Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Ballydermot Wind Farm, Co. Offaly & Co. Kildare



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GLOSSARY OF TERMS

Terms	Definition
Material Assets	Built services and infrastructure. Traffic is included because, in effect, traffic consumes transport infrastructure.
Traffic Volume	Traffic volumes are discussed in terms of vehicles and passenger car units (PCUs), where each vehicle is expressed in terms of its demand on the network relative to the equivalent number of cars or light goods vehicles.
Abnormal Indivisible Load	A load that cannot reasonably be divided into smaller loads for transportation and which exceeds the standard dimensions or weight limits applicable to road vehicles.
Background Traffic	Existing or forecast traffic volumes on a road network, excluding traffic generated by the development being assessed.
Swept Path Analysis	An assessment of the space required for a vehicle to manoeuvre along a route or through a junction, taking account of its dimensions and turning characteristics.
Link Capacity	The volume of traffic that a section of road can accommodate over a specified period under defined operating conditions, having regard to factors such as road type and width.
Visibility Splay	An area at an access junction that must remain unobstructed to provide drivers with adequate visibility of approaching traffic.
Trip Generation	The estimated number of vehicle trips or movements associated with a development during a specified period.
Level of Service	A qualitative measure used to describe the operational conditions experienced by road users, including traffic flow, speed, congestion and freedom to manoeuvre.
Degree of Saturation or Ratio of Flow to Capacity	A measure of the amount of available capacity being utilised for each movement. Ideally, each movement should operate at a level of no greater than 85% of capacity.
Queue	The average queue forecast for each movement, which is useful in determining whether queues may interfere with adjacent junctions.
Delay	The forecast average delay, expressed in minutes, during the time period modelled for each movement.
Clamp and Dolly Trailer	Specialised heavy-haul vehicles designed for transporting long wind turbine blades and tower sections.
Cumulative Effects	Effects arising from the interaction of a proposed development with other existing, permitted or proposed developments or activities.

Microwave Radio Link	A telecommunications connection that uses microwave-frequency radio signals to transmit information between locations, typically requiring a clear transmission path.
Fresnel Zone	An elliptical region surrounding the direct line of sight between two radio antennas through which radio signals propagate. Obstructions within this region may affect signal strength and transmission quality.
Point-to-Point Radio Link	A wireless telecommunications connection that transmits signals directly between two fixed locations using directional antennas.
Point-to-Multipoint Radio Link	A wireless telecommunications system in which a central transmission point communicates with multiple receiving locations.
Overhead Electricity Line	Electrical infrastructure comprising conductors suspended above ground by poles or towers for the transmission or distribution of electricity.
Horizontal Directional Drilling	A trenchless construction technique used to install underground utilities or cables beneath obstacles such as roads, watercourses or other infrastructure.

GLOSSARY OF ACRONYMS

Acronym	Definition
% Sat	Degree of Saturation
AADT	Annual Average Daily Traffic
AC	Alternating Current
AGL	Above Ground Level
AIL	Abnormal Indivisible Load
ASL	Above Sea Level
ATC	Automatic Traffic Counter
CAD	Computer-Aided Design
CEMP	Construction and Environmental Management Plan
CIE	Córas Iompair Éireann
ComReg	Commission for Communications Regulation
DC	Direct Current
DECC	Department of the Environment, Climate and Communications

Acronym	Definition
DoD	Department of Defence
DoT	Department of Transport
DoTT&S	Department of Transport, Tourism and Sport
EMF	Electric and Magnetic Fields
EPA	Environmental Protection Agency
ESBN	Electricity Supply Board Networks
GNI	Gas Networks Ireland
GPS	Global Positioning System
GSI	Geological Survey Ireland
GSM-R	Global System for Mobile Communications – Railway
GWS	Group Water Scheme
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HV	High Voltage
IPCC	Irish Peatland Conservation Council
KCC	Kildare County Council
LGV	Light Goods Vehicle
MMaRC	Motorway Maintenance and Renewal Contractors
MRF	Materials Recovery Facility
OCC	Offaly County Council
OCDP	Offaly County Development Plan
OHL	Overhead Line
PCAS	Peatlands Climate Action Scheme
PCU	Passenger Car Unit
PPP	Public-Private Partnership
PTP / PtP	Point-to-Point
PWS	Public Water Supply

Acronym	Definition
RFC	Ratio of Flow to Capacity
ROL	Road Opening Licence
RSA	Road Safety Audit
RWMP	Resource Waste Management Plan
SNH	Scottish Natural Heritage
TAO	Transmission Asset Owner
TDR	Turbine Delivery Route
TIA	Telecommunications Impact Assessment
TII	Transport Infrastructure Ireland
TMP	Traffic Management Plan
TX	Transmitter
UGC	Underground Cable

15. MATERIAL ASSETS

Material Assets are defined in the "*Guidelines on the Information to be contained in Environmental Impact Assessment Reports*" (EPA, 2022)[1] as "*built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure".*

Material assets may be either of human or natural origin. This chapter of the Environmental Impact Assessment Report (EIAR) addresses the likely significant effects of the Proposed Project on Traffic and Transport (Section 15.1), Telecommunications (Section 15.2) and Other Material Assets, i.e. utilities and waste management (Section 15.3), which are economic material assets of human origin.

The cultural assets of Cultural Heritage are addressed in Chapter 14 of this EIAR. Economic assets of natural heritage include non-renewable resources such as minerals or soils, and renewable resources such as wind and water. These assets are addressed in Chapter 8: Land, Soils and Geology, Chapter 9: Water, Chapter 10: Air Quality, and Chapter 11: Climate. Tourism and amenity resources, which are also considered material assets, are addressed in Chapter 5: Population and Human Health. The Population and Human Health chapter also addresses existing land-uses (economic assets).

Waste Management in the context of the Proposed Project is included in Chapter 4: Description of the Proposed Project. EPA Resource and Waste Management pertaining to the construction, operation and decommissioning of the Proposed Project is summarised in Section 4.5.7 of Chapter 4 of the EIAR. Traffic volumes generated by the removal of waste from the Proposed Project to authorised waste facilities, is considered in Section 15.1 below.

This chapter of the EIAR has been prepared in accordance with the requirements of the EIA legislation and guidance outlined in Chapter 1 Introduction.

As detailed in Section 1.1.1 of Chapter 1 Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation' and 'Proposed Offsite Substation'.

The Proposed Project is described in full in Chapter 4 of this Environmental Impact Assessment Report (EIAR).

15.1 Traffic and Transport

15.1.1 Introduction

15.1.1.1 Background and Objectives

This section of the EIAR assesses the effects on roads, traffic, and transport of the traffic movements that will be generated during the construction, operational and decommissioning phase of the Proposed Project.

For proposed projects of this nature, the construction phase is the critical period with respect to the traffic effects experienced on the surrounding road network, both in terms of the additional traffic volumes that will be generated on the road network and the geometric requirements of the abnormally

[1] *EPA, 2022. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Available at: https://www.epa.ie/publications/monitoring–assessment/assessment/EIAR_Guidelines_2022_Web.pdf*

large loads associated with the wind turbine components. The requirements of the additional traffic and abnormal loads generated during the construction phase have been assessed for the external road network that will provide access to the Project Site.

The magnitude of the increase in traffic volumes experienced on the surrounding network is identified during the various construction phases of the Proposed Project as outlined in Section 4.8.2 of Chapter 4. A Traffic Management Plan (TMP) is also provided in Section 15.1.8.5.1 aimed at minimising the traffic impact on the local road network. Refer also to Appendix 15-2 of this EIAR, for the TMP.

15.1.1.2 Statement of Authority

This section of the EIAR has been prepared by Alan Lipscombe of Alan Lipscombe Traffic and Transport Consultants Ltd. Alan is an expert in traffic and transport assessments with 37 years' experience in the industry. In 2007 Alan set up a traffic and transportation consultancy providing advice for a range of clients in the private and public sectors. Prior to this Alan was a founding member of Colin Buchanan's Galway office having moved there as the senior transportation engineer for the Galway Land Use and Transportation Study. Since the completion of that study in 1999, Alan has worked throughout Ireland on a range of projects including: major development schemes, the Galway City Outer Bypass, Limerick Planning Land-Use and Transportation Study, Limerick Southern Ring Road Phase II, cost benefit analyses (COBA) and various studies for the University of Galway. Before moving to Galway in 1997, Alan was involved in a wide variety of traffic and transport studies for CBP throughout the UK, Malta and Indonesia. He has particular expertise in the assessment of development related traffic, including many wind farm developments including the following: Ardderroo, Derrinlough, Knocknamork, Shehy More, Cloncreen, Derrykillew, Ballyhorgan, Lettergull, Barnadivane, Cleanrath, Knockalough, Seskin Wind Farm, Sheskin South and Borrisbeg.

Alan has a BEng (hons) Degree in Transportation Engineering (Napier University, Edinburgh, 1989), is a member of Engineers Ireland and of the Institute of Highways and Transportation and is a TII accredited Road Safety Audit Team Member.

Traffic counts were undertaken by Traffinomics Ltd, which is an Irish traffic survey company with a comprehensive knowledge of traffic data collection methods. The company, established in 2014, is headed by Simon Wheeler, who has been in the traffic survey data collection business for 35 years. Previously Simon worked with Count On Us Ltd., followed by Abacus Transportation Surveys Ltd., Ireland's first lens-based traffic data collection business. Clients of Traffinomics Ltd. include TII, Local Authorities and many leading retailers.

The TDR was identified and surveyed by Collett & Sons Ltd. Collett & Sons Ltd is a market-leading heavy transport and logistics consultancy with over 45 years of experience in managing Abnormal Indivisible Loads (AILs). The company specializes in the renewable energy sector, providing expert route planning, geometric surveys, and delivery logistics for onshore wind turbine components across the UK and Ireland. Collett & Sons Ltd employs a dedicated team of transport planners and engineers who utilize advanced computer-aided design (CAD) software to accurately model vehicle movements and ensure route viability for utility-scale wind projects.

The primary author of this Haul Route Assessment on behalf of Collett & Sons Ltd is Steven Mangham, Consulting manager, who holds Bachelor of Science in Civil Engineering with17 years of specialist experience in heavy haulage planning compiling successful delivery solutions for such projects as Derrinlough Wind farm, Cloncreen Wind Farm and Cushaling Wind farm. For the Ballydermot Wind Farm project, Collett & Sons Ltd were commissioned to perform a comprehensive assessment of the turbine delivery corridors. This work included executing geometric sweep path analysis for the turbine components and identifying necessary infrastructure mitigations to guarantee safe delivery from the Kilbeggan (M6 junction 5) to the proposed wind farm site.

15.1.2 Guidance on Assessment of Effects

This section of the EIAR has been completed in accordance with the EIA guidance set out in Section 1.2.1.1 of Chapter 1: Introduction. The assessment uses standard terminology to describe the likely significant effects associated with the Proposed Project. Further information on the classification of effects used in this assessment is presented in Section 1.8.2 of this EIAR. The methodology for the traffic impact assessment is outlined in Section 15.1.4, Section 15.1.5 and Section 15.1.6 below and is aligned with the guidance for such assessments as set out by Transport Infrastructure Ireland (TII) in the below listed documents:

- PE-PDV-02045, Traffic and Transport Assessment Guidelines, Transport Infrastructure Ireland, May 2014;
- PE-PAG-02017, Project Appraisal Guidelines, Unit 5.3, Travel Demand Projections, Transport Infrastructure Ireland, October 2021;
- DN-GEO-03060, Geometric Design of junctions, Transport Infrastructure Ireland, May 2023;
- GE-STY-01024 Road Safety Audit Guidelines, TII, May 2025; and
- DN-GEO-03030 Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvement Schemes, TII, April 2021.

