. Regulatory / directional / information / warning signs and road markings for the public road network
Transport Infrastructure Ireland (TII)	Spatial Planning and National Roads Guidelines (2012)	It is in the public interest, in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should identify the methods/techniques proposed for any works traversing/in proximity to the national road network, in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.

17.2.3 Study Area

The Study Area for Traffic and Transport Assessment is focused on the public road network, its associated junctions and sensitive receptors. The study area for the assessment is based on professional judgement and experience of similar projects and includes the public road

network, junctions and site entrances which will be used by traffic generated by the Project during the following activities:

- Transportation of granular materials for wind farm access road and Turbine Hardstand construction.
- Transportation of concrete and steel reinforcement for the construction of Turbine Foundations.
- Transportation of turbine components using abnormal load vehicles along the Turbine Delivery Route from Shannon Foynes Port / Port of Galway (turbine blades only) to the Project site entrance on the N20.
- Enabling works at junctions and pinch points on the public road network to facilitate the swept path of abnormal load vehicles delivering turbine components along the Turbine Delivery Route between Shannon Foynes Port or the Port of Galway (turbine blades only) and the Project site entrance on the N20.
- Traffic associated with the operation and maintenance of the Project during the 35-year operational life, subject to planning permission being granted.
- Traffic associated with the decommissioning of the Project.

17.2.4 Desk Study

A desk study of the existing road network in the vicinity of the Project was carried out to determine potential locations and layouts for the site entrances and to determine potential haul routes for the delivery of turbine components using abnormal load vehicles. The desk study involved using AutoCAD and AutoTRACK software combined with Lidar survey, OSI / Bing / Google Maps and Streetview to assess the suitability of public road network for junction visibility and vehicle turning movements. The Swept Path Analysis in **Appendix 17.3** and **Appendix 17.4** has been carried out using a 73.9m long blade for a turbine with 150m rotor diameter. The blade represents the largest components to be transported. The blade will be transported using a Superwing blade delivery vehicle loaded with a horizontal blade between the landing port and the Project entrance on the N20. The blade delivery vehicle will have the greatest impact on the public road network due to the length of the loaded vehicle.

17.2.5 Field Work

The preliminary wind farm design, haul route assessment and turbine delivery route assessment has been carried out using Lidar data supplied by Ordnance Survey Ireland (OSI) and supplemented using detailed topographical survey information carried out at the proposed site entrances, watercourse crossings and at pinch points on the turbine delivery

route. The topographical survey was carried out by Precision Utility Mapping, topographical surveyors at various stages of the design process.

The design team carried out a site visit with Limerick City and County Council staff to assess the proposed site entrances to the Project on the N20 and the L1537 and reviewed the construction haul routes in the vicinity of the site. The site visit was carried out on 09th August 2023.

The design team contacted Limerick City and County Council on 08th July 2024 and presented a design option for N20 Site Entrance 1. Limerick City and County Council's comments on the design were incorporated into the design of N20 site Entrance 1.

The haul route for the transportation of turbine components between Shannon Foynes Port and the site entrance on the N20 has been assessed by Jennings O'Donovan & Partners Limited. The assessments have been carried out using AutoTRACK software to determine the swept path of abnormal load vehicles delivering turbine components. Details of the assessment are included in **Appendix 17.3**.

The alternative haul route for the transportation of turbine blades between the Port of Galway and the Project site entrance on the N20 has been assessed by Jennings O'Donovan & Partners Limited. The assessments have been carried out using AutoTRACK software to determine the swept path of abnormal load vehicles delivering turbine components. Details of the assessment are included in **Appendix 17.4**.

Classified traffic counts were undertaken by Jennings O' Donovan during a site visit on 13th January 2023 to record traffic volumes and turning movements of vehicles at the N20 / R518 O'Rourke's Cross junction, R518 / L1537 junction in Bruree village and at the R515 / L1537 junction to the east of Charleville. Traffic volumes at the N20 site entrance were obtained from the TII traffic counter at Rockhill which is located between O'Rourke's Cross junction and the proposed site entrance. The automatic count data is freely available on the TII website. The traffic counts were carried out to determine baseline traffic volumes in the area and formed the basis of the traffic and transport Assessment in **Appendix 17.1**. The locations of the traffic counts were chosen at the junctions which will be used by the majority of wind farm traffic to access the Site. The selection of the traffic count locations is based on guidance from PE-PDV-02045 and professional judgement following site visits carried out to assess the existing road network and traffic flows.

A vehicle speed survey on the L1537 was undertaken by Jennings O' Donovan during a site visit on 20th November 2024. Details of the speed survey are included in **Appendix 17.1**.

Site entrance 1 from the N20 public road has been subject to a Stage 1 Road Safety Audit carried out by the CST Group, chartered consulting Engineers in October 2024. Details of the audit are included in **Appendix 17.5**.

Limerick City and County Council, TII, Department of Transport and Cork County Council were consulted as part of the proposed Project design scoping process. Consultation comments are listed in **Table 17.2**.

17.2.6 Receiving Environment

The location of the Site entrances to the Project are shown on **Figure 17.1**. Site Entrance 1 on the N20 is located at an existing farm entrance which will be upgraded as part of the Project. The N20 (**Plate 17.1**) is a 6.0m wide Type 3 single carriageway with hard shoulders and grass verges. The N20 runs between Limerick and Cork and has a 100km/h speed limit classification at the proposed site entrance. The proposed site entrance on the N20 will be used during abnormal load deliveries including turbine components, cranes and transformers. Existing traffic volumes on the N20 were obtained from the TII traffic counter on the N20 at Rockhill which is located to the north of site Entrance 1. The results from the automatic traffic counter show that in 2024 the N20 had an AADT of 11,555 vehicles with 8.4% HGV traffic.

Plate 17.1: N20 National Primary Road

Site Entrance 2 on the L1537 is located at existing farm entrances which will be upgraded as part of the Project. The L1537 local road (**Plate 17.2**) is a 3.0m wide single carriageway with grass verges and has an 80km/h speed limit classification. The L1537 runs between the R518 in the village of Bruree and the R515 to the east of Charleville. The L1537 will be used by wind farm construction, operations and decommissioning traffic to access the

Project. Existing traffic volumes on the L1537 are calculated from the classified traffic counts carried out by JOD on 13th January 2023 at the R518 and R515 junctions. Using the methodology from TII publication PE-PAG-02039 to calculate annual average daily traffic (AADT) from short period traffic counts, the resulting AADT on the L1537 is calculated from the recorded traffic and has an AADT of 610 vehicles at its junction with the R518 in Bruree village which equates to a two-way traffic flow of approximately 52 vehicles during peak hour traffic periods with 2% HGV traffic. The L1537 local road has an AADT of 400 vehicles at its junction with the R515 to the east of Charleville which equates to a two-way traffic flow of approximately 34 vehicles during peak hour traffic periods with 6% HGV traffic.

Plate 17.2: L1538 Local Road

The R518 regional road (**Plate 17.3**) is a 6.0m wide single carriageway with grass verges and an 80km/h speed limit classification. The R518 runs between the N69 at Askeaton and Kilmalloch. The R518 will be used by wind farm construction, operations and decommissioning traffic to access the Project. Existing traffic volumes on the R518 are calculated from the classified traffic counts carried out by JOD on 13th January 2023 at the R518 / L1537 junction. Using the methodology from TII publication PE-PAG-02039 to calculate annual average daily traffic (AADT) from short period traffic counts, the resulting AADT on the R158 is calculated from the recorded traffic counts on the R158 regional road has an AADT of 3,520 vehicles at its junction with the L1537 in Bruree village which equates to a two-way traffic flow of approximately 300 vehicles during peak hour traffic periods with less than 5% HGV traffic.

Plate 17.3: R518 Regional Road

The R515 regional road (**Plate 17.4**) is a 6.0m wide single carriageway with grass verges and an 80km/h speed limit classification. The R518 runs between the N24 at Tipperary to Charleville. The R518 will be used by wind farm construction, operations and decommissioning traffic to access the Project. Existing traffic volumes on the R515 are calculated from the classified traffic counts carried out by JOD on 13th January 2023 at the R515 / L1537 junction. Using the methodology from TII publication PE-PAG-02039 to calculate annual average daily traffic (AADT) from short period traffic counts, the resulting AADT on the R155 is calculated from the recorded traffic counts on the R155 regional road and has an AADT of 4,470 vehicles at its junction with the L1537 to the east of Charleville which equates to a two-way traffic flow of approximately 390 vehicles during peak hour traffic periods with less than 4% HGV traffic.

Plate 17.4: R515 Regional Road

Site Entrance 1 to the Project is located on the N20 national primary road (**Plate 17.5**) at an existing field entrance. The existing entrance will be upgraded as part of the Project. Full details of the upgraded site entrance are given in **Section 17.3** of this report.

Plate 17.5: N20 Site Entrance 1

Site Entrance 2 to the Project is located on the L1537 local road (**Plate 17.6**) at an existing field entrance. The existing field entrance will be upgraded as part of the Project. Full details of the upgraded site entrance are given in **Section 17.3** of this report.

Plate 17.6: L1537 Site Entrance 2

The existing junction between the R518 and the L1537 (**Plate 17.7**) is a simple T-junction with priority for R518 traffic. The junction is located in Bruree village in a 50km/h speed limit zone. The junction is lit by public lighting. Observations during the traffic counts and traffic analysis carried out at the junction using the recorded traffic volumes show that there are no capacity problems at the junction under current traffic conditions. The junction is currently operating at free flow conditions with a level of service of A. Road network and junction capacity is measured in terms of level of service (LOS) thresholds which are based on the queuing delay on each arm of the junction. The transportation LOS system uses the letters A through F as described in **Section 17.2.19** of this report. The results of the analysis are included in the TTA, **Appendix 17.1**.

Plate 17.7 – R518 / L1537 Priority Junction

The existing junction between the R515 and the L1537 (**Plate 17.8**) is a simple T-junction with priority for R515 traffic. The junction is located to the east of Charleville in an 80km/h speed limit zone. The junction is lit by public lighting. Observations during the traffic counts and traffic analysis carried out at the junction using the recorded traffic volumes show that there are no capacity problems at the junction under current traffic conditions. The junction is currently operating at free flow conditions with a level of service of A. Road network and junction capacity is measured in terms of level of service (LOS) thresholds which are based on the queuing delay on each arm of the junction. The transportation LOS system uses the letters A through F as described in **Section 17.2.19** of this report. The results of the analysis are included in the TTA, **Appendix 17.1**.

Plate 17.8: R515 / L1537 Priority Junction

The existing junction between the N20 and the R518 at O'Rourke's Cross (**Plate 17.9**) is a staggered T-junction with priority for N20 traffic. The junction is located in a 60km/h speed limit zone. The junction is lit by public lighting. Observations during the traffic counts and traffic analysis carried out at the junction using the recorded traffic volumes show that there are no capacity problems at the junction under current traffic conditions. The junction is currently operating at free flow conditions with a level of service of A. Road network and junction capacity is measured in terms of level of service (LOS) thresholds which are based on the queuing delay on each arm of the junction. The transportation LOS system uses the

letters A through F as described in **Section 17.2.19** of this report. The results of the analysis are included in the TTA, **Appendix 17.1**.

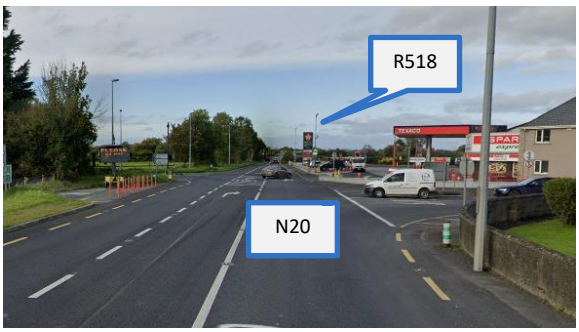


Plate 17.9: N20 / R518 O'Rourkes Cross Junction

17.2.7 Project Entrance Works

The location of the site entrances to the Project are shown on **Figure 17.1**. A detailed description of the Project entrances and Site entrance works on the public road network is given in Section 3 of the Traffic Management Plan in **Appendix 17.2** of this report. The works will include:

Site Entrance 1

- Construction of a temporary site entrance on the N20 to accommodate the swept path and wheel loading from abnormal load vehicles.
- Trimming of boundary and verge vegetation for visibility at entrance.
- Reinstatement of temporary entrance following delivery of turbine components.

Site Entrance 2

- Upgrading of existing field entrance on the L1537 to accommodate construction HGV Vehicles.
- Trimming of boundary and verge vegetation for visibility at entrance.

17.2.8 Grid Connection Works

The location of the Project grid connection is shown on **Figure 17.2**. The grid connection works will be carried out within the boundary of the Project and will not be carried out on the public road network.

17.2.9 Turbine Delivery Route and Enabling Works

The turbine components for the Project will be shipped to Shannon Foynes Port or to the Port of Galway (turbine blades only). The turbine components will be transported on the public road network using abnormal load vehicles between the landing port and site Entrance 1 on the N20. The proposed Turbine Delivery Routes are shown on **Figure 17.3**

for Shannon Foynes Port and **Figure 17.4** for the Port of Galway. Delivery vehicles will use the following road network to access the Site, Via. Shannon Foynes Port:

- N69 - Limerick County Council / Transport Infrastructure Ireland
- N18 - Limerick County Council / Transport Infrastructure Ireland
- M20 - Limerick County Council / Transport Infrastructure Ireland
- N20 - Limerick County Council / Transport Infrastructure Ireland

Via the Port of Galway (turbine blades only):

- M6 - Galway County Council / Transport Infrastructure Ireland
- Exit from Port of Galway onto Dock Street – Galway City Council
- Lough Atalia Road – Galway City Council
- R339 – Galway City Council
- R336 – Galway City Council
- N6 national primary road – Galway City Council / Galway County Council / Transport Infrastructure Ireland
- M6 motorway – Galway County Council / Transport Infrastructure Ireland
- M18 - Galway County Council / Transport Infrastructure Ireland
- M18 - Clare County Council / Transport Infrastructure Ireland
- M18 - Limerick County Council / Transport Infrastructure Ireland
- N18 - Limerick County Council / Transport Infrastructure Ireland / PPP operator
- M20 - Limerick County Council / Transport Infrastructure Ireland
- N20 - Limerick County Council / Transport Infrastructure Ireland

A detailed description of the turbine delivery route and enabling works on the public road network is given in Section 4 and Appendix B of the Traffic Management Plan included in **Appendix 17.2** of this report. the works will include:

Via. Shannon Foynes Port:

- N69 / L6188 Junction at Foynes Port - Existing boundary to be set back, verge strengthening to withstand wheel loading on inside of bend, tree trimming for blade oversail, temporary removal / relocation of signs, street furniture and lighting columns at junction.
- N69 Ferrybridge - Vertical alignment of bridge to be checked to prevent grounding of vehicles.
- N69 Roundabout at Clarina - Over-run to be constructed through roundabout central island to withstand wheel loading from abnormal load vehicles.

- N69 / N18 / R510 Dock Road West Roundabout - Over-run to be constructed through roundabout central island to withstand wheel loading from abnormal load vehicles, tree trimming for blade oversail, temporary removal / relocation of signs, street furniture and lighting columns at junction.
- N69 / N18 /R510 Dock Road East Roundabout - Temporary removal / relocation of signs, street furniture and lighting columns at junction, modifications to roundabout central island for blade oversail, tree trimming for blade oversail.
- N18 Junction 1 – M20 Slip Road - Temporary removal / relocation of signs, street furniture and lighting columns for blade oversail, tree trimming for blade oversail.
- M20 Junction 5 – N20 Exit - Temporary removal / relocation of signs and street furniture for blade oversail, tree trimming for blade oversail.
- N20 Site Entrance - New site entrance constructed to accommodate the swept path of abnormal vehicles, removal of vegetation from N20 verges, tree trimming for blade oversail.

Via the Port of Galway (turbine blades only):

- Galway Docks - Parking restrictions in Galway Port Car Park, alterations to existing fencing, loadbearing surface to be provided
- Lough Atalia Road / R339 College Rd Junction - Existing signs and traffic lights to be temporarily removed during abnormal load deliveries, Contraflow to avoid traffic island.
- R338 / R339 Junction - Contraflow at junction to avoid traffic island and traffic lights on central island.
- R339 / L5034 Junction -Location of traffic lights and street furniture to be checked prior to transportation, existing hedge to be trimmed.
- L5034 / R336 Junction - Lighting column on inside of bend to be moved during transportation, vegetation to be trimmed for load oversail
- N6 / N83 / R336 Junction - Vehicles to contraflow slip lane at junction to avoid traffic islands, pedestrian railing to be removed at inside of bend during transportation, traffic light to be removed at inside of bend during transportation, directional sign to be relocated during transportation
- N6 / N67 Roundabout Segregated Left Turn Lane - Lighting column to be removed during transportation, road sign to be removed during transportation, road sign on splitter island to be removed during transportation
- N6 / M18 Junction – Entry Slip Road - Signs at entry to be removed during transportation, signs at entry to be removed during transportation

- N6 / M18 Junction – Exit Slip Road - Lighting Column at exit to be relocated during transportation, barrier to be set back during transportation, sign at exit to be relocated during transportation.
- N18 Approach to Tunnel - Height Restriction in Tunnel, width restriction at toll booth
- M20 / M18 Junction – Exit Slip Road - Vegetation to be removed from inside of slip lane
- L2025 M20 / N20 Junction – Exit Slip Road -Sign in verge relocated during transportation, signs on splitter island to be removed during transportation
- N20 Site Entrance - Temporary site entrance constructed to accommodate the swept path of abnormal vehicles.

17.2.10 Construction Haul Route for General HGV and LGV Traffic

All HGV traffic associated with the construction of the wind farm infrastructure will use the site entrances and road network shown on **Figure 17.4**. HGV access to site entrance 2 will operate using a one-way system. HGV traffic will approach the site from the R515 / L1537 junction to the east of Charleville and travel north to site entrance 2 on the L1537. HGV's exiting from the site will travel north on the L1537 to the R518 regional road in the village of Bruree. The one-way system with indicative directional signage is shown on **Figure 17.5**.

Site Entrance 1 on the N20 1 will be constructed as a temporary entrance for abnormal loads, site entrance 1 will not be used by general construction traffic or site personnel. Site entrance 1 will remain closed when not in use for abnormal load deliveries. Site entrance 1 will be used during the following phases of the wind farm construction and decommissioning,

- Construction of Site Entrance 1. The construction of site entrance 1 will be carried out over a period of approximately two to three weeks. The majority of the works will be carried out from within the site and will not impact on the operation of the N20. Works at site entrance 1 which involve alterations to fencing and the construction of the interface with the N20 carriageway will require temporary traffic management to be installed on the N20. Works at site entrance 1 which require temporary traffic management will be completed outside peak traffic hours on the N20, details of traffic management systems and speed reduction proposals are given in the TMP, **Appendix 17.2**.
- Delivery of abnormal loads including turbine components, cranes and transformers only. Site entrance 1 will not be used by general construction traffic or site personnel. Site entrance 1 will remain closed when not in use for abnormal load deliveries.

- The existing field entrance at site entrance 1 will remain operational for continued agricultural uses. The field entrance will be gated and will not be available for construction, operational of decommissioning traffic.
- Removal of turbine components from site using abnormal load vehicles during the decommissioning period.

Site Entrance 2 on the L1537 will be used during the following phases of the wind farm construction, operation and decommissioning,

- Construction of the access track infrastructure and watercourse crossings.
- Construction of turbine hardstands and foundations.
- Construction of the Onsite Substation.
- Construction of the Grid Connection.
- Emergency access during the operation of the Project.
- Access during the operation of the Project.
- Removal of material from site using during the decommissioning period.
- Field access to agricultural land following during construction, operation and decommissioning of the Project.