15.1.3 Scoping and Consultation

An EIAR scoping document, providing details of the Proposed Project, was prepared by MKO and circulated to statutory consultees in 2021 in order to determine the content, depth and extent of the topics to be addressed in the environmental information submitted to the competent authority. An updated scoping document was issued to consultees in December 2025, reflecting the time elapsed since the previous scoping exercise, updates in local and national policy, legislation and relevant EIAR guidance, changes in the environmental baseline, and refinement of the Proposed Project layout and design. A full description of the scoping and consultation exercise, including the complete list of consultees and the responses received, is provided in Section 2.8 of Chapter 2 of this EIAR. The scoping responses of most relevance to traffic and transport, together with the Applicant's responses, are summarised below.

Transport Infrastructure Ireland

Transport Infrastructure Ireland (TII) responded to scoping via emails dated 17th February 2021 and 6th January 2026. In both responses, TII provided a list of recommendations to be followed when preparing the EIAR. All relevant TII guidelines and policies have been adopted in the preparation of this assessment, refer to Section 15.1.2 above.

Specific items raised by TII include the following as set out in Table 15-1a:

Table 15-1a Items raised by TII in relation to the Proposed Project and responses within the chapter

ID	Comment/Recommendation	Response
	National Road Network	
1	As set out in the Spatial Planning and National Roads Guidelines, it is in the public interest that, in so far as is reasonably practicable, 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	The impacts of the Proposed Project on the construction material and turbine component delivery routes in terms of link flows are set out in Sections 15.1.7 of the EIAR, while an assessment of the capacity of the site entrances is set out in Section 15.1.6.5.

ID	Comment/Recommendation	Response
	National Road Network, in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.	An assessment of the impacts during the construction of the Proposed Grid Connection is set out in Section 15.1.6.4 while a swept path analysis undertaken for the abnormally large loads on the Turbine Delivery Route is set out in Section 15.1.6.2 of the EIAR. The assessment sets out the temporary local measures that will be required on the national, regional and local road networks during the construction of the Proposed Project.
2	Consultations should be had with the relevant Local Authority / National Roads Design Office with regard to locations of existing and future national road schemes.	Consultation has been undertaken with the Offaly County Council and Kildare County Council Roads Departments, as set out below. A meeting was requested with TII following their scoping response in January, but it was declined.
3	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 proposed development, including the potential haul route.	The potential impacts of the Proposed Project on the surrounding road network, including its junctions, are assessed in Section 15.1.6.1, with the junction capacity assessment set out in Sections 15.1.76.1.1.
	TII Publications & Environmental Assessment Guidance	
4	It would be important that, where appropriate and subject to meeting the applicable thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment 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.	It is confirmed that the assessment presented in this section of the EIAR is undertaken in accordance with Traffic and Transport Assessment Guidelines, TII (2014).
5	The designers and assessors are asked to consult TII Publications to determine whether a Road Safety Audit is required.	A Road Safety Audit has been undertaken for the Proposed Project and is summarised in Section 15.1.6.6 with the report included as Appendix 15-7.
6	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' (NRA, 2014).	The potential impacts of the Proposed Project with regards noise set out in Chapter 12 of this EIAR.

ID	Comment/Recommendation	Response
7	The developer, in preparing the EIAR, should have regard to TII Publications (formerly the DMRB and the Manual of Contract Documents for Road Works).	The EIAR has had regard to the relevant TII Publications in the preparation of this assessment, as set out in Section 15.1.2
	Haul Routes Utilising the National Road Network	
8	The National Road Network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contracts (MMaRC) and local road authorities, in association with TII. The applicant/developer should consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul route traverses to ascertain any operational requirements, including delivery timetabling. Where temporary works within any MMaRC Contract 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 required by TII before the works can take place.	A detailed assessment of the abnormal load route is provided in Section 15.1.6.2.1. Consultation will be undertaken with these bodies prior to the delivery of abnormally large loads.
9	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), 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.	A detailed assessment of the abnormal load route is provided in Section 15.1.6.2.1. Consultation will be undertaken with these bodies prior to the delivery of abnormally large loads. The Applicant agrees with this condition, as set out in Section 15.1.8.5.1 of this EIAR.
	Proposed Grid Connection and Cable Routing	
10	It is noted that the grid connection proposals outlined in the EIAR Scoping Report do not impact the strategic National Road Network. However, in the event of any alteration, 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 and depth of cable laying.	As set out in Section 15.1.6.4, the Proposed Grid Connection comprises approximately 13.1km of underground 220kV cabling located primarily within the public (regional and local) road network, connecting into the existing Maynooth–Dunstown 220kV overhead line (OHL). As acknowledged by TII, the Proposed Grid Connection does not impact the strategic national road network. The design of the Proposed Grid Connection underground electrical cabling route has been designed to utilise existing crossings and will be put in place at the appropriate depth following pre-commencement surveys of existing built infrastructure in the public

ID	Comment/Recommendation	Response
		road corridor and in consultation with KCC, EirGrid, TII and other statutory bodies, as detailed in Chapter 4.

Department of Transport

The Department of Transport (DoT) responded to scoping via emails dated 17th April 2021 and to the updated scoping exercise by letter dated 8th January 2026. Specific issues raised by DoT include the following as set out in Table 15-1b:

Table 15-1b Issues raised by DoT in relation to the Proposed Project and Applicant Responses

ID	Comment/Recommendation	Response
	Placement of Cables within the Public Road Network	
1	The presence of cables 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.	The Applicant and their Contractor will work with the Road Authority to minimise impacts on construction and maintenance of the road network through the scheduling of construction sections of the route and agreement with diversion routes where required. It should be noted that any works within the public road corridor will be subject to a Road Opening Licence. This is a formal process through which the specific requirements of the Road Authority will be agreed.
2	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' (no designed road structure and poor/poorly-drained subgrade) or bog rampart. The design needs to take account of all variable ground conditions and should include a constructability assessment to a 950mm minimum cover depth to the HV cable on legacy roads and roads over peat / bog ramparts.	As set out in Section 15.1.8.5.1, all roads will be re-instated in line with the specification of the Road Sections of Offaly & Kildare County Council. The Road Opening Licence process includes for a long-term impact and reinstatement fees, that are held for a minimum of two years following the completion of works, to cover any road maintenance works that may be required. As identified in Chapter 8, the Proposed Onsite Substation and much of the western section of the Proposed Grid Connection underground electrical cable route is mapped to be overlain by cutover/cutaway peat (cut) with mainly basic deep well drained mineral soils further to the east

ID	Comment/Recommendation	Response
	Placement of Cables within the Public Road Network	
		The remainder of the Proposed Grid Connection underground electrical cable route and Proposed Offsite Substation are predominantly underlain by mainly basic poorly drained mineral soils. Construction methodologies to be implemented and materials to be used, as outlined in Section 4.9.2.3 of Chapter 4, to will ensure that the Proposed Grid Connection underground electrical cabling route is installed in accordance with the requirements and specifications of EirGrid and ESB
3	The possible effect on the remaining available road space should be considered, noting that there may be a need to accommodate other utilities within the road cross-section in the future, or additional drainage for climate adaptation. The proposed routing must be undertaken in a manner that avoids the potential to impact on the future maintenance, improvement and operation of the road network in the area.	The cabling has been designed and positioned to retain sufficient space within the road cross-section to accommodate other utilities and future drainage requirements, as detailed in Chapter 4; the design evolution of the Proposed Grid Connection underground electrical cabling route is outlined in Section 3.2.5.4 of Chapter 3 Site Selection and Reasonable Alternatives. At detailed design stage, underground cabling will be designed with sufficient clearance to ensure no impacts on the road. Therefore, there will be sufficient space for other utilities within the public road corridor.
4	The necessity to have the power in the cables switched off (particularly where structural failures occur due to extreme weather events) where the Road Authority considers this necessary to carry out its function to construct and maintain the public road; a complete operation and maintenance manual should be agreed with the Local Authority.	An operation and maintenance manual, including arrangements for the isolation of power where required by the Road Authority, will be agreed with the relevant Local Authority.
5	Reference should be made to Department of Transport Circular RW 07 of 2025 and the 'Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets)', issued pro tem pending the development of procedures by the 'HV Forum' and the outcome of the Private Wires Consultation.	The design and construction of the Proposed Grid Connection within the public road network has regard to Department of Transport Circular RW 07 of 2025 and the associated 'Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets)'.

ID	Comment/Recommendation	Response
	Placement of Cables within the Public Road Network	
6	Prior to commencement of development, engagement with the planning authority should discuss and agree the route for the HV cable(s), identifying the routing 'optimal solution', together with the associated requirements for traffic management, road opening licensing, times of work, reinstatement and positioning of chambers / joint bays. Electricity cabling shall be laid off carriageway where feasible. Wherever possible, joint bay structures are best located off the carriageway in verges, open spaces or adjacent sites; where they must be under carriageway, joint bay structures will be to accepted design standards. Prevention of the attachment of cables to all bridge structures and culverts by diverting them beneath or away from these structures	The cabling has been designed and positioned to retain sufficient space within the road cross-section to accommodate other utilities and future drainage requirements, as detailed in Chapter 4. At detailed design stage, underground cabling will be designed for an optimal solution' to ensure no impacts on the road. The proposed locations of joint bays, communication chambers and earth sheath link chambers are shown in the detailed site layout drawings in Appendix 4-1 of this EIAR. Joint Bays are subject to standard ESBN specification and cannot be eliminated from the Proposed Grid Connection underground cabling design. Once the sections of cabling have been connected within each joint bay, the chamber will be backfilled and the road surface will be reinstated as per Road Authority specifications. The proposed crossing methodologies of the Proposed Grid Connection underground cabling at all watercourses is outlined in Table 4-29 in Chapter 4 and is available in the detailed drawings forming Appendix 4-1 of this EIAR. It should be noted that any works within the public road corridor will be subject to a Road Opening Licence. This is a formal process through which the specific requirements of the Road Authority will be agreed.
7	A condition requiring the developer, at a minimum, to comply with all appropriate standards and, inter alia, the Guidelines for Managing Openings in Public Roads, 2017. A condition requiring that the location of the cables be recorded as exactly as possible, using BIM-type technology, including as-constructed surveys of all infrastructure altered, added, removed or relocated, with the record lodged with the local authority and with ESB Networks.	The Applicant agrees with these recommended conditions

ID	Comment/Recommendation	Response
	Placement of Cables within the Public Road Network	
	A condition requiring the replacement of culverts excavated during the cable duct placement operation, designed appropriately and including an allowance for the effects of climate change. A condition requiring the developer to notify the Roads Authority of the owner of the cables (Owner) and the controller of the power transmitted (Power Controller), and of any subsequent change, and to maintain an agreed contacts list with the Roads Authority.	

An Garda Síochána

An Garda Síochána (Tullamore) was consulted as part of the updated scoping exercise, with a response received on 14th April 2026.

In its response, An Garda Síochána acknowledged receipt of the scoping document and confirmed that it had no observations to offer in relation to the Proposed Project. No specific issues were therefore raised for the Applicant to address. Notwithstanding, An Garda Síochána will be consulted in advance of the delivery of abnormal loads in connection with the convoy and escort arrangements set out in the Traffic Management Plan (Section 15.1.8.5.1).

Offaly County Council

Offaly County Council (OCC) provided a scoping response by letter dated 14th April 2021, issued by the Planning Section. The response included detailed comments on traffic and transport matters from the OCC Road Design section and the Edenderry Area Engineer and also relayed the comments of Transport Infrastructure Ireland (which are addressed separately in Table 15-1a). No response was received from OCC to the updated scoping exercise in 2025; however, the OCC Roads Section acknowledged receipt of the updated request on 5th December 2025 and confirmed that it had been forwarded to Edenderry Municipal District for attention, and the OCC Roads Department. The OCC and representatives from Edenderry Municipal District subsequently engaged on the Proposed Project through pre-planning consultation.

Consultation was held directly with the OCC roads department, detail on these meetings are outlined below.

Kildare County Council

Kildare County Council (KCC) was contacted in relation to scoping. No formal scoping response was received from KCC. Notwithstanding, the KCC Roads Department has engaged with the Applicant through pre-planning consultation on traffic and transport matters, as set out in Section 15.1.3.2.