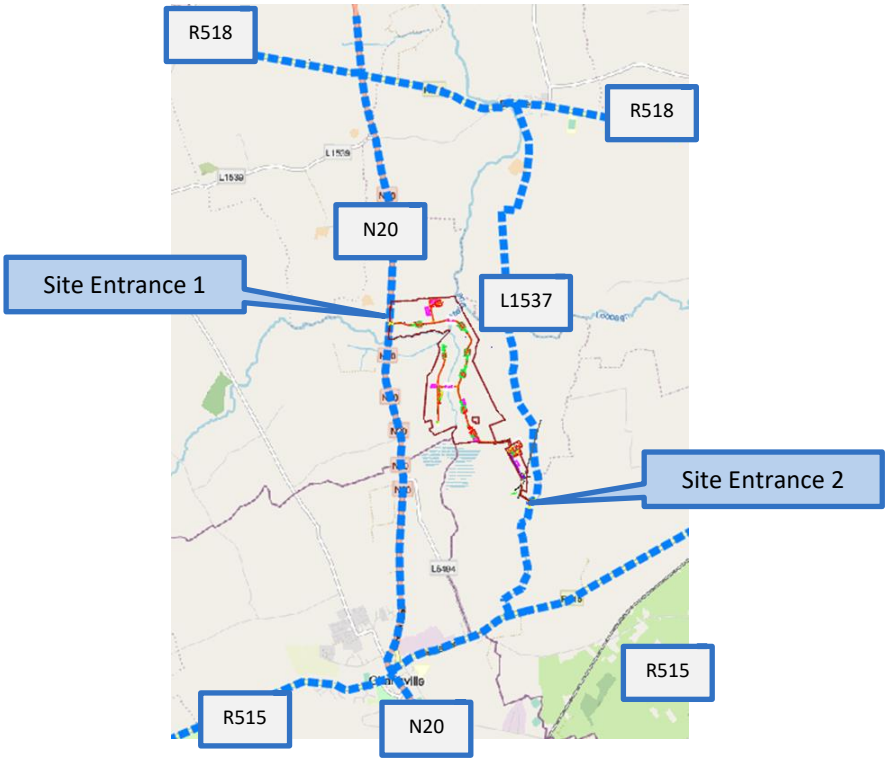


Figure 17.4: Construction Haul Route

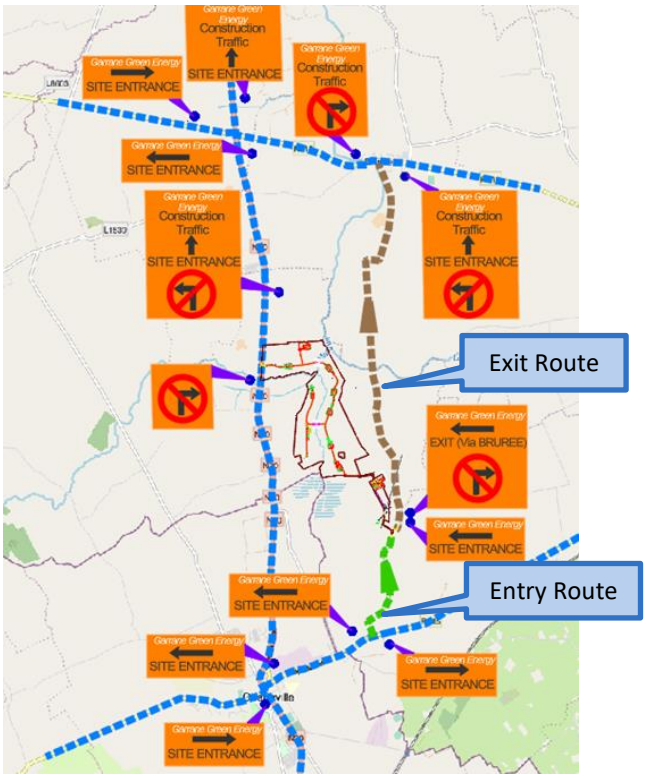


Figure 17.5: One Way System

17.2.11 Haul Routes for Grid Connection HGV Traffic

All HGV traffic associated with the construction of Grid Connection will use Site Entrance 2 to access the works. No Grid Connection works will take place on the public road network.

17.2.12 Haul Routes for Material Suppliers

The construction of the Project will require specific grades of granular material to be delivered to the Site for the structural layers of wind farm Access Tracks, fill under Turbine Foundations and Turbine Hardstands / crane platforms. The construction of Turbine Foundations will require imported ready mix concrete and reinforcing steel. The construction of the Onsite Substation and Control Building will require delivery of general building materials such as concrete blocks. Precast concrete products, ready mix concrete and plastic ducting will be required for onsite grid connections. The materials will be sourced from local quarries in the area such as those show on **Figure 17.6**. All construction materials will be delivered to the site via site entrance 2 using the road network shown on **Figure 17.5**.

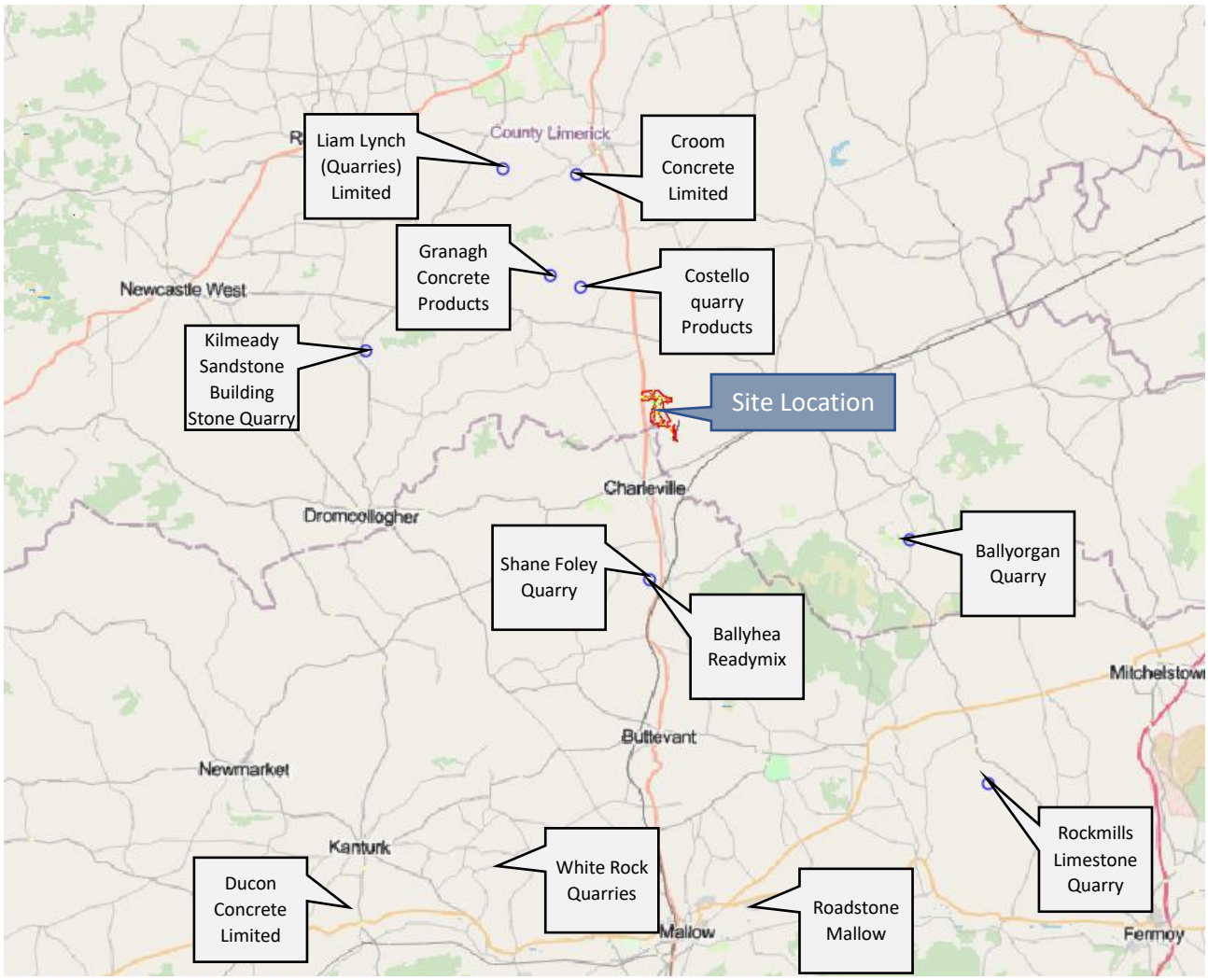


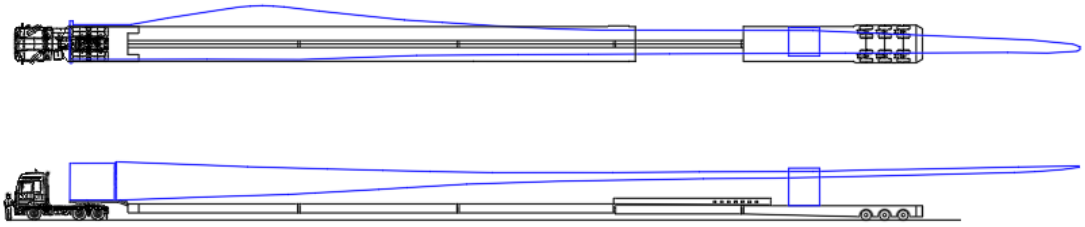
Figure 17.6: Ready Mix Concrete and Granular Material Supplier

17.2.13 Haul Routes for the Removal of Material from Site

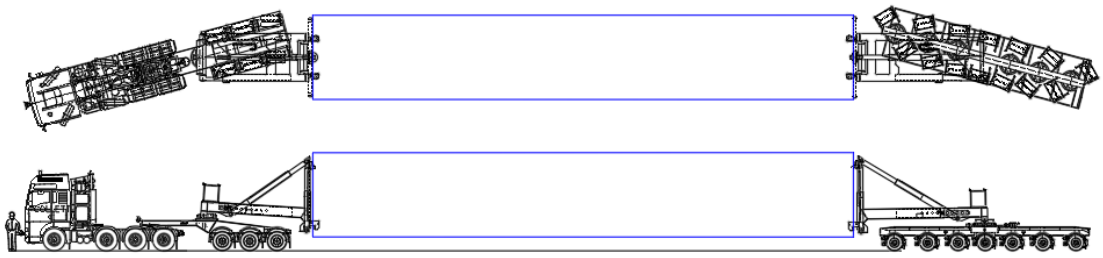
Topsoil and unsuitable subsoil material resulting from Site clearance will be processed / graded on Site and incorporated into non-structural elements of the design and used for site landscaping, suitable subsoil material resulting from site excavations will be incorporated into structural elements of the works. Surplus topsoil and subsoil will be deposited at spoil deposition locations throughout the site. Volumes of excavated material are detailed in the Project spoil management plan in the CEMP. The construction of enabling works for turbine delivery on the public road network will result in waste granular and asphalt material which will be transported for recycling / disposal at a licenced waste facility. Surplus topsoil and subsoil will be notified under Article 27 of the European Communities (Waste Directive) Regulations, 2011 or treated to comply with Article 28 if practicable. Any materials containing invasive species will be appropriately managed and sent to authorised facilities. Any materials containing invasive species will be appropriately managed and sent to authorised facilities for disposal.

17.2.14 Delivery Vehicle Specification

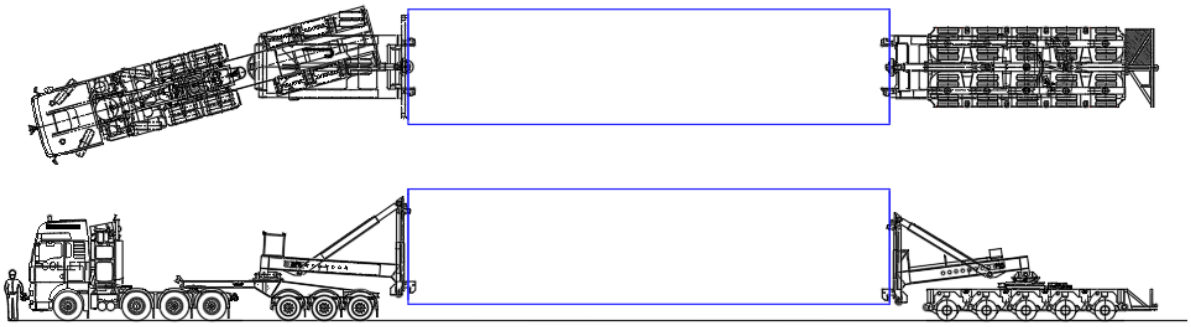
Delivery of road construction materials, concrete for Turbine Foundations, building materials, drainage, ducting and cables will be carried out using standard heavy goods vehicles (HGV). Delivery of turbine components will be carried out using specialist abnormal load vehicles. Turbine blades will be delivered on an extendable semi-trailer, one per trailer. The turbine blades will be 73.9m long, approximately 14m of the blade will overhang the rear of the trailer. Following delivery to the Site, the trailer will be retracted for the return trip. Each turbine tower will be delivered to site in sections using tower clamps and extendable semi-trailers, the tower sections range in length from 33.0m to 17.5m with a maximum width of 4.45m. All material deliveries will have a maximum axle load of 12 tonnes per axle, and a maximum gross vehicle weight of 139 tonnes. The main crane for turbine erection will have a maximum axle loading of 12 tonnes per axle and a maximum total weight of 100 tonnes. Vehicles delivering counterweights for the crane will have a maximum axle loading of up to 12 tonnes per axle. Vehicle weights do not exceed 180 tonnes and structures on the haul route with spans not exceeding 50m are not subject to a Category 3 structural assessment as defined in Section 1.3 of DN-STR-03001 published by TII for exceptional abnormal loads. Typical abnormal load vehicles used for the transportation of turbine components are shown below. The transport vehicles used for transportation of components may differ from those shown below depending on the haulage contractor's preferences.



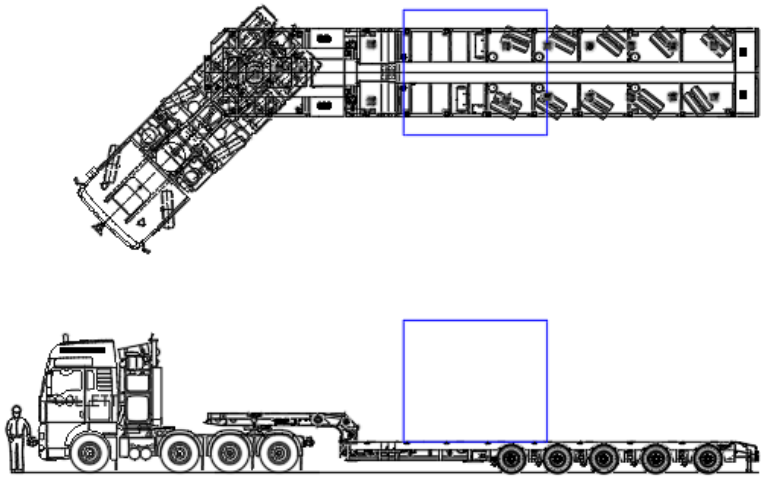
Typical Turbine Blade Transport Vehicle



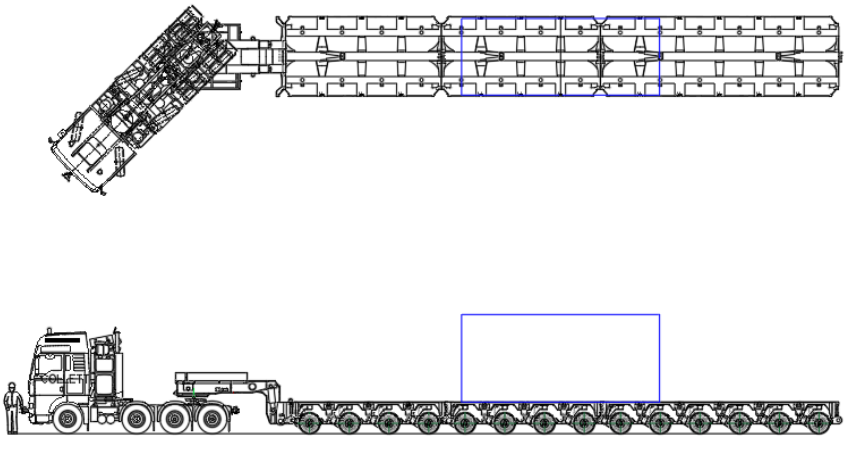
Typical Turbine Tower Transport Vehicle



Typical Nacelle Transport Vehicle



Typical Hub Transport Vehicle



Typical Drivetrain Transport Vehicle

17.2.15 Evaluation of Potential Effects

The baseline environment is described in **Section 17.2.6** of this report and in the Traffic and Transport Assessment in **Appendix 17.1**. Baseline traffic volumes have been recorded during a site visit on 13th January 2023 to record traffic volumes and turning movements of vehicles at the N20 / R518 O'Rourke's Cross junction, R518 / L8542 junction in Bruree village and at the R515 / L8542 junction to the east of Charleville. Traffic volumes at the N20 site entrance were obtained from the TII traffic counter at Rockhill which is located between O'Rourke's Cross junction and the proposed site entrance. The traffic counts were carried out between 7.30am and 9.30am in the morning to capture peak traffic flows during the morning period. The traffic counts were carried out to determine baseline traffic volumes in the area and formed the basis of the traffic and transport Assessment in **Appendix 17.1**. The locations of the traffic counts were chosen as the selected junctions will be used by the majority of wind farm traffic to access the Site.

A traffic analysis was carried out at the R518 / L1537 junction in Bruree village and at the R515 / L1537 junction to the east of Charleville using the 2024 Existing traffic flows to determine if capacity problems exist at the primary junctions in the vicinity of the Project.

Future year traffic assessments with TII factors for forecast traffic growth on the public road network were then carried out at the R518 / L1537 junction in Bruree village and at the R515 / L1537 junction using the following scenarios to determine if capacity problems would arise at the junctions with and without the development in place.

Do Nothing scenarios, Likely Evolution of the Baseline

- 2026 Projected traffic flows without the Project (Planning Approval)
- 2036 Projected traffic flows without the Project (Planning Period / Windfarm Construction (worst case scenario for traffic growth on the public road network allowing for a 10-year planning permission)
- 2071 Projected traffic flows without the Project (End of 35-year operations Period)

Do something scenarios

- 2036 Projected traffic flows with the Project (Wind Farm Construction Traffic (worst case scenario for traffic growth on the public road network allowing for a 10-year planning permission)
- 2071 Projected traffic flows with the Project (Wind Farm Decommissioning Traffic)

Traffic Infrastructure Ireland (TII) forecasts for future traffic growth on the public road network are published in PE-PAG-02017 "Travel Demand Projections". The growth factors are applied to the 2023 baseline traffic flows to approximate the traffic flows on the public road network in the future assuming the Project is granted planning permission in 2026, 10-year planning grant and construction in 2036 and a 35-year operational period and Decommissioning in 2071. The growth factors for the relevant assessment years using the central-growth scenario for County Limerick are shown in **Table 17.3**.

Table 17.3: Traffic Growth Factors for Public Roads

Year	LGV Growth Factor	HGV Growth Factor
2023	1.000	1.000
2026	1.053	1.100
2036	1.181	1.350
2071	1.607	2.460

A traffic assessment was carried out with the Project under construction in 2036 with additional traffic from unrelated planned and consented developments to determine if capacity problems would arise at the junctions due to combined traffic volumes in the vicinity of the Project.

Temporary traffic lights will be required for short periods on the N20 for traffic management during the construction of Site Entrance 1 to the Project. A traffic analysis has been carried out to assess the impact of the temporary traffic lights on the N20.

The data from the Traffic and Transport assessment in **Appendix 17.1** was then used to identify and categorise potential effects likely to affect the road network resulting from the construction, operation and Decommissioning of the Project.

17.2.16 Accident Statistics

Mapped statistics for accident data at the site entrances to the Project were not available from the RSA website in January 2024. Data published by TII in the national road risk rating 20 to 22 shows that the southbound approach to site entrance 1 has a twice below benchmark risk rating and the northbound approach to site entrance 1 has an above average risk rating.

17.2.17 Description of Effects

The description of effects arising from traffic associated with the Project are given in Table 3.4 of the EPA Guidelines 2022 and are categorised as follows in **Table 17.4**.

Table 17.4: Description of Effects

Table 17.4 Descriptions of Effects	
Quality of Effects It is important to inform the nonspecialist reader whether an effect is positive, negative or neutral.	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Describing the Significance of Effects 'Significance' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see Determining Significance).	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not Significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.
Describing the Extent and Context of Effects Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.	**Extent** Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the Probability of Effects Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Table 17.4 Descriptions of Effects	
Describing the Duration and Frequency of Effects 'Duration' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.	**Momentary Effects** Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Describing the Types of Effects	**Indirect Effects (a.k.a. Secondary or Off-site Effects)** Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst-case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

17.2.18 Assessing Receptor Sensitivity

The sensitivity of the transport infrastructure has been identified utilising the criteria outlined in the Traffic Management Guidelines published by the Department of Transport and TII publication DN-GEO-03031, Rural Road Link Design. These criteria are outlined in **Table 17.5** below.

Table 17.5: Receptor Sensitivity

Importance/Sensitivity of Receptor	Resource	Receptor
High	Local Tertiary and Local Secondary rural roads Local urban Collector and Access roads Where the road is a minor rural road, not constructed to accommodate frequent use by heavy goods vehicle (HGVs). Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures.	Where a location is a large rural settlement containing a high number of community and public services and facilities. Urban roads for local journeys and provide links to major routes. Many such roads will have residential and commercial access/frontage and there will be significant movements of pedestrians and cyclists
Medium	Local Primary rural, Regional roads and National Secondary Roads District Primary urban roads Roads capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures.	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services. These roads provide links between local districts within urban areas. They can have significant movements of buses and cyclists along them (segregated or on-road) and pedestrians crossing them where there are schools, shops, offices and businesses.
Low	National Primary Roads Where the road is constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.	Where a location is a small rural settlement, few community or public facilities or services.
Very Low	Motorways and Dual carriageways Where roads have no adjacent settlements.	Where a location includes individual dwellings or scattered settlements with no facilities or residents/workers travelling by foot or by vehicle.

17.2.19 Assessing Magnitude of Change

The magnitude of potential impacts has been defined in accordance with the criteria provided in TII Publication PE-PDV-02045, Traffic and Transport Assessment Guidelines and traffic management guidelines published by the Department of Transport. PE-PDV-02045 requires a traffic and transport assessment to be carried out for developments which will generate the following vehicle movements:

- 100 trips in / out combined in the peak hours for the Project.
- 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.

The traffic management guidelines require a traffic assessment for the following criteria:

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road
- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive

The assessment of priority road junction and road network capacity is carried out using industry standard TRL traffic modelling software PICADY to model isolated priority junctions as recommended in PE-PDV-02045 section 2.5.2.

Road network and junction capacity is measured in terms of level of service (LOS) thresholds which are based on the queuing delay on each arm of the junction. The transportation LOS system uses the letters A through F, with the following definitions:

- A = Free flow
- B = Reasonably free flow
- C = Stable flow
- D = Approaching unstable flow
- E = Unstable flow
- F = Forced or breakdown flow

The magnitude of change (using EPA Guidelines, Figure 3.4 replicated in **Figure 17.6 below**) based on increased traffic volumes on the public road network is measured in terms of LOS on the network arm as follows.

- High – considerable deterioration – Network arm has exceeded LOS = D (Approaching Unstable Flow) due to increased traffic volumes.
- Medium – readily apparent change in conditions - Network arm has entered LOS = D (Approaching unstable flow) due to increased traffic volumes.
- Low – perceptible change in conditions - Network arm has entered LOS = C (Stable Flow) due to increased traffic volumes.
- Negligible — no discernible change in conditions - Network arm has a LOS = A (Free Flow) / B (Reasonably free flow)

17.2.20 Assessing Significance of Effects

To determine the overall significance of the effects, the results from the receptor sensitivity and impacts magnitude assessment are correlated and classified using Figure 3.4 of the EPA Guidelines, May 2022 as shown in **Figure 17.7** below.