Irish Peatland Conservation Council

A response to scoping was received from the Irish Peatland Conservation Council (IPCC) on 26th January 2026. In relation to traffic, the IPCC raised concerns in relation to the potential impacts on the R414 and access to the Bog of Allen Nature Centre where school groups and members of the public

require access. IPCC note that the R414, which is a narrow road set in peatland, is the only means of access to the centre and has concerns relating to the impact of large HGVs during construction and potential road closures during grid cable laying.

The following points are made is response to the submission made by IPCC. As set out in Section = 15.1.4 of the EIAR which addresses Mitigation by Design, the sensitivity of the R414 in relation to potential traffic impacts during the construction of the Proposed Project is understood. The main points to note are;

- It is not proposed to use the R414 between Rathangan and the junction with the R403 at Shee bridge during the construction of the Proposed Wind Farm and Proposed Onsite Substation. The only impacts that will be incurred on this section of the R414 during this construction phase will be construction traffic crossing the R414 at the location indicated as Junction 5 on Figure 15-2, located approximately 1.6km to the south of the Bog of Allen Nature Centre.
- As shown in Figure 15-8, and discussed in Section 15.1.6.4, the extent of the Proposed Grid Connection underground electrical cabling route on the R414 commences at Site Entrance 6L located approximately 2.0km to the east of the Bog of Allen Nature Centre and continues east to for approximately 2.1 km before crossing the Grand Canal approximately 0.4km west of the Shee Bridge. It is estimated that this section of the Proposed Grid Connection underground electrical cabling route will take approximately 10 days to construct, during which it is proposed that a Stop & Go traffic management arrangement will be in place on order to maintain alternating 2-way flow.
    - While there will be delays to traffic during this period of construction on the R414, these will be manageable due to the relatively light traffic volumes on this section of the R414.
    - It is noted that a similar arrangement is proposed for the remainder of the Proposed Grid Connection underground electrical cabling route on the R403 and the L6002 at Prosperous, so visitors travelling to the Bog of Allen Nature Centre from this direction will experience delays at one location for up to 34 days. Delays will be kept to a minimum and detailed consultation will be held with all interested parties in order to accommodate travel requirements as much as is possible.
- It is noted that there will be no traffic related impacts for visitors travelling to your centre on the R414 from the direction of Rathangan,

15.1.3.2 Pre-planning Meetings

In addition to the statutory scoping exercise, the Applicant and members of the project team held pre-planning consultation meetings with ACP, OCC and KCC, and had dedicated meetings with the Roads Departments of both local authorities to discuss the traffic and transport matters associated with the Proposed Project. The principal matters discussed are summarised below. Further detail on the wider pre-planning and consultation process is provided in Section 2.16 of Chapter 2 of this EIAR.

Offaly County Council

Meeting: 1st April 2021

A pre-planning meeting was held with OCC on 1st April 2021. As detailed in Chapter 2, Section 2.9, the Proposed Project team gave an overview of the Proposed Project with traffic and transport relate issues raised as follows;

- Continued engagement with OCC recommended.
- Discussion on grid connection.

- Turbine delivery route assessment and impact from accommodating works to be carried out.

Meeting: 4th September 2025 – Dedicated Traffic Meeting

Members of the project team and the Applicant met with representatives from Offaly County Council (OCC) Roads Department via MS Teams on 4th September 2025. Matters discussed include:

- Clarifications in relation to Proposed Construction Haul Routes, Proposed Turbine Delivery Route, and associated junction accommodation works.
- Feedback requested in relation to safety concerns.
- Concerns raised in relation to the capacity of the L1001 road to hold up to construction traffic.
- Requested feedback to see if any modelling can be done in relation to the impact of the construction periods traffic and transport on the roads.
- Current Annual Average Daily Traffic (AADT) values and AADT values at mid-construction phase required to determine the uplift the road network.
- Requirement of a Road Safety Audit (RSA) given the scale of the Proposed Project. RSAs need to be undertaken at each access location.
- Concerns at bridges and culverts. Any infrastructure along these routes would have to be investigated.
- Detailed assessment of haul routes required.
- HGV traffic during construction period. Details on the programme and phasing of the construction phase required.
- Pre and post constructions surveys to be completed, agreed with Edenderry as the roads authority, before any works are carried out.
- Details of Access junctions 1 and 4 discussed.
- Restoration plan for the roads to be agreed with OCC.
- Details of traffic count surveys discussed.
- Raised concern that multiple large developments (wind farms, solar farms etc.) in the area may be drawing on the same suppliers and using the same road network simultaneously or in overlapping timeframes.
- Given the scale of investment required to repair and maintain roads to an acceptable standard, assurances that pre and post construction road surveys and budgeting are put in place to recover roads to a reasonable condition after works are complete.

Meeting: 22nd July 2026

A pre-planning meeting was held with OCC on 22nd July 2026. As detailed in Chapter 2, Section 2.9, the Proposed Project team gave an overview of the Proposed Project with traffic and transport relate issues raised as follows;

- Potential impacts on the structural integrity of the L1001 which is a bog road with limited bearing capacity. It was agreed that pre and post surveys of the road would be undertaken as has been successfully completed at other BnM wind farms in the Midlands.
- As was raised in the Stage 1 Road Safety Audit there is a directional sign located in the middle of the existing site access at Access Junction 1 off the R401. This issue was discussed with Offaly County Council where it was indicated that a suitable location will be identified.

Kildare County Council

Meeting: 13th April 2021

A pre-planning meeting was held with KCC on 13st April 2021. As detailed in Chapter 2, Section 2.9, the Proposed Project team gave an overview of the Proposed Project with traffic and transport relate issues raised as follows;

- Discussion on haul routes and quantity of material to be brought to Proposed Site.
- Suitability of roads to be considered within EIAR.
- Point of contact to discuss traffic impact assessment.
- Locations of quarries, quantity of aggregate needed, and routes proposed from quarries to site to be provided. Traffic impact assessment to cover the same.

Meeting 22nd August 2025 - Dedicated Traffic Meeting

Members of the project team and the Applicant met with representatives from Kildare County Council (KCC) Roads Department on 22nd of August 2025. Matters discussed include:

- The impact of the underground grid cable, construction of the grid cable, and haul routes during the construction phase.
- KCC raised concerns about the roads' ability to handle the volume of construction traffic. Load assessments, route compliance and road maintenance plans were discussed.
- Diversion routes need to be revised and fully assessed.
- Concerns were raised around the constructability of the grid within the road corridor which was referred to as being constructed partially in bog. Potential issues were raised in relation to maintenance of the grid infrastructure and the road.
- KCC recommended that detailed assessments are to be covered in the EIAR on how the grid and roads are constructed.
- The cumulative impact of other projects in the area (by EirGrid and Uisce Éireann) was also highlighted.
- Recommended engagement with local councillors and maintaining road quality throughout project.

Meeting: 3rd September 2026

A pre-planning meeting was held with KCC on 3rd September 2026. As detailed in Chapter 2, Section 2.9, the Proposed Project team gave an overview of the Proposed Project with traffic and transport relate issues raised as follows;

- A summary of the key traffic and transport related issues addressed in the EIAR was provided.
- All issues raised by KCC were in relation to the Proposed Grid Connection underground electrical cabling route.
- KCC raise concerns over width and height of the road to enable only one-lane closure, as well as interaction with bridges along the Proposed Grid Connection underground electrical cabling route. KCC further raised concerns relating the road network noting damage resulting from other developments in the area following completion of the construction phase.
- KCC queried the approximate 96 sec wait time identified for Stop & Go facility noting previous experience at the traffic signals in Prosperous has seen wait times of up to 20min. In response it was noted that delays at the Stop & Go facility will be less than at the signalised junction in Prosperous referred to by KCC.
- BnM summarised recent experience in working with one-lane closures and outlined mitigation measures that have proven successful. Avoiding construction in Prosperous during school times suggested as one of many potential mitigation measures to minimise effects.

- KCC noted the road opening license requirements and requested BnM build obligations such as avoiding Prosperous during the school year into contracts with any third parties brought in for construction phase works.
- KCC queried what was proposed in relation to the road surface.
    - BnM confirmed the inclusion of pre-commencement surveys and post-construction surveys.
- KCC noted cumulative impacts on construction haul routes with regards to the Drehid Waste Management which would have similar routes to the Proposed Construction Haul Routes. In response it was noted that as this activity is ongoing all relevant construction traffic volumes associated with Drehid Waste Management are already included in the baseline traffic counts and therefore assessed in the traffic impact assessment
- KCC notes that the road from Prosperous to the Project Site is critical and that impacts from the construction of the Proposed Grid Connection underground electrical cabling route would have impacts on this road
    - BnM noted that surveys can be undertaken throughout the construction phase.
- KCC will require sectional completion condition within the road opening licence.
    - BnM confirmed the use of a rolling construction methodology with only 100-120m of road section to be open at any one time, with new sections only being progressed following infill of the previous section or in agreement with KCC.
- BnM queried KCC in relation to a land owner consent letter from KCC in relation to the Proposed Grid Connection underground electrical cabling route following provisions of the Planning and Development Act . KCC confirmed issuance and requested further contact following the meeting.

An Coimisiún Pleanála

Four on-line pre-planning meetings were held with An Coimisiún Pleanála (ACP) with traffic and transport related issues raised as follows;

Meeting 26th July 2021

ACP advised that the condition of local roads should be taken into account when assessing the proposed haul routes and emphasised the importance of the cumulative impact assessment.

Meeting 10th March 2026

ACP advised that the assessment should include the internal road network, that the Proposed Construction Haul Routes and Proposed Turbine Delivery Route should be assessed for vegetation removal.

Meeting: 12th June 2026

The agenda for the meeting focused on biodiversity, ornithology, hydrology and peat, and so traffic and transport aspects were not discussed.

Meeting: 27th August 2026

A summary of the key traffic and transport related issues associated with the Proposed Project was provided at the meeting, including the identification of the optimum delivery routes and access junctions, junction design and a summary of the capacity assessment undertaken for the construction phase. There were no traffic and transport related questions raised by ACP.

15.1.3.3 Methodology

The report adopts the guidance for such assessments set out by Transport Infrastructure Ireland, or TII, in the document number PE-PDV-02045 *'Traffic and Transport Assessment Guidelines, May 2014'*. The geometric requirements of the transporter vehicles were assessed using AutoCAD and Autotrack.

The Traffic and Transport Section of the EIAR is set out as follows:

- A description of the preliminary capacity assessment for potential construction haul routes, turbine delivery routes and diversion routes to inform construction materials delivery strategy, site entrance selection and construction programme (Section 15.1.4 – Mitigation by Design)
- A review of the existing and future transport infrastructure in the vicinity of the Proposed Project, including the Proposed Turbine Delivery Route, an assessment of base 2025 traffic flows and traffic forecasts during an assumed construction period between the years 2030 -2032 (Section 15.1.5.2 and Section 15.1.5.3);
- A description of the nature of the Proposed Project and the traffic volumes that it will generate during the different construction stages and when it is operational (Section 15.1.6.1);
- A description of the abnormally large loads and vehicles that will require access to the Project Site (Section 15.1.6.2);
- A review of the effects during of Proposed Project-generated traffic on links and junctions during construction phase (i.e. 36 months) and when the facility is operational (Section 15.1.6.1);
- An assessment of the effects during the construction of the Proposed Grid Connection (Section 15.1.8.2.1);
- Traffic management of large deliveries and a geometric assessment of the routes and their capacity to accommodate the abnormal loads associated with the Proposed Project (Section 15.1.6.2 and Section 15.1.8.5.2);
- A review of the Proposed Wind Farm access junctions (Section 15.1.6.5);
- Summary of Road Safety Audit – (Section 15.1.6.6);
- An assessment of the provision for sustainable modes of travel (in this case primarily with respect to the transport of construction staff) (Section 15.1.6.7);
- A description of potential effects of the Proposed Project on Roads and Traffic (Section 15.1.8).

15.1.3.3.1 *Study Area*

The study area for Traffic and Transport has been defined having regard to the nature and extent of the Proposed Project, including the Proposed Wind Farm, Proposed Grid Connection, Proposed Enhancement Areas, Proposed Turbine Delivery Route, Proposed Construction Haul Routes, and potential diversion routes for the construction of the Proposed Grid Connection underground cabling route, and the potential impacts on the roads, traffic, and transport environment and is hereafter referred to as the '**Traffic and Transport Study Area**'.

The Traffic and Transport Study Area is presented in Figure 15-1 and forms the basis of the impact assessment detailed in Section 15.1.8. The Proposed Turbine Delivery Route is shown in Figure 15-2, while, the Proposed Construction Haul Routes are shown Figure 15-3.

640000
660000
680000
740000
720000
700000
N
Ballymore
Westmeath
Mullingar
R392
R158
R161
Summerhill
M4
Kinnegad
200 m
R391
N52
R446
R158
M4
Enfield
R401
M6
R400
Kilbeggan
R402
225 m
Edenderry
R420
Grand Canal
R402
R403
Clane
Tullamore
R401
R409
Geashill
N52
R419
227 m
Kildare
Newbridge
Killinagh Lower
Kildare
R421
Clonaslee
N80
R423
R445
R413
E20
Allenwood South
485 m
Slieve Bloom Mountains
R423
Portlaoise
0 5 10 20 30 40
Kilometers
640000
660000
680000

Legend

- Project Site
- Traffic and Transport Study Area

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

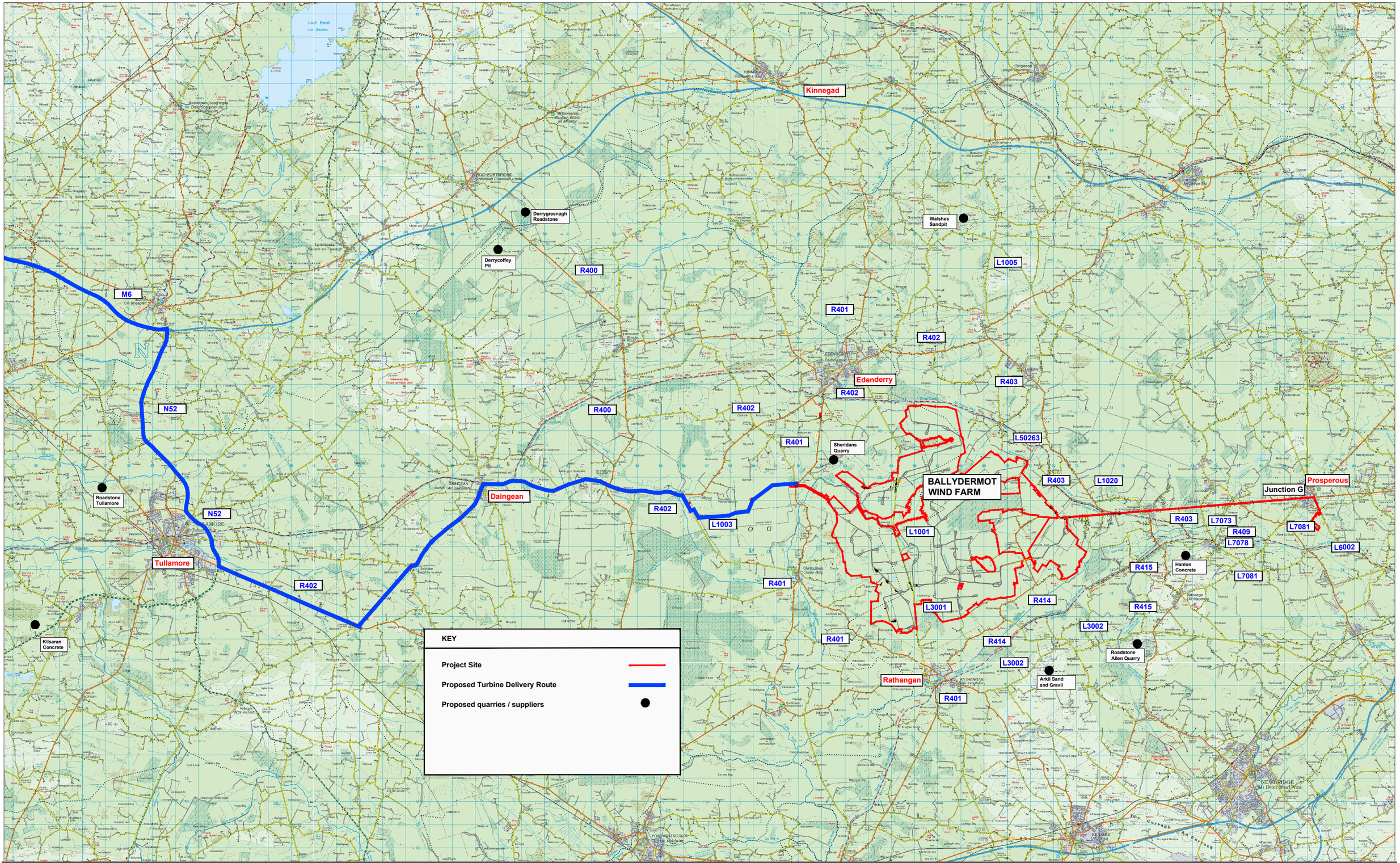
SITE LOCATION - NOT TO SCALE

Drawing Title
Traffic and Transport Study Area

Project Title
Ballydermot Wind Farm
Co. Kildare & Co.Offaly

Project No.	Drawing No.	Scale
250708	15-1	1:343,323
Drawn By	Checked By	Date
LPM	EC	20/07/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie



NOTES:

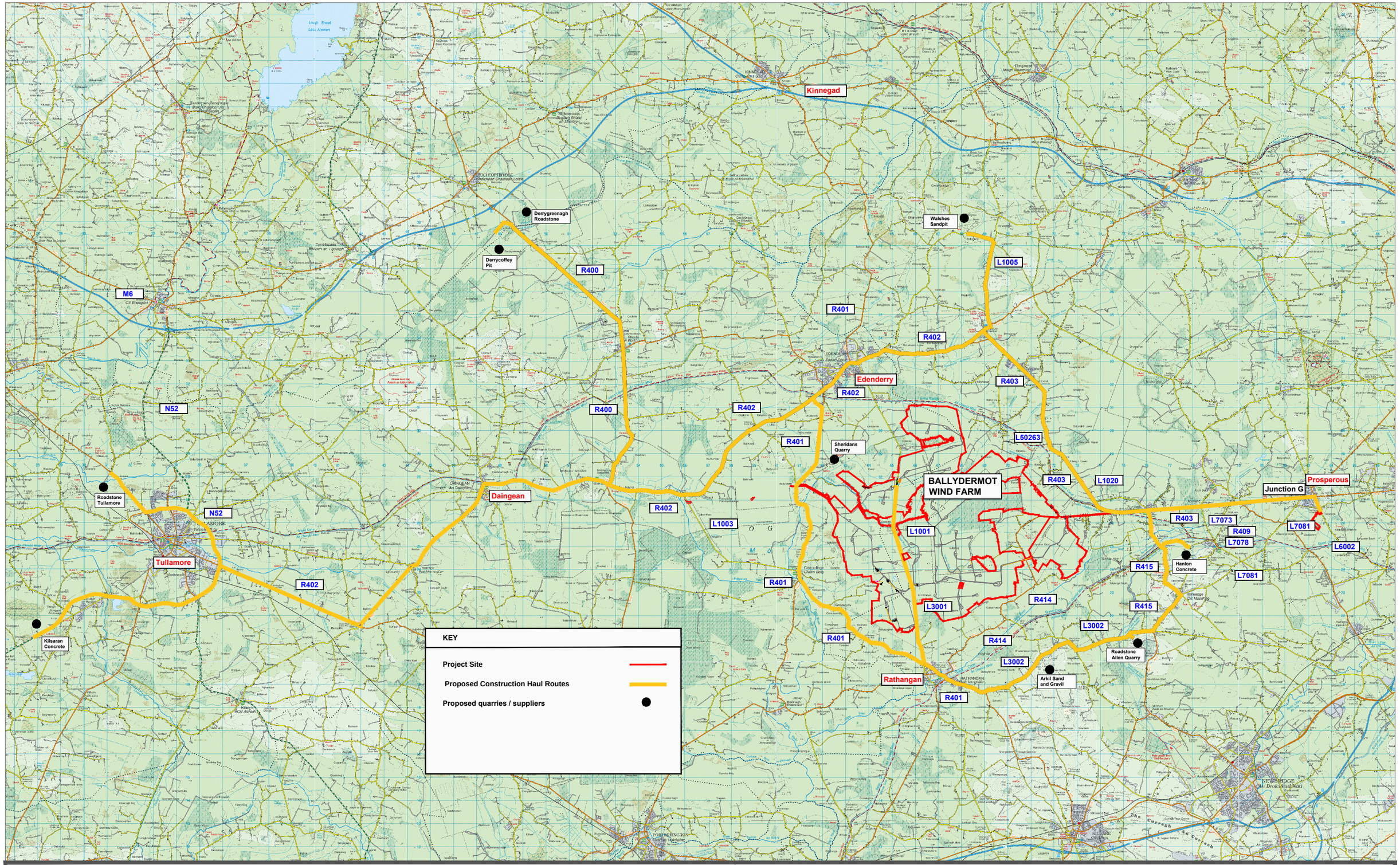
PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-2 Proposed Turbine Delivery Route

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-3 Proposed Construction Haul Routes

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.4 Mitigation by Design

Mitigation by design has been incorporated into the Proposed Project through the iterative design process, with the aim of avoiding or reducing potential traffic and transport effects at source. Traffic and Transport mitigation measures built into the design of the Proposed Project include the following;

- Identification of the optimum construction delivery strategy (see Section 15.1.6.3.1),
- Identification of the optimum turbine delivery route (see Section 15.1.6.2),
- Identification of optimum location for access junctions and appropriate access junction design (see Sections 15.1.6.5)

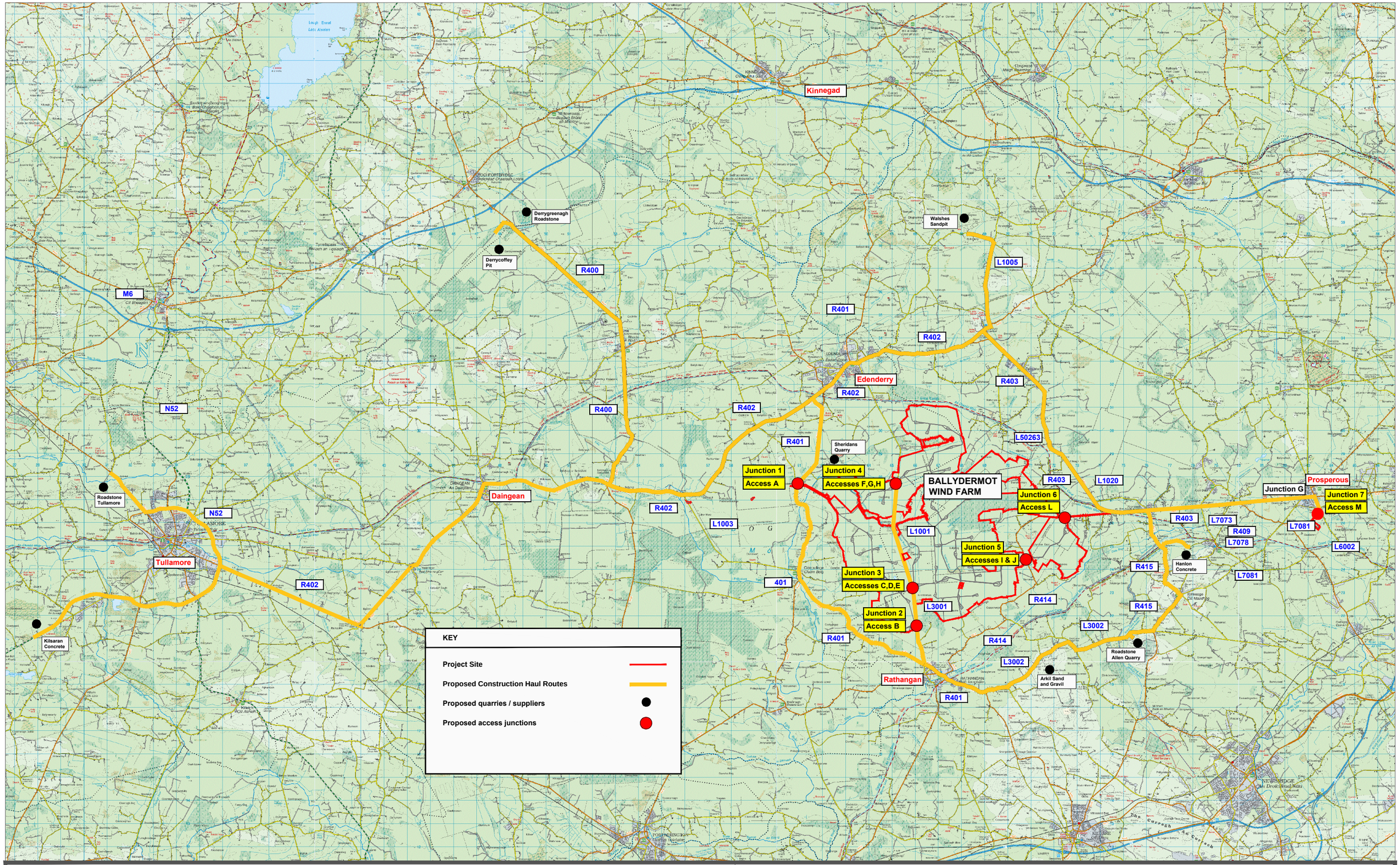
The assessment of the effects determined during the construction of the Proposed Project set out in Section 15.1.8 includes these measures built into the design of the Proposed Project.