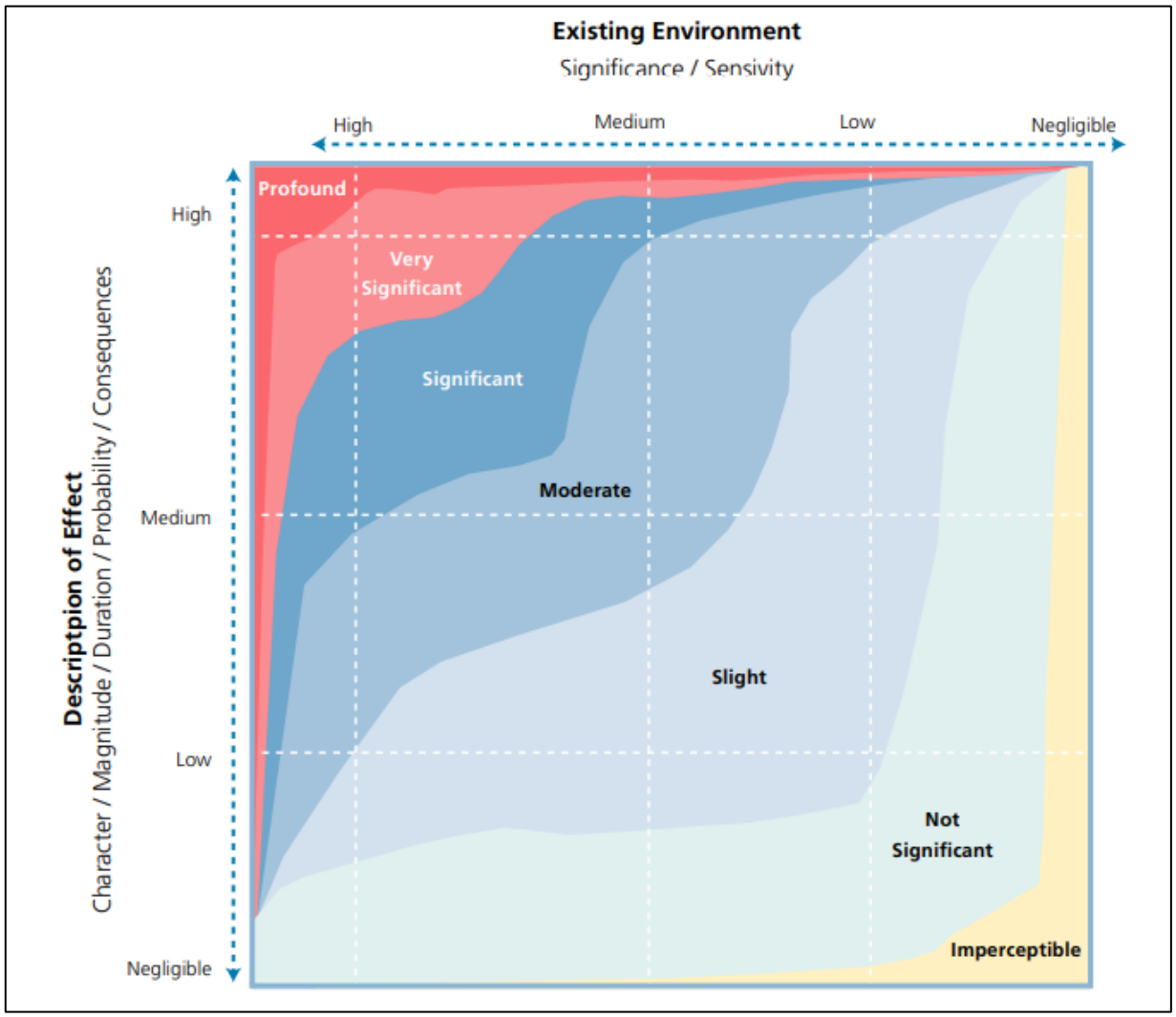


Figure 17.7: EPA Guidelines 2022, Significance of Effects (Figure 3.4)

17.2.21 Sensitive Receptors – Construction Period

The following sensitive receptors will be impacted by the additional traffic generated by the construction of the Project and by works carried on and adjacent to the public road network as part of the Project. Detailed descriptions of the works locations and traffic management measures are included in the Traffic Management Plan in **Appendix 17.2**. The assessment of sensitive receptors is carried out in **Section 17.3.2** of this report.

Table 17.6: Sensitive Receptors - Construction

Receptor	Sensitivity	Reason for inclusion
Charleville	High	Increased traffic volumes due to construction traffic.
Bruree Village	High	Increased traffic volumes due to construction traffic.
N20 / R515 Junction	Medium	Increased turning movements due to construction and turbine delivery traffic.

Receptor	Sensitivity	Reason for inclusion
R515 / L1537 Junction	Medium	Increased turning movements due to construction traffic.
R518 / L1537 Junction	Medium	Increased turning movements due to construction traffic.
N20	low	Increased traffic Volumes due to construction and turbine delivery traffic. Site entrance construction
L1537	Medium	Increased traffic Volumes due to construction traffic. Site entrance construction
R518	Medium	Increased traffic Volumes due to construction traffic.
R515	Medium	Increased traffic Volumes due to construction traffic.
N69	Low	Turbine Delivery Route via Shannon Foynes Port Increased traffic volumes due to turbine delivery traffic.
N18	Low	Turbine Delivery Route via Shannon Foynes Port / Port of Galway Increased traffic volumes due to turbine delivery traffic.
M20	Low	Turbine Delivery Route via Shannon Foynes Port / Port of Galway Increased traffic volumes due to turbine delivery traffic.
Dock Street	High	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
Lough Atalia Road	High	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
R339	Medium	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
R336	Medium	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
N6	Low	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
M6	Low	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.
M18	Low	Turbine Delivery Route via Port of Galway Increased traffic volumes due to turbine delivery traffic.

17.2.22 Sensitive Receptors – Operations Period

The following sensitive receptors will be impacted by the additional traffic generated by the operation of the Project. The assessment of sensitive receptors is carried out in **Section 17.3.2** of this report.

Table 17.7: Sensitive Receptors - Operation

Receptor	Sensitivity	Reason for inclusion
Charleville	High	Increased traffic Volumes due to operations traffic.
Bruree Village	High	Increased traffic Volumes due to operations traffic.
N20 / R515 Junction	Medium	Increased traffic Volumes due to operations traffic.
R515 / L1537 Junction	Medium	Increased turning movements due to operations traffic.
R518 / L1537 Junction	Medium	Increased turning movements due to operations traffic.
N20	low	Increased traffic Volumes due to operations traffic.
L1537	Medium	Increased traffic Volumes due to operations traffic.
R518	Medium	Increased traffic Volumes due to operations traffic.
R515	Medium	Increased traffic Volumes due to operations traffic.

17.2.23 Sensitive Receptors – Decommissioning Period

The following sensitive receptors will be impacted by the additional traffic generated by the Decommissioning of the Project and by works carried on and adjacent to the public road network as part of the Project. The assessment of sensitive receptors is carried out in **Section 17.3.2** of this report.

Table 17.8: Sensitive Receptors - Decommissioning

Receptor	Sensitivity	Reason for inclusion
Charleville	High	Increased traffic Volumes due to decommissioning traffic.
Bruree Village	High	Increased traffic Volumes due to decommissioning traffic.
N20 / R515 Junction	Medium	Increased turning movements due to decommissioning and turbine removal traffic.
R515 / L1537 Junction	Medium	Increased traffic Volumes due to decommissioning traffic.
R518 / L1537 Junction	Medium	Increased traffic Volumes due to decommissioning traffic.
N20	low	Increased traffic Volumes due to decommissioning and turbine removal traffic. Removal of wind farm site entrance
L1537	Medium	Increased traffic Volumes due to decommissioning traffic. Removal of wind farm site entrance

Receptor	Sensitivity	Reason for inclusion
R518	Medium	Increased traffic Volumes due to decommissioning and turbine removal traffic.
R515	Medium	Increased traffic Volumes due to decommissioning traffic.

17.3 ASSESSMENT OF POTENTIAL EFFECTS

17.3.1 Wind Farm Traffic Generation

The estimated timescale for the completion of the construction phase is 18 months, inclusive of all works to access tracks, access routes, Onsite Substation and Control Building and erection and commissioning of turbines and Grid Connection works.

The estimated HGV and abnormal load deliveries of materials and turbine components required to construct the Project, and the Grid Connection are given in **Table 17.9**. It is estimated that during the wind farm construction, an approximate total of 7,965 loads of material and building supplies will be delivered and removed from the Site. The majority of HGV movements to and from Site will occur during the first ten months of the construction period and will be associated with site road construction, turbine hardstand construction and turbine foundation construction.

The number of staff on site will vary according to the phase of the construction, peaking at approximately 60 at the height of the construction period. It is expected that the majority of workers will arrive on site in mini-buses and crew vehicles which are used to transport teams of workers from different construction disciplines. Labour vehicle sharing will be actively encouraged to reduce vehicular movements.

It is estimated that 55-60 staff light goods vehicles (LGV) will visit the site daily during the peak construction period. Parking for staff will be provided within the Temporary Construction Compound and within the works area during grid connection and TDR enabling works. No parking will be allowed for construction workers on the public road network in the vicinity of the Site. A small number of additional unscheduled visits may be required throughout the construction period for site inspections and unforeseen circumstances.

Table 17.9: HGV and Abnormal Load Deliveries

Materials	Quantity	No. Of Deliveries	Timeframe (Months)	Maximum Loads / Day	Vehicle Type
Site Establishment (Plant, Offices, welfare facilities)		10	1	5	OGV2
Site entrance construction (3 No.)	1,700m^3	170	1	10	OGV2
Fencing	200m	10	1	5	OGV2
Temporary Construction Compound	600m^3	60	1	10	OGV2
Construction of Internal Access Road	12,750m^3	1,275	2-5	10	OGV2
Bridges	3 No.	60	2-5	5	OGV2
Site Drainage	-	20	2-5	5	OGV2
Substation Buildings	-	50	4-9	5	OGV2
Substation Compound Construction	210m^3	20	4	10	OGV2
Substation Electrical Works	-	20	10-14	5	OGV2
Substation Commissioning	-	5	15-16	1	
Construction of Turbine Hardstands	50,600m^3	5,060	2-10	10	OGV2
Construction of Turbine Foundations (950m^3 Per Base)	8,550m^3	960	2-10	120	OGV2
Wind Farm Internal Cabling Installation	4,700m	50	10-12	5	
Turbine Delivery and Erection (crane)	9 Turbines	140	11-16	3	OGV2
Grid Connection	-	30	12-16	5	OGV2
Energisation	-	5	16	2	OGV1
Turbine Commissioning	-	5	16-18	2	OGV1
Site Restoration	-	15	16-18	5	OGV1 / OGV2
Total		**7,965**			

A schedule of maximum predicted daily traffic movements which may occur on the public road network due to the combined site activities over the 18-month construction period is shown in **Table 17.10**.