15.1.5 Receiving Environment

15.1.5.1 Project Site Location and Proposed Access Arrangements

The part of the Project Site located in part of the Allen Bog, referred to hereafter as the Proposed Wind Farm site, is currently served by a number of existing tracks and access roads reflecting its previous use as a commercial bog.

While the junctions that will provide access to the Project Site are discussed in detail in Section 15.1.6.5.2 of this EIAR, it is proposed that the Project Site will be accessed via 7 no. Access Junctions and the associated site entrances as indicated in Figure 15-4 and outlined in Table 15-2 below. Please see Section 4.5.1 of Chapter 4 for further detail on all Project Site entrances. Due to the nature of the Proposed Project, all proposed works are local to the Project Site and, as such, the construction phase will utilise 7 no. access junctions (Nos 1 to 7), comprising 12 no. associated site entrances (A to M, excluding K). Of these 12 site entrances, 4 no. are existing accesses to be upgraded and 8 no. are proposed new site entrances. The operational phase will utilise 10 no. site entrances for maintenance and monitoring activity and 3 no. site entrances for amenity access. All proposed site entrances have been subject to swept path analysis to identify the turning areas required, as detailed in Section 15.1.6.5.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-4 Location of proposed access junctions

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Table 15-2 Proposed Construction and Operational Phase Site Entrances

Access Junction	Site Entrance	Description	Used for Turbine Delivery	Used during Construction Phase	Used During Operational Phase (maintenance and monitoring)	Used During Operational Phase (amenity)	Existing Entrance	New Entrance	Security Compound and Gate
1	A	Access on the east side on R401 (used for the existing Cushaling Wind Farm)	✓	✓	✓		✓		✓
2	B	Access junction off the west side of L3001 (at existing Ballydermot works)		✓	✓	✓	✓		✓
3	C	Access off the L3001 between T08 & T11 – North		✓	✓			✓	✓
	D	Access off the L3001 between T08 & T11 – Southwest. This entrance is for the use during the delivery of abnormally sized loads only.	✓					✓	
	E	Access off the L3001 between T08 & T11 – Southeast	✓	✓	✓			✓	✓
4	F	Access off the L1001 Between T23 & T24 – West	✓	✓	✓			✓	✓
	G	Access off the L1001 Between T23 & T24 – South		✓	✓	✓		✓	✓
	H	Access off the L1001 Between T23 & T24 – East This entrance is for the use during the delivery of abnormally sized loads only.	✓					✓	
5	I	Access off the R414 - West		✓	✓	✓	✓		✓

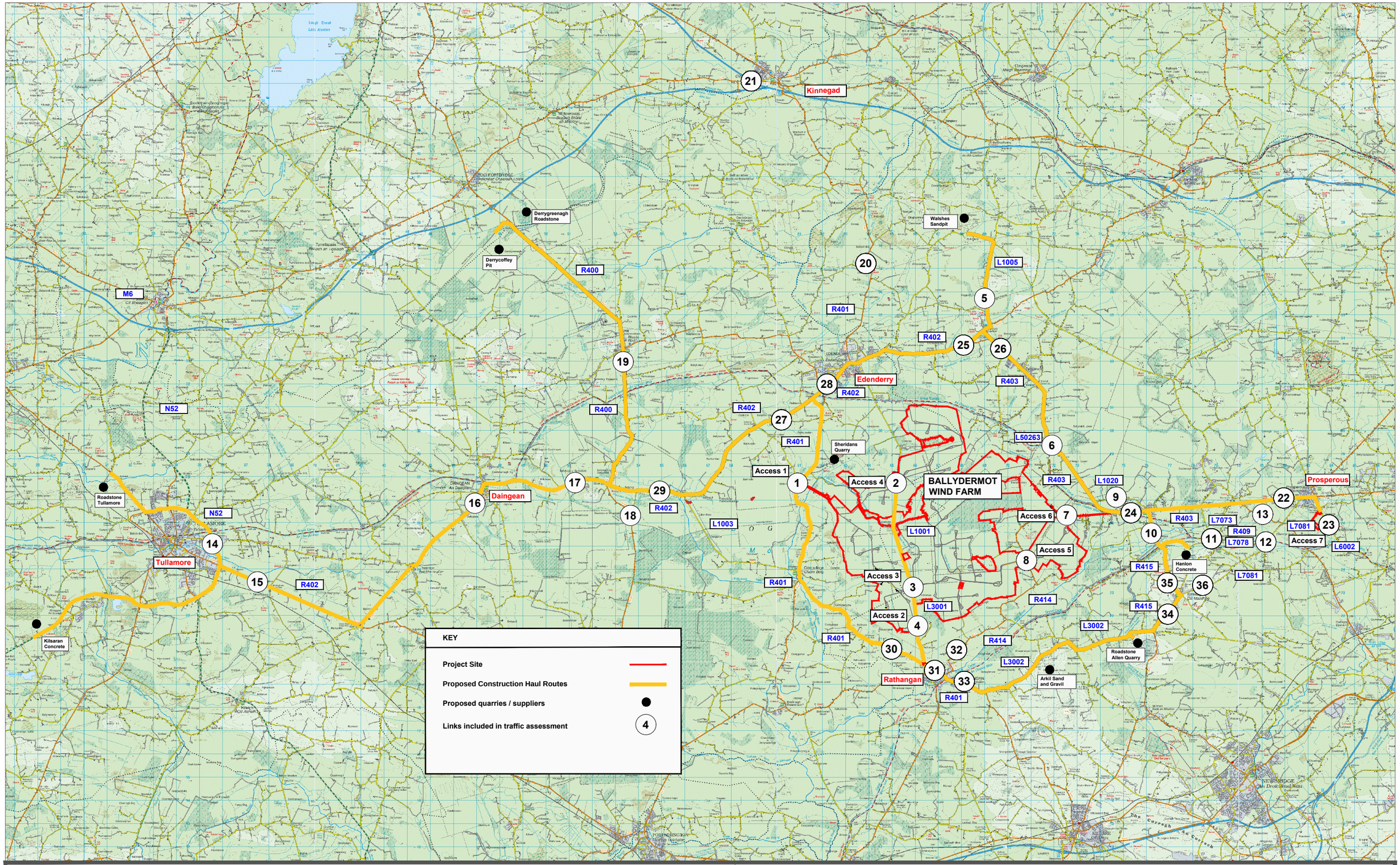
	J	Access off the R414 – East		✓	✓		✓		✓
6	L	Access off the R414 to access the Proposed Onsite Substation		✓	✓			✓	✓
7	M	Access to the Proposed Offsite Substation-L6002 Road		✓	✓			✓	✓

15.1.5.2 Existing Traffic Volumes

Traffic volumes are discussed in terms of either vehicle numbers, or Passenger Car equivalent Units (PCUs), where each vehicle is expressed in terms of its demand on the network relative to the equivalent number of cars. For example, an articulated heavy goods vehicle (HGV) was given a factor of 2.4 passenger car units (as per TII Project Appraisal Guidelines for National Roads Unit 5.2), while one of the extended HGVs transporting the large turbine components was assigned a value of 10.

15.1.5.2.1 *Background Traffic Flows*

The 36 link locations included in the traffic impact assessment and were included in the year 2025 traffic count surveys are set out in Table 15-3 and shown in Figure 15-5.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-5 Link count locations included in assessment

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

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TRAFFIC & TRANSPORT CONSULTANTS

Table 15-3 Link count locations, data source and year

Link	Data source	Year
1 – R401 (Access Junction 1)	Automatic traffic counter - Traffinomics	2025
2 – L1001 (Access Junction 4)	Automatic traffic counter - Traffinomics	2025
3 – L3001 (Access Junction 3)	Automatic traffic counter - Traffinomics	2025
4 – L3001 (Access Junction 2)	Automatic traffic counter - Traffinomics	2025
5 – L1005 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
6 – R403 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
7 – R414 (Access Junction 6)	Automatic traffic counter - Traffinomics	2025
8 – R414 (Access Junction 5)	Automatic traffic counter - Traffinomics	2025
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	Automatic traffic counter - Traffinomics	2025
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	Automatic traffic counter - Traffinomics	2025
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	Automatic traffic counter - Traffinomics	2025
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	Automatic traffic counter - Traffinomics	2025
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	Automatic traffic counter - Traffinomics	2025
14 – N52 (Proposed Turbine Delivery Route)	Automatic traffic counter - Traffinomics	2025
15 – R420 (Proposed Turbine Delivery Route)	Automatic traffic counter - Traffinomics	2025

Link	Data source	Year
16 – R402 (Proposed Turbine Delivery Route)	Automatic traffic counter - Traffinomics	2025
17 – R402 (Proposed Turbine Delivery Route)	Automatic traffic counter - Traffinomics	2025
18 – L1003 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
19 – R400 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
20 – R401 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
21 – R148 (Proposed Construction Haul Route)	Automatic traffic counter - Traffinomics	2025
22 – R403 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
23 – L6002 (Access Junction 7)	Classified turning count - Traffinomics	2025
24 – R403 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
25 – R402 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
26 – R403 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
27 – R402 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
28 – R402 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
29 – R402 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
30 – R401 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
31 – R401 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
32 – R414 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025

Link	Data source	Year
33 – R401 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
34 – R415 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
35 – R415 (Proposed Construction Haul Route)	Classified turning count - Traffinomics	2025
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	Classified turning count - Traffinomics	2025

All traffic counts were obtained from traffic surveys undertaken for the Proposed Project by Traffinomics Ltd. and include the following,

- **Automatic traffic counts surveys and speed surveys** – These were undertaken at 21 locations over a 7 day period commencing on Friday 17th October 2025. These included all links being considered for potential site access junctions, with the traffic count data being used for the link capacity assessments and junction capacity tests set out in Section 15.1.6.1, and the speed data used to inform the visibility splay requirements at access junctions, as discussed in Section 15.1.6.5. Other locations included points on the Proposed Turbine Delivery Route, roads being considered on the Proposed Construction Haul Routes and roads on potential diversion routes for the Proposed Grid Connection underground electrical cabling route. For these surveys the average traffic volumes observed during the 5 weekdays were used as the base traffic counts data.
- **Classified turning counts surveys** – These surveys were undertaken at 11 key junctions on potential delivery routes and were used to provide traffic counts for the link capacity assessment and turning counts for the junction capacity assessments discussed in Sections 15.1.6.1.1 respectively. For these surveys all traffic data was observed on Tuesday 21st October 2025.

An assessment of the seasonal variation in traffic volumes by month in the year 2025 was undertaken using 2 no. ATC sites maintained by TII in the proximity of the Project Site as follows;

- N80 south of the N80 / N52 junction in County Offaly, and,
- R148 between Kilcock and Enfield, Co Kildare.

Based on the collected data at the 2 no. ATC sites it was established that traffic volumes during the month of October were higher than the average month, with no seasonal adjustment required for the traffic counts undertaken during this month.

All base year 2025 traffic count data referred to above is included as Appendix 15-1.

It is noted that the classified turning count observed on Tuesday 21st October 2025 at the R401 / R402 mini roundabout in Edenderry, shown as Site 5 on the junction location map included in Appendix 15-1, did not represent typical traffic conditions due to the presence of roadworks. This count was therefore repeated on Tuesday March 10th 2026, with the traffic data from that day used for the assessment.

The all-day traffic flows observed for the base year 2025 are shown for all links in terms of vehicle numbers in Table 15-4. The figures show that there is a considerable range in existing traffic volumes on the Proposed Turbine Delivery Route and Proposed Construction Haul Routes, ranging from a

maximum of 17,540 vehicles per day on the N52 to the east of Tullamore (Link 14), down to 1,022 vehicles per day on the R414 adjacent to Access Junction 5 (Link 8).

Table 15-4 Observed all day traffic flows by location, year 2025 (2-way vehicles)

Link	2025
1 – R401 (Access Junction 1)	2,330
2 – L1001 (Access Junction 4)	1,925
3 – L3001 (Access Junction 3)	1,928
4 – L3001 (Access Junction 2)	1,965
5 – L1005 (Proposed Construction Haul Route)	1,806
6 – R403 (Proposed Construction Haul Route)	5,587
7 – R414 (Access Junction 6)	1,095
8 – R414 (Access Junction 5)	1,022
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	887
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,645
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,653
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,268
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,510
14 – N52 (Proposed Turbine Delivery Route)	17,540
15 – R420 (Proposed Turbine Delivery Route)	9,336
16 – R402 (Proposed Turbine Delivery Route)	6,445
17 – R402 (Proposed Turbine Delivery Route)	5,044
18 – L1003 (Proposed Construction Haul Route)	1,224
19 – R400 (Proposed Construction Haul Route)	1,978
20 – R401 (Proposed Construction Haul Route)	2,410

Link	2025
21 – R148 (Proposed Construction Haul Route)	11,814
22 – R403 (Proposed Construction Haul Route)	11,993
23 – L6002 (Access Junction 7)	2,541
24 – R403 (Proposed Construction Haul Route)	7,102
25 – R402 (Proposed Construction Haul Route)	9,855
26 – R403 (Proposed Construction Haul Route)	7,093
27 – R402 (Proposed Construction Haul Route)	5,034
28 – R402 (Proposed Construction Haul Route)	6,816
29 – R402 (Proposed Construction Haul Route)	4,208
30 – R401 (Proposed Construction Haul Route)	2,166
31 – R401 (Proposed Construction Haul Route)	7,529
32 – R414 (Proposed Construction Haul Route)	4,421
33 – R401 (Proposed Construction Haul Route)	8,138
34 – R415 (Proposed Construction Haul Route)	6,364
35 – R415 (Proposed Construction Haul Route)	5,509
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,743

15.1.5.3 Background Traffic Volumes for the Assumed Construction Years of 2030 - 2032

As set out in Section 4.8.2 of Chapter 4 of the EIAR, it is estimated that the construction phase of the Proposed Project will take approximately 30 to 36 months between the years 2030 and 2032 inclusive. In order to test a precautionary scenario when background traffic flows are highest, the traffic assessment presented in this section of the EIAR adopts the year 2032 as the test year. This section describes the process adopted to produce background traffic forecasts for the test construction year of 2032.

Revised guidelines for forecasting annual growth in traffic volumes were produced by TII in October 2021, as set out by county in the Project Appraisal Guidelines (Unit 5.3 – Travel Demand Projections)[2].

[2] https://cdn.tii.ie/publications/PE-PAG-02017-03.pdf

The annual growth rates for light vehicles for the 2 counties in which the Project Site is located, Co. Offaly and Co. Kildare, are shown in Tables 15-5 and 15-6, with the forecast growth rates between the years 2025 and 2032 compared in Table 15-7. Based on TII medium growth rates it is estimated that traffic volumes will increase by 6.9% during this period in Co. Offaly, and by 10.1% in Co. Kildare. In order to base the tests on the highest background traffic forecast, the higher growth factor of 10.1% derived for Co. Kildare was selected for the assessment. Traffic flows for the base year 2025 and the test construction year of 2032 are compared in Table 15-8.

While the assumed construction year of 2032 may vary within the 10-year period for which planning permission is sought, this will not alter the forecast outcomes and effects presented in this section of the EIAR. This is due to the annual growth rate for background traffic being 0.62% by the year 2032 (i.e., 1.0062 as shown in Table 15-6) and that the traffic volumes generated by the Proposed Project will remain unchanged regardless of construction year, as presented below.

The ATC and the classified traffic counts undertaken for the purpose of this assessment were also used to determine the existing percentage of HGVs at each count location on the Proposed Turbine Delivery Route and Proposed Construction Haul Routes. The observed percentage of HGVs are shown in Table 15-9, together with the traffic flows at each location converted to PCUs, where larger vehicles are given a weighting to reflect their impacts on the road network compared to a private car. A conservative average PCU weighting of 2.4 was applied to all HGV movements. The traffic volumes set out in terms PCUs are used as the base year 2025 traffic flows for the purpose of the link capacity assessment set out in Section 15.1.6.1.1.

Table 15-5 TII traffic growth forecasts, growth per annum and cumulative, County Offaly

Year	Lights – Annual Factor			Lights – Cumulative Factor		
	Low	Medium	High	Low	Medium	High
2025	1.0103	1.0118	1.0152	1.000	1.000	1.000
2026	1.0103	1.0118	1.0152	1.010	1.012	1.015
2027	1.0103	1.0118	1.0152	1.021	1.024	1.031
2028	1.0103	1.0118	1.0152	1.031	1.036	1.046
2029	1.0103	1.0118	1.0152	1.042	1.048	1.062
2030	1.0103	1.0118	1.0152	1.053	1.060	1.078
2031	1.0021	1.0042	1.0081	1.055	1.065	1.087
2032	1.0021	1.0042	1.0081	1.057	1.069	1.096
2033	1.0021	1.0042	1.0081	1.059	1.074	1.105
2034	1.0021	1.0042	1.0081	1.061	1.078	1.114

Table 15-6 TII traffic growth forecasts, growth per annum and cumulative, County Kildare

Year	Lights – Annual Factor			Lights – Cumulative Factor		
	Low	Medium	High	Low	Medium	High
2025	1.018	1.0197	1.0229	1.000	1.000	1.000
2026	1.018	1.0197	1.0229	1.018	1.020	1.023
2027	1.018	1.0197	1.0229	1.036	1.040	1.046
2028	1.018	1.0197	1.0229	1.055	1.060	1.070
2029	1.018	1.0197	1.0229	1.074	1.081	1.095
2030	1.0044	1.0062	1.0098	1.079	1.088	1.106
2031	1.0044	1.0062	1.0098	1.083	1.095	1.116
2032	1.0044	1.0062	1.0098	1.088	1.101	1.127
2033	1.0044	1.0062	1.0098	1.093	1.108	1.138
2034	1.0044	1.0062	1.0098	1.098	1.115	1.150

Table 15-7 TII traffic growth rates by growth scenario

Period	New Factors		
	Low	Medium	High
2025 – 2032 – Co Offaly	1.057	1.069	1.096
2025 – 2032 – Co Kildare	1.088	1.101	1.127

Table 15-8 All day traffic flows by location, and year (2-way vehicles)

Link	2025	2032
1 – R401 (Access Junction 1)	2,330	2,565
2 – L1001 (Access Junction 4)	1,925	2,119
3 – L3001 (Access Junction 3)	1,928	2,123
4 – L3001 (Access Junction 2)	1,965	2,163
5 – L1005 (Proposed Construction Haul Route)	1,806	1,988
6 – R403 (Proposed Construction Haul Route)	5,587	6,151
7 – R414 (Access Junction 6)	1,095	1,206

Link	2025	2032
8 – R414 (Access Junction 5)	1,022	1,125
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	887	977
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,645	5,114
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,653	1,820
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,268	3,598
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,510	4,966
14 – N52 (Proposed Turbine Delivery Route)	17,540	19,312
15 – R420 (Proposed Turbine Delivery Route)	9,336	10,279
16 – R402 (Proposed Turbine Delivery Route)	6,445	7,096
17 – R402 (Proposed Turbine Delivery Route)	5,044	5,553
18 – L1003 (Proposed Construction Haul Route)	1,224	1,348
19 – R400 (Proposed Construction Haul Route)	1,978	2,178
20 – R401 (Proposed Construction Haul Route)	2,410	2,653
21 – R148 (Proposed Construction Haul Route)	11,814	13,007
22 – R403 (Proposed Construction Haul Route)	11,993	13,204
23 – L6002 (Access Junction 7)	2,541	2,798
24 – R403 (Proposed Construction Haul Route)	7,102	7,819
25 – R402 (Proposed Construction Haul Route)	9,855	10,850
26 – R403 (Proposed Construction Haul Route)	7,093	7,809
27 – R402 (Proposed Construction Haul Route)	5,034	5,542
28 – R402 (Proposed Construction Haul Route)	6,816	7,504

Link	2025	2032
29 – R402 (Proposed Construction Haul Route)	4,208	4,633
30 – R401 (Proposed Construction Haul Route)	2,166	2,385
31 – R401 (Proposed Construction Haul Route)	7,529	8,289
32 – R414 (Proposed Construction Haul Route)	4,421	4,868
33 – R401 (Proposed Construction Haul Route)	8,138	8,960
34 – R415 (Proposed Construction Haul Route)	6,364	7,007
35 – R415 (Proposed Construction Haul Route)	5,509	6,065
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,743	3,020

Table 15-9 All day flows, percentage HGVs and flows by vehicle type, year 2032

Link	All day flow (vehs)	% HGV's	Vehicles		PCUs		
			HGVs	Cars / lgvs (light goods vehicles)	HGVs	Cars / lgvs	Total
1 – R401 (Access Junction 1)	2,565	12.9%	331	2,234	794	2,234	3,029
2 – L1001 (Access Junction 4)	2,119	0.7%	15	2,105	36	2,105	2,140
3 – L3001 (Access Junction 3)	2,123	1.0%	21	2,102	51	2,102	2,152
4 – L3001 (Access Junction 2)	2,163	1.0%	22	2,142	52	2,142	2,194
5 – L1005 (Proposed Construction Haul Route)	1,988	12.9%	257	1,732	616	1,732	2,348
6 – R403 (Proposed Construction Haul Route)	6,151	6.8%	418	5,733	1,004	5,733	6,737
7 – R414 (Access Junction 6)	1,206	3.3%	40	1,166	95	1,166	1,261

8 – R414 (Access Junction 5)	1,125	4.7%	53	1,072	127	1,072	1,199
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	977	2.4%	23	953	56	953	1,009
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,114	3.8%	194	4,920	466	4,920	5,386
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,820	4.2%	76	1,744	183	1,744	1,927
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,598	5.0%	180	3,418	432	3,418	3,850
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,966	7.9%	392	4,573	941	4,573	5,515
14 – N52 (Proposed Turbine Delivery Route)	19,312	7.1%	1,371	17,940	3,291	17,940	21,231
15 – R420 (Proposed Turbine Delivery Route)	10,279	4.6%	473	9,806	1,135	9,806	10,941
16 – R402 (Proposed	7,096	4.7%	334	6,762	800	6,762	7,563