Table 17.10: HGV and Abnormal Load Deliveries to Site During Construction

Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Establishment (Plant, Offices, welfare facilities)	5																	
Site entrance construction (3 No.)	10																	
Fencing	5																	
Temporary Construction Compound	10																	
Construction of Internal Access Road		10	10	10	10													
Bridges		5	5	5	5													
Site Drainage		5	5	5	5													
Substation Buildings				5	5	5	5	5	5									
Substation Compound Construction				10														
Substation Electrical Works										5	5	5	5	5				
Substation Commissioning															1	1		
Construction of Turbine Hardstands		10	10	10	10	10	10	10	10	10								
Construction of Turbine Foundations (950m^3 Per Base)		120	120	120	120	120	120	120	120	120								
Wind Farm Internal Cabling Installation										5	5	5						
Turbine Delivery and Erection (crane)											3	3	3	3	3	3		
Grid Connection												5	5	5	5	5		
Energisation																**2**		
Turbine Commissioning																	**2**	**2**
Site Restoration																	**5**	**5**
Total	**30**	**150**	**150**	**165**	**155**	**135**	**135**	**135**	**135**	**140**	**13**	**18**	**13**	**13**	**9**	**11**	**7**	**7**

The first month of the wind farm construction period will involve deliveries of materials for site access works, Temporary Construction Compound, site offices and site security. This period will include deliveries of fencing materials for site boundaries and compounds, temporary fencing to protect trees, hedges and ecological buffer zones, road construction materials for Temporary Construction Compound and site entrance, and delivery of temporary site office units. It is anticipated that a maximum of 30 HGV vehicles (60 HGV movements) will visit the Site on a daily basis during the first month of the contract.

Months 2 to 10 will involve deliveries of materials for Turbine Hardstands, Turbine Foundations, site access tracks, Onsite Substation and Control Building and Wind Farm Internal Cabling, this period will include deliveries of road construction materials for access tracks and Turbine Hardstands, ready mix concrete and steel reinforcement for Turbine Foundations. It is anticipated that a maximum of 165 HGV vehicles (330 HGV movements) will visit the Site on a daily basis during the period. The peak traffic will occur on 9 days during the 9 month period between months 2 to 10 when Turbine Foundations are poured. Concrete pours for individual Turbine Foundations will generate 120 HGV arrivals (240 HGV movements).

Months 10 to 18 will involve HGV movements for works associated with turbine delivery, turbine erection, turbine commissioning, electrical works, Grid Connection works, road reinstatement, road surfacing, site landscaping and the removal of temporary works materials such as offices and fencing from site. It is anticipated that a maximum of 18 HGV vehicles (36 HGV movements) will visit the site on a daily basis during this period.

Based on the indicative timetable outlined above the peak times for HGV deliveries to Site will be during months 2 to 10 (45 daily HGV deliveries + 120 additional deliveries during concrete pours which will take place on nine separate days during this period). Project traffic will be distributed throughout the day with morning, afternoon and evening peaks. The distribution of Project traffic is shown in **Table 17.11** during the construction of Turbine Foundations.

Table 17.11: Development Traffic Profile

Time	Arrivals		Departures	
	HGV	LGV	HGV	LGV
06.00 – 07.00		35		
07.00 – 08.00	20	20	20	
08.00 – 09.00	15	5	15	2

Time	Arrivals		Departures	
	HGV	LGV	HGV	LGV
09.00 – 10.00	15		15	
10.00 – 11.00	15		15	
11.00 – 12.00	20		20	
12.00 – 13.00	15		15	
13.00 – 14.00	10	5	10	5
14.00 – 15.00	15		15	
15.00 – 16.00	15		15	
16.00 – 17.00	10		10	
17.00 – 18.00	10	2	10	5
18.00 – 19.00	5		5	20
19.00 – 20.00				35

17.3.2 Magnitude and Significance of Effects

The magnitude and significance of effects and their impact on public road users at works locations on the public road network is analysed in **Table 17.13**. The impact of the effects is based on the Traffic and Transport Assessment in **Appendix 17.1** which gives details of traffic analysis at junctions in the vicinity of the Site and the Traffic Management Plan in **Appendix 17.2** which gives details of works duration, traffic management, road closures and diversions. A summary of the traffic analysis from **Appendix 17.1** is shown in **Figure 17.8** for the R518 / L1537 Junction and **Figure 17.9** for the R515 / L1537 Junction. The results of the analysis show that the junctions will not exceed the 0.85 ratio of flow to capacity (RFC) and will continue to operate with reserve capacity beyond 2075. The ratio of flow to capacity (RFC) is calculated from Junctions 9 PICADY software. An RFC value of 1.0 indicates that the junction is operating at full capacity with a value of 0.85 considered to be the maximum RFC value after which the junction will begin to experience some capacity issues. Key metrics for the assessment of sensitive receptors in the vicinity of the site during the construction period are shown in **Table 17.12.**

	AM							
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2023 Existing Traffic Flows								
Stream B-AC	D1	0.1	0.5	8.76	0.08	A	1.03	A	321 %
Stream C-AB		0.0	0.5	4.96	0.03	A			[Stream B-AC]
	2026 - Forecaet Traffic Flows (No Development) - Planning Grant								
Stream B-AC	D2	0.1	0.5	8.89	0.08	A	1.05	A	297 %
Stream C-AB		0.0	0.5	4.96	0.03	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows (No Development) - Planning Period								
Stream B-AC	D3	0.1	0.5	9.20	0.10	A	1.08	A	252 %
Stream C-AB		0.0	0.5	4.95	0.03	A			[Stream B-AC]
	2071 - Forecaet Traffic Flows (No Development) - Operational Lifespan								
Stream B-AC	D4	0.2	0.5	10.85	0.15	B	1.24	A	136 %
Stream C-AB		0.1	0.5	4.93	0.05	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows - Development Construction Traffic								
Stream B-AC	D5	0.3	1.6	13.79	0.20	B	2.74	A	130 %
Stream C-AB		0.1	0.8	6.62	0.07	A			[Stream B-AC]
	2071 - Forecaet Traffic Flows - Development Decomissioning Traffic								
Stream B-AC	D6	0.5	1.7	15.74	0.27	C	2.68	A	74 %
Stream C-AB		0.2	1.2	6.16	0.09	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows - Development Construction Traffic - Additional Developments								
Stream B-AC	D7	0.4	1.8	14.47	0.22	B	2.87	A	109 %
Stream C-AB		0.2	1.0	6.60	0.08	A			[Stream B-AC]
	2071 - Forecaet Traffic Flows - Development Decomissioning Traffic - Additional Developments								
Stream B-AC	**D8**	**0.6**	**2.3**	**16.84**	**0.30**	**C**	**2.75**	**A**	**60 %**
Stream C-AB		**0.2**	**1.1**	**6.03**	**0.08**	**A**			**[Stream B-AC]**

Figure 17.8: Traffic Analysis Summary for the R518 / L1537 Junction

	AM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2023 Existing Traffic Flows								
Stream B-AC	D1	0.1	0.5	9.69	0.06	A	0.55	A	283 %
Stream C-AB		0.0	0.5	4.88	0.00	A			[Stream B-AC]
	2026 - Forecaet Traffic Flows (No Development) - Planning Grant								
Stream B-AC	D2	0.1	0.5	9.84	0.07	A	0.55	A	262 %
Stream C-AB		0.0	0.5	4.85	0.00	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows (No Development) - Planning Period								
Stream B-AC	D3	0.1	0.5	10.24	0.08	B	0.56	A	220 %
Stream C-AB		0.0	0.5	4.79	0.00	A			[Stream B-AC]
	2076 - Forecaet Traffic Flows (No Development) - Operational Lifespan								
Stream B-AC	D4	0.1	0.5	12.00	0.12	B	0.64	A	119 %
Stream C-AB		0.0	0.5	4.54	0.01	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows - Development Construction Traffic								
Stream B-AC	D5	0.3	1.6	15.43	0.18	C	2.23	A	112 %
Stream C-AB		0.2	1.0	6.58	0.07	A			[Stream B-AC]
	2071 - Forecaet Traffic Flows - Development Decomissioning Traffic								
Stream B-AC	D6	0.4	1.9	17.32	0.24	C	2.00	A	64 %
Stream C-AB		0.2	1.3	5.89	0.08	A			[Stream B-AC]
	2036 - Forecaet Traffic Flows - Development Construction Traffic - Additional Developments								
Stream B-AC	D7	0.6	2.4	15.67	0.27	C	6.57	A	118 %
Stream C-AB		0.1	0.7	8.32	0.08	A			[Stream B-AC]
	2071 - Forecaet Traffic Flows - Development Decomissioning Traffic - Additional Developments								
Stream B-AC	**D8**	**0.6**	**2.6**	**15.73**	**0.29**	**C**	**5.60**	**A**	**100 %**
Stream C-AB		**0.2**	**0.7**	**8.02**	**0.10**	**A**			**[Stream B-AC]**

Figure 17.9: Traffic Analysis Summary for the R515 / L1537 Junction

Table 17.12: Key Assessment Metrics

Receptor	Assessment Criteria		2036 Without Development	2036 With Development Construction Traffic	Comment
Charleville	N20 Traffic Volumes	AM Peak Hour	1095 Vehicles (990 LGV + 105 HGV)	1132 Vehicles (997 LGV + 135 HGV)	9% increase in overall traffic volumes and a 28% increase in HGV traffic during construction
		PM Peak Hour	1212 Vehicles (1093 LGV + 119 HGV)	1239 Vehicles (1100 LGV + 139 HGV)	2% increase in overall traffic volumes and a 17% increase in HGV traffic during construction
	R515 / L1537 Junction Analysis	AM Peak Hour	Max delay = 10.2s RFC = 0.10	Max delay = 15.4s RFC = 0.20	Overall junction LOS remains = A, traffic joining the R515 from the L1537 will experience a delay of 5 seconds due to construction traffic
Bruree Village	R518 / L1537 Junction Analysis	AM Peak Hour	Max delay = 9.2s RFC = 0.08	Max delay = 13.7s RFC = 0.18	Overall junction LOS remains = A, traffic joining the R518 from the L1537 will experience a delay of 5 seconds due to construction traffic
N20 / R518 Junction	N20 Traffic Volumes	AM Peak Hour	1095 Vehicles (990 LGV + 105 HGV)	1132 Vehicles (997 LGV + 135 HGV)	9% increase in overall traffic volumes and a 28% increase in HGV traffic during construction
		PM Peak Hour	1212 Vehicles (1093 LGV + 119 HGV)	1239 Vehicles (1100 LGV + 139 HGV)	2% increase in overall traffic volumes and a 17% increase in HGV traffic during construction