Turbine Delivery Route)							
17 – R402 (Proposed Turbine Delivery Route)	5,553	5.9%	328	5,226	786	5,226	6,012
18 – L1003 (Proposed Construction Haul Route)	1,348	4.6%	62	1,286	149	1,286	1,434
19 – R400 (Proposed Construction Haul Route)	2,178	4.1%	89	2,088	214	2,088	2,303
20 – R401 (Proposed Construction Haul Route)	2,653	6.0%	159	2,494	382	2,494	2,876
21 – R148 (Proposed Construction Haul Route)	13,007	7.7%	1,002	12,006	2,404	12,006	14,409
22 – R403 (Proposed Construction Haul Route)	13,204	6.6%	871	12,333	2,092	12,333	14,424
23 – L6002 (Access Junction 7)	2,798	2.0%	56	2,742	134	2,742	2,876
24 – R403 (Proposed Construction Haul Route)	7,819	7.8%	610	7,209	1,464	7,209	8,673
25 – R402 (Proposed Construction Haul Route)	10,850	5.8%	629	10,221	1,510	10,221	11,731
26 – R403 (Proposed Construction Haul Route)	7,809	7.7%	601	7,208	1,443	7,208	8,651
27 – R402 (Proposed Construction Haul Route)	5,542	8.3%	460	5,082	1,104	5,082	6,186

28 – R402 (Proposed Construction Haul Route)	7,504	8.7%	653	6,852	1,567	6,852	8,418
29 – R402 (Proposed Construction Haul Route)	4,633	10.0%	463	4,170	1,112	4,170	5,282
30 – R401 (Proposed Construction Haul Route)	2,385	7.6%	181	2,204	435	2,204	2,639
31 – R401 (Proposed Construction Haul Route)	8,289	4.1%	340	7,950	816	7,950	8,765
32 – R414 (Proposed Construction Haul Route)	4,868	2.4%	117	4,751	280	4,751	5,031
33 – R401 (Proposed Construction Haul Route)	8,960	3.8%	340	8,619	817	8,619	9,437
34 – R415 (Proposed Construction Haul Route)	7,007	7.5%	526	6,481	1,261	6,481	7,742
35 – R415 (Proposed Construction Haul Route)	6,065	6.2%	376	5,689	903	5,689	6,592
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,020	7.8%	236	2,784	565	2,784	3,350

15.1.6 Characteristics of the Proposed Project

15.1.6.1 Proposed Project Traffic Generation

15.1.6.1.1 *Development Trip Generation – During Construction*

The quantum of the materials, HGV trips and additional traffic volumes that will be generated on the roads contained within the Traffic and Transport Study Area during the construction phase of the Proposed Project is considered in this section and assessed in Section 15.1.8 below.

For the purpose of this traffic impact assessment, projections based on trip generation data collected from other wind farm construction projects regarding the numbers of trips per quantum of material, the number of turbine component parts based on 46 no. Proposed Turbines and the length of the construction phase were made. These projections allow for an assessment using a precautionary approach but should not be inferred as prescriptive limitations to the construction phase. There are numerous variables which can affect a construction project programme such as weather. The construction phase of the Proposed Project will be carried out in accordance with the Construction and Environmental Management Plan (CEMP), which is submitted as Appendix 4-5 of this EIAR. The CEMP will be agreed with the Local Authority prior to construction commencing.

Estimates of the construction traffic volumes generated during the construction phase were made separately for the following elements of the Proposed Project;

- General site construction works including the construction of the on-site substation,
- Delivery and pouring of the 46 no. concrete turbine foundations,
- Construction of the Proposed Offsite Substation,
- Deliveries and extractions to and from the Proposed Grid Connection underground electrical cabling route,
- Deliveries of Proposed Turbine components – components comprising abnormally sized loads,
- Deliveries of Proposed Turbine components – smaller components deliveries using standard HGVs.

General site construction works for the Proposed Wind Farm site

The deliveries that will be made to the Proposed Wind Farm site for general site construction and for the construction of the Proposed Onsite Substation are set out in Table 15-10 and Table 15-11. During this period it is forecast that a total of 162,484 loads will be delivered to the Proposed Wind Farm site using various types of standard HGV. It is estimated that these deliveries will be made over 591 working days (approximately 2 years 4 months), with an average of 550 movements per day, comprising 275 inbound trips to the Project Site and 275 outbound return trips from the Project Site equating to an additional 1,320 PCUs).

Table 15-10 Trip generation – General construction materials for Proposed Wind Farm site (including the Proposed Onsite Substation) - total loads

Material	Total no. Truck Loads	Truck type
Delivery of plant	193	Low loader
Fencing & gates	18	Large artic
Compound setup	180	Large artic
Steel	123	Large artic

Sand / binding / stone	984	8 wheel rigid tipper trucks and articulated tipper trucks
Ducting and cabling (internal)	1,323	Large artic
Crane (to lift steel)	6	Large artic
Crane (for turbines)	69	Oil fuel tanker
Refuelling for plant	1,062	8 wheel rigid tipper trucks and articulated tipper trucks
All stone for wind farm site	157,426	8 wheel rigid tipper trucks and articulated tipper trucks
Site maintenance	700	Large artic
Miscellaneous	400	Large artic
Total	**162,484**	

Table 15-11 General construction materials (Proposed Wind Farm site) – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Various	162,484	591	274.9	549.9	2.4	1,319.7

Delivery and pouring of Proposed Turbine concrete foundations

The deliveries that will be made to the Project Site during the pouring of the 46 no. concrete Proposed Turbine foundations are shown in Table 15-12 and Table 15-13. The tables show that on the 46 no. days during which one foundation will be poured per day, an additional 384 two-way PCUs will travel on the local road network, comprising of 80 two-way HGV trips, or 160 movements.

Table 15-12 Trip generation – Proposed Turbine Concrete foundation deliveries - total loads

Material	Total loads	Truck type
Delivery of concrete	3,680	Concrete mixers
Total	**3,680**	

Table 15-13 Proposed Turbine Concrete foundation deliveries – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Concrete	3,680	46	80.0	160.0	2.4	384.0

Construction of the Proposed Offsite Substation

The deliveries that will be made to the Project Site during the construction of the Proposed Offsite Substation are set out in Table 15-14 and Table 15-15. During this period it is forecast that a total of 7,128 loads will be delivered to the Project Site using various standard HGVs over a period of 100 days. This will generate an average of 143 no. two-way HGV movements made per day, equating to an additional 342 PCUs on the road network.

Table 15-14 Trip generation – General construction materials for the Proposed Offsite Substation - total loads

Material	Total no. Truck Loads	Truck type
Delivery of plant	19	Low loader
Fencing & gates	2	Large artic
Compound setup	18	Large artic
Steel	12	Large artic
Sand / binding / stone	98	8 wheel rigid tipper trucks and articulated tipper trucks
Ducting and cabling (internal)	132	Large artic
Crane (to lift steel)	1	Large artic
Refuelling for plant	106	Oil fuel tanker
All stone for wind farm site	6,629	8 wheel rigid tipper trucks and articulated tipper trucks
Site maintenance	70	Large artic
Miscellaneous	40	Large artic
Total	7,128	

Table 15-15 General construction materials (Proposed Offsite Substation) – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Various	7,128	100	71.3	142.6	2.4	342.1

Construction of Proposed Grid Connection underground electrical cabling route

On the 171 days that it is estimated that it will take to construct the Proposed Grid Connection underground electrical cabling route, it is estimated that a total of 15 HGV two-way loads will travel to and from the point of construction on the route, resulting in an additional 72 PCUs travelling on the road network, as shown in Tables 15-16 and 15-17.

Table 15-16 Trip generation – Deliveries and extractions for the Proposed Grid Connection underground electrical cabling route - total loads

Material	Total loads	Truck type
Delivery of concrete	2,565	Concrete mixers
Total	2,565	

Table 15-17 Proposed Grid Connection underground electrical cabling route construction materials – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Various	2,565	171	15.0	30.0	2.4	72.0

Delivery of Proposed Turbine components (abnormally sized loads and standard HGVs)

During the construction phase of the Proposed Turbines, including delivery and assembly, some deliveries to the Proposed Wind Farm site will be made by abnormally large vehicles, referred to in this section as extended artics, transporting the large component parts of the Proposed Turbines (nacelles, blades and towers). There will also be deliveries made by standard large HGVs, transporting cables, tools and smaller component parts. The types of load and associated numbers of trips made to the Proposed Wind Farm site during the construction phase of the Proposed Turbines is shown in Table 15-18, which summarises that a total of 368 trips will be made to and from the Project Site by extended artics, with a further 184 trips made by standard large articulated HGVs.

For the purposes of this assessment an assumed delivery period is provided, although this may be subject to change and will be confirmed with the relevant authority prior to construction. It is assumed that the turbine delivery element will progress at the rate of 3 extended artic trips made by convoy to the Proposed Wind Farm site on 5 nights per week, resulting in the Proposed Turbine delivery phase taking approximately 123 nights spread over a 25-week period. On a further 46 days, the remaining equipment required during this phase will be delivered to the Proposed Wind Farm. The additional traffic movements for these 2 types of days are summarised in Table 15-19 and Table 15-20. In Table 15-19, a PCU equivalent value of 10 was allocated to each extended artic movement, resulting in an additional 60

PCUs on the road network contained within the Traffic and Transport Study Area on these days, while an additional 19 PCUs are forecast to travel on the network on the additional 46 days, as shown in Table 15-20.

Table 15-18 Trip generation – Components for Proposed Turbines – total loads

Material	Units	Quantity per Unit	Total Quantity	Quantity per Truck	Total Truck Loads	Truck type
Nacelle	46	1	46	1	46	Extended Artic
Blades	46	3	138	1	138	Abnormal Indivisible Load (AIL) vehicle
Towers	46	4	184	1	184	Abnormal Indivisible Load (AIL) vehicle
Sub total					***368***	
Transformer	46	1	46	1	46	Low-loader
Drive train and blade hub	46	1	46	1	46	Low-loader
Base and other deliveries	46	2	92	1	92	Large Artic
Sub total					***184***	
Total					**552**	

Table 15-19 Proposed Turbine components (abnormally sized loads) – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Large turbine components	368	123	3.0	6.0	10.0	60.0
*Estimation based on 3 abnormal sized loads being delivered per day on 5 days per week (total 368 loads will take 123 nights spread over 25 weeks)						

Table 15-20 Proposed Turbine components (standard HGVs) – total movements and volumes per delivery day

Material	Total no HGV loads	Delivery days	Loads / day	Movements / day	Pcu factor	Pcus / day (2- way)
Standard turbine components	184	46	4.0	8.0	2.4	19.2

Construction Employee Traffic

During the construction of the Proposed Project, it is estimated that approximately 200-250 jobs will be created. Of this total it is estimated that up to 145 staff members will be employed at any one time.

Based on a precautionary scenario that all staff will travel to / from the Project Site by car, at an average of 2 persons per car, then a total of 145 additional PCU movements (each trip is two way) will travel on the road network contained within the Traffic and Transport Study Area during the construction of the Proposed Project.

Summary of construction days and trip generation by delivery route

For the purpose of testing the impacts of the additional traffic movements that will be generated by the Proposed Project it is assumed that the following scheduling will be adopted for the 2 year 6 month (637 working days);

- General construction + Proposed Offsite Substation construction (100 days),
- General construction + Proposed Grid Connection underground electrical cabling route construction (171 days),
- Proposed Turbine concrete foundation pours (46 days),
- General construction + Proposed Turbine deliveries – abnormally sized loads (123 days),
- General construction + Proposed Turbine deliveries – standard HGVs (46 days),
- General construction only (151 days),

A summary of the 2-way delivery trips in terms of PCUs that will be generated on the 6 typical delivery days, together with the duration in days, is shown in Table 15-21. The table shows that the maximum additional traffic volumes that will be generated by the Proposed Project will occur on the 100 days that general construction on the Proposed Wind Farm and the Proposed Onsite Substation takes place at the same time as the construction of the Proposed Offsite Substation takes place, during which a total of 346 HGVs will travel to and from the Project Site, or an average of 35 HGV trips to and from the Project Site per hour over a 10 hour day. Including the additional 145 car movements that will be generated by construction staff it is estimated that an additional 1,807 PCUs will travel on the road network on these busiest 100 days.