Receptor	Assessment Criteria		2036 Without Development	2036 With Development Construction Traffic	Comment
	R518 Traffic Volumes	AM Peak Hour	344 Vehicles (325 LGV + 19 HGV)	381 Vehicles (332 LGV + 49 HGV)	10% increase in overall traffic volumes with increased HGV traffic volumes during the morning peak hour.
	R518 Traffic Volumes	AM Peak Hour	344 Vehicles (325 LGV + 19 HGV)	381 Vehicles (332 LGV + 49 HGV)	10% increase in overall traffic volumes with increased HGV traffic volumes during the morning peak hour.
R515 / L1537 Junction	R515 / L1537 Junction Analysis	AM Peak Hour	Max delay = 10.2s RFC = 0.10	Max delay = 15.4s RFC = 0.20	Overall junction LOS remains = A, traffic joining the R515 from the L1537 will experience a delay of 5 seconds due to construction traffic
R518 / L1537 Junction	R518 / L1537 Junction Analysis	AM Peak Hour	Max delay = 9.2s RFC = 0.08	Max delay = 13.7s RFC = 0.18	Overall junction LOS remains = A, traffic joining the R518 from the L1537 will experience a delay of 5 seconds due to construction traffic
N20	N20 Traffic Volumes	AM Peak Hour	1095 Vehicles (990 LGV + 105 HGV)	1132 Vehicles (997 LGV + 135 HGV)	9% increase in overall traffic volumes and a 28% increase in HGV traffic during construction
		PM Peak Hour	1212 Vehicles (1093 LGV + 119 HGV)	1239 Vehicles (1100 LGV + 139 HGV)	2% increase in overall traffic volumes and a 17% increase in HGV traffic during construction

Receptor	Assessment Criteria		2036 Without Development	2036 With Development Construction Traffic	Comment
L1537	L1537 Traffic Volumes	AM Peak Hour	60 Vehicles (58 LGV + 2 HGV)	97 Vehicles (65 LGV + 32 HGV)	62% increase in overall traffic volumes with increased HGV traffic volumes during the morning peak hour.
R518	R518 Traffic Volumes	AM Peak Hour	344 Vehicles (325 LGV + 19 HGV)	381 Vehicles (332 LGV + 49 HGV)	10% increase in overall traffic volumes with increased HGV traffic volumes during the morning peak hour.
R515	R515 Traffic Volumes	AM Peak Hour	447 Vehicles (428 LGV + 19 HGV)	484 Vehicles (339 LGV + 49 HGV)	8% increase in overall traffic volumes with increased HGV traffic volumes during the morning peak hour.

Table 17.13: Magnitude and Significance of Impacts

Receptor	Sensitivity	Magnitude	Significance of Effect	Duration of Effect	Conclusion
Construction Period					
Charleville	High	Low	Moderate	Short Term	Not Significant
Bruree Village	High	Medium	Moderate	Short Term	Not Significant
N20 / R518 Junction	Medium	Medium	Moderate	Short Term	Not Significant
R515 / L1537 Junction	Medium	Medium	Moderate	Short Term	Not Significant
R518 / L1537 Junction	Medium	Medium	Moderate	Short Term	Not Significant
N20	low	Medium	Slight	Short Term	Not Significant
L1537	Medium	Medium	Moderate	Short Term	Not Significant

Receptor	Sensitivity	Magnitude	Significance of Effect	Duration of Effect	Conclusion
R518	Medium	Medium	Moderate	Short Term	Not Significant
R515	Medium	Medium	Moderate	Temporary	Not Significant
N69	Low	Medium	Slight	Temporary	Not Significant
N18	Low	Low	Slight	Temporary	Not Significant
M20	Low	Low	Slight	Temporary	Not Significant
Dock Street	High	Low	Slight	Temporary	Not Significant
Lough Atalia Road	High	Low	Moderate	Temporary	Not Significant
R339	Medium	Medium	Moderate	Temporary	Not Significant
R336	Medium	Medium	Moderate	Temporary	Not Significant
N6	Low	Medium	Slight	Temporary	Not Significant
M6	Low	Medium	Slight	Temporary	Not Significant
M18	Low	Low	Slight	Temporary	Not Significant
Operations Period					
Charleville	High	Negligible	Not Significant	Long Term	Not Significant
Bruree Village	High	Negligible	Not Significant	Long Term	Not Significant
N20 / R515 Junction	Medium	Negligible	Not Significant	Long Term	Not Significant
R515 / L1537 Junction	Medium	Negligible	Not Significant	Long Term	Not Significant
R518 / L1537 Junction	Medium	Negligible	Not Significant	Long Term	Not Significant
N20	Low	Negligible	Not Significant	Long Term	Not Significant
L1537	Medium	Negligible	Not Significant	Long Term	Not Significant
R518	Medium	Negligible	Not Significant	Long Term	Not Significant
R515	Medium	Negligible	Not Significant	Long Term	Not Significant
Decommissioning Period					
Charleville	High	Medium	Moderate	Temporary / Short Term	Not Significant
Bruree Village	High	Medium	Moderate	Temporary / Short Term	Not Significant
N20 / R515 Junction	Medium	Medium	Moderate	Temporary / Short Term	Not Significant

Receptor	Sensitivity	Magnitude	Significance of Effect	Duration of Effect	Conclusion
R515 / L1537 Junction	Medium	Medium	Moderate	Temporary	Not Significant
R518 / L1537 Junction	Medium	Medium	Moderate	Temporary	Not Significant
N20	Low	Medium	Slight	Temporary	Not Significant
L1537	Medium	Medium	Moderate	Temporary	Not Significant
R518	Medium	Medium	Moderate	Temporary	Not Significant
R515	Medium	Low	Slight	Temporary	Not Significant
Charleville	High	Low	Moderate	Temporary	Not Significant
Bruree Village	High	Low	Moderate	Temporary	Not Significant
N20 / R515 Junction	Medium	Low	Slight	Temporary	Not Significant
R515 / L1537 Junction	Medium	Low	Slight	Temporary	Not Significant
R518 / L1537 Junction	Medium	Low	Slight	Temporary	Not Significant
N20	Low	Low	Slight	Temporary	Not Significant
L1537	Medium	Low	Slight	Temporary	Not Significant
R518	Medium	Low	Slight	Temporary	Not Significant
R515	Medium	Low	Slight	Temporary	Not Significant

17.3.3 Air Quality

Construction HGV's, LGV's and private vehicles are subject to government HCV, LCV, ADR and NCT emissions tests. A full air quality assessment is included in **Chapter 13** of the EIA.

17.3.4 Noise and Vibration

There is likely to be some noise and vibration due to the predicted short-term increase in HGV movements along the Construction Haul Routes to the Project. The increased traffic volumes may cause disturbance to residents living along the local road network on the Project Construction Haul Route and Turbine Delivery Route. Due to the relatively low number of trips generated per day in relation to existing traffic volumes on the national and regional road network, the restrictions on working hours and the short-term nature of the

construction and decommissioning phases, the effects of noise and vibration are not predicted to be significant. Construction HGV's, LGV's and private vehicles are subject to government HCV, LCV and NCT noise and suspension tests. A full noise and vibration assessment is included in **Chapter 11** of the EIAR.

17.3.5 Pedestrians and Vulnerable Road Users

Pedestrian and other vulnerable road users may be affected by the works at the Project entrance, Construction Haul Routes, Turbine Delivery Route enabling works and increased vehicle movements during construction and delivery of turbine components. The construction of the Site entrances and modifications to the public road network at various locations along the Turbine Delivery Route will be carried out under a road opening licence and traffic management plan which will accommodate pedestrians at the works locations. Pedestrian networks are assessed as high sensitivity receptors located in urban centres and isolated rural locations. Pedestrian facilities may be altered for short periods during the transportation of turbine components. During these periods alternative arrangements will be put in place for pedestrians. The effect of the works at pedestrian locations has been assessed in **Table 17.12** as medium sensitivity for a short-term duration. The overall effect of works which will impact on pedestrian facilities has been assessed as non-significant.

17.3.6 Driver Delay

The traffic analysis carried out in the Traffic and Transport Assessment in **Appendix 17.1** at the R518 / L1537 junction in Bruree village and at the R515 / L1537 junction near Charleville shows that drivers will experience short delays due to increased traffic volumes during the wind farm construction and Decommissioning periods.

In 2036, vehicles joining the R518 from the L1537 will experience a delay of 9 seconds without development construction traffic and a delay of 14 seconds with the additional traffic generated by wind farm construction. In 2071, vehicles joining the R518 from the L1537 will experience a delay of 11 seconds without development decommissioning traffic and a delay of 16 seconds with the additional traffic generated by wind farm decommissioning. In 2036, vehicles joining the R515 from the L1537 will experience a delay of 10 seconds without development construction traffic and a delay of 16 seconds with the additional traffic generated by wind farm construction. In 2076, vehicles joining the R515 from the L1537 will experience a delay of 12 seconds without development decommissioning traffic and a delay of 17 seconds with the additional traffic generated by wind farm decommissioning. The effect is assessed as non-significant. The results from the traffic analysis are summarised in **Figure 17.8** and **Figure 17.9**.

The effects of the additional traffic volumes on the national road network are assessed as slight / moderate and temporary with a duration of 18 months. The effects of the additional traffic volumes on the regional road network are assessed as slight / moderate and temporary with a duration of 18 months. The effects of the additional traffic volumes on the local road network are assessed as moderate and temporary with a duration of 18 months. The effect of construction, operation and decommissioning traffic on the national, regional and local road networks is assessed as non-significant.

Enabling works on the public road network will be carried out using traffic management and temporary traffic signals at locations where it is not possible to maintain two-way traffic flows. Analysis carried out in the Traffic and Transport Assessment in **Appendix 17.1** shows that vehicles will experience delays of approximately 150 seconds when the lights are in place on the N20 and delays of approximately 75 seconds when the lights are in place on the L1537. The effects of the traffic management controls are assessed as slight and temporary. The effect of traffic management on the N20 and L1537 is assessed as non-significant. The location and duration of works requiring temporary traffic lights is detailed in the traffic management Plan in **Appendix 17.2**.

The delivery of turbine components will take place outside peak traffic periods to avoid disruption on the public road network. The sections of the TDR for the transportation of turbine components consisting of dual carriageway will have unrestricted passing opportunities and no delays to public road users are expected. There is potential for momentary delay to public road users in the urban areas surrounding Shannon Foynes Port / Port of Galway and at junctions on the haul route leading to the Site Entrance. Following assessment, it is concluded that delays to traffic due to turbine delivery will be imperceptible and momentary in duration. The effect of turbine component delivery on the public road network is assessed as non-significant.

17.4 MITIGATION MEASURES

17.4.1 Construction Phase

Although no long-term significant effects have been predicted, the proposed mitigation measures have been incorporated into the design to maintain the highest standard of road safety, minimise delay and disruption to all public road users, and to comply with statutory regulations:

- The appointed Contractor shall inform local residents, businesses and emergency services of proposed works on the public road network in advance of any works taking place on Site. Access shall be maintained to properties at all times during the course

of the works. The Contractor will appoint a project coordinator who will be the main point of contact for matters relating to traffic which will affect the general public, local businesses and emergency services. An out of hours contact number shall also be provided.

- Prior to delivery of abnormal loads i.e. turbine components, the Applicant or their representatives, will consult with An Garda Síochána, TII, PPP operators and all relevant Local Authorities to obtain all necessary abnormal load permits and discuss the requirement for a Garda escort. The Applicant will also outline the intended timescale for deliveries and efforts can be made to avoid peak times such as school drop off times, church services, peak traffic times where it is considered this may lead to unnecessary disruption, and abnormal loads may travel at night and outside the normal construction times as may be required by An Garda Síochána. Local residents at sensitive locations along the affected route will be notified of the timescale for abnormal load deliveries.
- Prior to delivery of abnormal loads, the Applicant or their representatives, will consult with TII, PPP operators and all Local Authorities through which the abnormal loads will pass and agree the specification for any enabling works to be carried out on the Turbine Delivery Route.
- Prior to the delivery of turbine components, a survey of the Turbine Delivery Route will be undertaken to identify if any overhead lines or height restrictions at toll booths will need to be lifted along the route to allow abnormal loads such as tower sections and nacelles to be delivered.
- Prior to the delivery of turbine components, a trial run shall be carried out between Foynes Port / Port of Galway and the Project entrance using an abnormal load vehicle with a retractable load gauge to determine that abnormal load vehicles can transverse the route without undue delay and disruption to public road users.
- During the construction and Decommissioning phases, road works signs in accordance with the requirements of Chapter 8 of the Traffic Signs Manual will be erected at all the Project entrance and at all locations on the Grid Connection route and Turbine Delivery Route which are being modified to facilitate turbine delivery. Details of signage are given in the Traffic Management Plan in **Appendix 17.2**.
- Wheel cleaning equipment will be used at all site entrance with the public road to prevent any mud and/or stones being transferred from Site to the public road network. All drivers will be required to see that their vehicle is free from dirt and stones prior to departure from the Site.
- To reduce dust emissions, vehicle containers/loads will be covered during both entrance and egress to the Site where required.

- All dust generating activities will be minimised where practical during windy conditions, and drivers will adopt driving practices to minimise the creation of dust. Where conditions exist for dust to become friable, techniques such as damping down of the potentially affected areas may be employed.
- Access to the construction site will be controlled by on Site personnel and all visitors will be asked to sign in and out of the Site by security/Site personnel on entering and exiting the site.
- All Site visitors will undergo a Site induction covering Health and Safety issues at the Contractor's temporary compound and will be required to wear appropriate Personal Protective Equipment (PPE) while onsite.
- A condition survey of the road network in the vicinity of the site entrances will be carried out and agreed with Limerick City and County Council prior to any works being carried out on site.
- All works on the public road network will be carried out using an approved road opening licence and traffic management plan.
- All wind farm vehicles shall have roof mounted flashing beacons when working on the public road network or will use their hazard lights within the Site.
- A speed limit of 25 km/h shall apply to all vehicles within the Site.

17.5 CUMULATIVE EFFECTS

17.5.1 Unrelated Proposed and Consented Developments

The Limerick City and County Council planning portal provides details of planned developments in County Limerick. A search of the portal in January 2025 shows that there are no planned residential or commercial developments in the vicinity of the Project site entrances which will generate a significant number of new long term trips on the public road network. Developments which were under construction in 2023 have also been included in the recorded traffic volumes. A list of adjacent developments and their impact on Development traffic are given in **Table 17.14**.

Table 17.14: Adjacent Developments

Other Developments	Status	Planning Reference	Approximate Distance to the Site Boundary	Direction from the Development	Traffic Impact
Annagh Wind Farm (6 Turbines)	Proposed		c. 8.6km	South	Not Significant
Tullacondra Wind Farm (9 Turbines)	Consented	9	c. 20.7km	Southwest	Not Significant
Ballinlee Wind Farm (17 Turbines)	Proposed	17	c. 7.7km	Northeast	Not Significant
Erection of a 30m high lattice telecommunications support structure together with antennae, dishes and associated telecommunications equipment, all enclosed in security fencing and extend existing access track	Permission	21986	2.2km	North	Not Significant
The development will consist of A) construction of a production building (approx. floor area 4200 sq.m) which will also include employee welfare facilities, plantrooms and storage area to facilitate additional capacity for the production of their existing Cheestrings product at this site and B); site works ancillary to the above including demolition of a store building (approx. floor area 37 sq.m), works to service roads, footpaths, car park and truck loading bay facilities, installation of drainage and utility services together with installation of external CIP storage tanks and pipe bridge structure, all in the vicinity of the proposed building.	Permission	224226	2.5km	Southwest	Not Significant The TTA accompanying the application states that the development will generate 3 additional HGV trips and 30 staff trips on a daily basis when the development is operational

Other Developments	Status	Planning Reference	Approximate Distance to the Site Boundary	Direction from the Development	Traffic Impact
Ball wall, astro turf pitch with perimeter fence including netting, astro turf LED lights and gravel path LED lights	Permission	23403	2.9km	Northeast	Not Significant
The erection of a 24m high lattice tower together with antennae, dishes, and associated telecommunications equipment, all enclosed by security fencing	Further information stage	2360822	3km	Northwest	Not Significant
The construction of 114KWP photovoltaics solar farm system, underground cable, an inverter building and all associated site works. These works are being carried out within the curtilage of a Protected Structure	Permission	19455	3.8km	North	Not Significant
The construction of a residential development of 56 no. units which will consist of the following: - 12 no. 3-bed semi-detached, 14 no. 3-bed end-terrace, 5 no. 3-bed mid-terrace and 9no. 2-bed mid terrace 2-storey dwelling houses along with 16 no. 1-bed maisonettes. Access to the Project is to be provided via the existing road serving the adjoining Brindle Hill residential development. Planning permission is also sought for connection to all necessary public services, secure bicycle parking and bin storage, associated landscaping and all ancillary	Permission	224578	3.9km	South	Not Significant Development Constructed- Traffic included in recorded traffic volumes

Other Developments	Status	Planning Reference	Approximate Distance to the Site Boundary	Direction from the Development	Traffic Impact
works necessary to facilitate the development.					
The construction of an anaerobic digestion facility to produce renewable biomethane, CO2 (which will be captured), and a bio-based fertiliser from organic material.	Refused	2560239	6km	Northeast	Not Significant
The construction of a 110kV 'Single Bay Tail Fed' Substation, 110kV Underground Grid Connection and all associated works	Permission	314431	8.7km	Southwest	Not Significant
Development of a 67.8ha Solar PV Farm	Permission	306915	8.7km	Southwest	Significant Increased traffic volumes on the N20 during construction of the Fiddane Solar farm
Construction of the new proposed M20 Motorway from Limerick to Cork	N/A	Design	1.6km	West	Significant Turbine Delivery Logistics
Permission for Retention to retain the following:- (a) Site floodlighting, (b) 2 no. ancillary single storey maintenance buildings, (c) 1 no. mobile tent structure for storage of battery powered lift machines, (d) Increase in concrete hardstanding area inside gated entrance and along north-east boundary and its use as an ancillary outdoor storage area and (e) All associated site works. Permission for the provision of a washdown separator to the existing power wash bay located on the extended concrete hardstanding.	New Application	254252	2.4km	Southwest	Not Significant

Other Developments	Status	Planning Reference	Approximate Distance to the Site Boundary	Direction from the Development	Traffic Impact
Foynes to Limerick Road (including the Adare Bypass) including all ancillary and consequential works.	Permission	306146			Significant Turbine Delivery Logistics

The Project is located close to the national and regional road network with links to the N20 National primary road. The results of the traffic analysis in **Appendix 17.1** show that the road and junction network will continue to operate with reserve capacity during construction, operation and decommissioning of the Project. An additional analysis was carried out to test the capacity of the junctions with traffic from the significant adjacent developments, forecast growth on the public road network plus an additional 10% of existing traffic volumes (to account for unknown developments) to test the capacity of the R515 / L1537 and R518 / L1537 junctions with additional development traffic which may arise in the future. The results of the analysis show that the road network will continue to operate with reserve capacity with additional development traffic during construction in 2036 and decommissioning in 2071. The results of the traffic analysis are included in **Appendix 17.1**.

17.6 RESIDUAL EFFECTS OF THE DEVELOPMENT

17.6.1 Construction Phase Residual Effects

The results of the traffic analysis in **Appendix 17.1** have shown that the existing public road network can accommodate the increased traffic volumes generated by the Project. Works on the public road network will be carried out using an approved traffic management plan and site entrances will be signposted in accordance with chapter 8 of the Traffic Signs Manual. Visibility at site entrance will be maintained in accordance with the Limerick County Council Development Plan. There is likely to be a slight residual effect on the condition of road surfaces at the site entrance due to vehicles turning and on the Grid Connection route prior to final road reinstatement. Following final road reinstatement, there will be no residual effects associated with the construction of the Project.

17.6.2 Operational Phase Residual Effects

There will be no residual effects on the public road network during the operational phase of the Project. The results of the traffic analysis in **Appendix 17.1** have shown that the existing public road network can accommodate the operational traffic generated by the Project when combined with predicted public traffic growth beyond 2071. The interface between the

Project and the public road network has been designed to eliminate residual risk with visibility splays, signs and road markings and dwell areas to allow vehicles to pull off the road when entering the Site.

17.6.3 Final Decommissioning Phase Residual effects

The results of the traffic analysis in **Appendix 17.1** have shown that the existing public road network can accommodate the increased traffic volumes generated by the Project during Decommissioning. There is likely to be a slight residual effect on the condition of road surfaces at the site entrance due to vehicles turning. The Decommissioning will be subject to a separate traffic management plan as the destination for recycled turbine parts may differ from the port of origin.

17.7 SUMMARY OF SIGNIFICANT EFFECTS

This section has assessed the significance of potential effects of the Project on traffic and transport.

Following assessment of the Quality of effects on the public road network, it has been concluded that the Quality of effects will be neutral with increased traffic flows during the construction and Decommissioning of the Project with no permanent changes to the horizontal or vertical geometry of the public road network and its associated junctions.

Following assessment, it has been concluded that the significance of the effects on the public road network where traffic management / two-way traffic flows can be maintained during works has been assessed as slight.

Following assessment, it has been concluded that the duration of effects relating to increased HGV traffic flows in the vicinity of the Site have been assessed as temporary and may last up to 18 months during the construction and Decommissioning of the Project, the maximum effects from increased HGV traffic flows will occur on 9 days during the 18 month construction period during the construction of Turbine Foundations.

Following assessment, it has been concluded that the duration of effects relating to enabling works on the Turbine Delivery Route and delivery of turbine components have been assessed as temporary lasting less than one year.

17.8 STATEMENT OF SIGNIFICANCE

This assessment has identified the potential effects of the Project on traffic and transport during the construction, operation and decommissioning of the Project. The assessment takes account of proposed mitigation measures embedded in the design and implementation during the construction, operation and decommissioning of the Project. The potential effects of the project are considered to be **Moderate** on the local road network and **Slight / Moderate** on the national and regional road network during the construction of the Project. The potential effects of the project on traffic during the operation of the Project are considered to be **Not Significant on the public road network**. The potential effects of the Project on traffic and transport during the decommissioning of the Project are considered to be **Moderate** on the local road network and **Slight / Moderate** on the national and regional road network.