Table 15-21 Summary of trip generation by delivery day

Delivery day	Days	Daily HGV loads	2-way HGV pcus	2-way car pcus	2-way total pcus	Delivery route
General construction + Proposed Offsite Substation construction	100	346 (275+71)	1,662 (1,320+342)	145	1,807	General construction materials delivery routes
General construction + Proposed Grid Connection underground electrical cable route construction	171	290 (275+15)	1,392 (1,320+72)	145	1,587	General construction materials delivery routes
Proposed Turbine Concrete foundation delivery days	46	80	384	145	529	General construction

						materials delivery routes
General construction + turbine delivery (abnormally sized loads)	123	278 (275+3 abnormally sized loads)	1,380 (1,320+60)	145	1,525	General construction materials delivery routes + Proposed Turbine Delivery Route
General construction + Proposed Turbine delivery (standard HGVs)	46	278 (275+3)	1,339 (1,320+19)	145	1,484	General construction materials delivery routes
General construction only	151	275	1,320	145	1,465	General construction materials delivery routes
Total	637	NA	NA	NA	NA	NA

Link Flows

Background traffic volumes and Proposed Project generated traffic volumes for the 6 no. construction phase days, are shown in Tables 15-22 to 15-27, with the forecast effects, in terms of the percentage increase in traffic flows in PCUs and the number of days affected, set out in Tables 15-28 to 15-33. As stated previously, the actual figures presented in the tables will be subject to confirmation with the relevant authority prior to construction, however, they are considered a robust estimation of likely traffic volumes and effects for the purposes of this EIAR.

An assessment of the impact on link capacity on all delivery routes (Proposed Turbine Delivery Route and Proposed Construction Haul Routes) was undertaken for the various construction phase as set out in Tables 15-34 to 15-36 with the capacity of the links on the route options, as shown in Table 15-34. Capacities are based on road types and widths as set out in the TII Standards document DN-GEO-03031 Road Link Design, Table 6/1. It is noted that the link capacities adopted from the TII guidelines correspond to a Level of Service D, which the guidelines describe as being the level where:

> *"Speeds begin to decline slightly with a slight increase of flows and density begins to increase somewhat more quickly. Freedom to manoeuvre within the traffic streams is more noticeably limited, and the driver experiences reduced comfort levels".*

Background traffic flows are compared to flows forecast for the various construction delivery stages, in Table 15-35, with the percentage capacity reached for each stage shown in Table 15-36.

While the traffic impacts on these days vary depending on the volume of traffic generated and the information for all 6 types of delivery day is provided for information in the Table 15-22 to 15-36, the assessment presented below is based on the days when the traffic generated during the construction of the Proposed Project is greatest. This is forecast to be for the 100 days during which construction on the Proposed Wind Farm takes place at the same time as the construction of the Proposed Onsite Substation and Proposed Offsite Substation.

As shown in the Indicative Construction Schedule included as Table 4-28 as shown in Section 4.8.2 of Chapter 4 of the EIAR, it is estimated that the total construction phase for the Proposed Project will last for 36 months between the years 2030 to 2032 inclusive. In order to test a precautionary scenario which

maximises the potential trip generations per day over the shortest time period, a construction duration of 2.5 year (30 months) was adopted for the traffic assessment. Based on a 255 working days per annum, this equates to 637 working days over a 30 month construction period during which all deliveries will be made to the Project Site.

For this scenario the relevant traffic flows are shown in Table 15-22 and summarised in Table 15-28 with a summary assessment presented in Table 15-37. It is noted that the purpose of this assessment was to identify the junctions that should be included in the detailed junction capacity tests set out below. The information presented in Table 15-37 is based on the following:

- **Flow** = The total daily flow in PCUs forecast in 2032 including background traffic and construction generated traffic.
- **Capacity** = A sample daily capacity of the road at each location.
- **% Capacity** = This is the % of capacity that is forecast to be utilised on each link on the days that the construction traffic is present. A traffic light colour system is used to illustrate the information graphically as follows; For locations where the link is forecast to operate within capacity (<100%), the cell is shaded green. For links that are forecast to operate between 100% and 130%, they are shown as amber, and for links forecast to operate over 130% of capacity, they are shown as red. Links highlighted as amber or red would indicate that a detailed junction capacity assessment is required.
- **% Increase** = This is the percentage increase in traffic volumes forecast at each location as a result of the presence of the construction traffic. For this criteria, where the additional construction traffic results in an increase of +10% or less it is indicated as green and would not require a junction capacity assessment. This corresponds to the +10% threshold set by TII, which if not exceeded by a proposed development, does not require further assessment. For a forecast increase of between +10% and +30%, this is shown as amber. This indicates further assessment will be required but should be considered in tandem with the % of capacity being utilised, as discussed above. For over +30% this is shown as a significant increase and should be included in the detailed junction capacity tests.

With reference to the links shown in Figure 15-5 the key findings are as follows;

- Of the 36 links, 5 are included as potential Proposed Grid Connection underground electrical cabling route diversion routes and therefore are not applicable in this assessment.
- For a further 19 locations it is considered that the traffic impacts are within acceptable limits and no further assessment is required.

All junctions referenced in the following text are shown in Figure 15-6.

For the 13 locations where it was noted that further assessment was required, the following is noted,

- For Link 6 on the R403 it is noted that the access junction along this route has not been progressed, therefore no further assessment is required.
- Link 18 on the L1003, it is noted that the route has not been progressed for use as a construction haul route, therefore no further assessment is required.
- Link 21 on the R148, it is noted that the route has not been progressed for use as a construction haul route, therefore no further assessment is required.
- Link 22 on the R403 is located just west of Prosperous, Co. Kildare and forms part of the Proposed Construction Haul Routes and therefore has been included in junction capacity assessment (External Access Junction G, as identified in Figure 15-6).
- Link 24 on the R403 is located just east of Shee Bridge. There are no traffic movements proposed between the R403 and the R414 crossing the Shee Bridge, therefore no further assessment is required at this location.

- Link 26 on the R403. This location does not form part of the Proposed Turbine Delivery Route and will only be used for the delivery of materials for the Proposed Grid Connection underground cabling route. This link is included in the junction capacity assessment (External Access Junction D), as both other roads joining at this roundabout are on the Proposed Construction Haul Routes, as identified in Figure 15-6).
- Link 29 on the R402 is located along the Proposed Construction Haul Routes and is therefore included in the junction capacity assessment (External Access Junction A, as identified in Figure 15-6).
- Link 31 on the R401 is located along the Proposed Construction Haul Routes approaching Rathangan from the east and is therefore included in the junction capacity assessment (External Access Junction E, as identified in Figure 15-6).
- Link 32 on the R414, it is noted that the access junction along this route has not been progressed, therefore no further assessment is required.
- Link 33 on the R401 is located along the Proposed Construction Haul Routes, approaching Rathangan from the east. As this is the priority route at the junction with the R414 (Link 32), which is not being used on the delivery routes, no further assessment was undertaken.
- Links 34 and 35 on the R415 at a junction with L7081at Kilmeage is located along the Proposed Construction Haul Routes and is therefore included in the junction capacity assessment (External Access Junction F, as identified in Figure 15-6).

As a precautionary measure the junctions proposed as part of the Proposed Project (i.e., Access Junctions 1 to 7) and all existing External Junctions A to G, all of which have a minimum of one arm on the Proposed Construction Haul Routes, were included for a detailed junction capacity assessment, as detailed below Tables 15-22 to 15-37.

Table 15-22 Daily traffic volumes during General Construction and Proposed Offsite Substation Construction - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	1,662	1,807	2,379	2,456	4,836
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	1,662	1,807	2,250	1,698	3,947
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	1,662	1,807	2,247	1,713	3,959
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	1,662	1,807	2,287	1,714	4,001
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	1,662	1,807	1,877	2,278	4,155

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	1,662	1,807	5,878	2,666	8,544
7 – R414 (Access Junction 6)	1,166	95	1,261	145	1,662	1,807	1,311	1,757	3,068
8 – R414 (Access Junction 5)	1,072	127	1,199	145	1,662	1,807	1,217	1,789	3,006
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	1,662	1,807	1,098	1,718	2,816
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	1,662	1,807	5,065	2,128	7,193
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,744	183	1,927	145	1,662	1,807	1,889	1,845	3,734
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,418	432	3,850	145	1,662	1,807	3,563	2,094	5,657
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	1,662	1,807	4,718	2,603	7,322

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	1,662	1,807	18,085	4,953	23,038
15 – R420 (Proposed Turbine Delivery Route)	9,806	1,135	10,941	145	1,662	1,807	9,951	2,797	12,748
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	1,662	1,807	6,907	2,462	9,370
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	1,662	1,807	5,371	2,448	7,819
18 – L1003 (Proposed Construction Haul Route)	1,286	149	1,434	145	1,662	1,807	1,431	1,811	3,241
19 – R400 (Proposed Construction Haul Route)	2,088	214	2,303	145	1,662	1,807	2,233	1,876	4,110
20 – R401 (Proposed Construction Haul Route)	2,494	382	2,876	145	1,662	1,807	2,639	2,044	4,683
21 – R148 (Proposed Construction Haul Route)	12,006	2,404	14,409	145	1,662	1,807	12,151	4,066	16,216
22 – R403 (Proposed Construction Haul Route)	12,333	2,092	14,424	145	1,662	1,807	12,478	3,754	16,231
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	1,662	1,807	2,887	1,796	4,683
24 – R403 (Proposed	7,209	1,464	8,673	145	1,662	1,807	7,354	3,126	10,480

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Construction Haul Route)									
25 – R402 (Proposed Construction Haul Route)	10,221	1,510	11,731	145	1,662	1,807	10,366	3,172	13,538
26 – R403 (Proposed Construction Haul Route)	7,208	1,443	8,651	145	1,662	1,807	7,353	3,105	10,458
27 – R402 (Proposed Construction Haul Route)	5,082	1,104	6,186	145	1,662	1,807	5,227	2,766	7,993
28 – R402 (Proposed Construction Haul Route)	6,852	1,567	8,418	145	1,662	1,807	6,997	3,229	10,225
29 – R402 (Proposed Construction Haul Route)	4,170	1,112	5,282	145	1,662	1,807	4,315	2,774	7,089
30 – R401 (Proposed Construction Haul Route)	2,204	435	2,639	145	1,662	1,807	2,349	2,097	4,446
31 – R401 (Proposed Construction Haul Route)	7,950	816	8,765	145	1,662	1,807	8,095	2,478	10,572
32 – R414 (Proposed Construction Haul Route)	4,751	280	5,031	145	1,662	1,807	4,896	1,942	6,838
33 – R401 (Proposed Construction Haul Route)	8,619	817	9,437	145	1,662	1,807	8,764	2,479	11,244
34 – R415 (Proposed Construction Haul Route)	6,481	1,261	7,742	145	1,662	1,807	6,626	2,923	9,549

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
35 – R415 (Proposed Construction Haul Route)	5,689	903	6,592	145	1,662	1,807	5,834	2,565	8,399
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,784	565	3,350	145	1,662	1,807	2,929	2,227	5,157

Table 15-23 Daily traffic volumes during General Construction and Proposed Grid Connection underground electrical cabling route Construction - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	1,392	1,537	2,379	2,186	4,566
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	1,392	1,537	2,250	1,428	3,677
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	1,392	1,537	2,247	1,443	3,689
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	1,392	1,537	2,287	1,444	3,731
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	1,392	1,537	1,877	2,008	3,885
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	1,392	1,537	5,878	2,396	8,274
7 – R414 (Access Junction 6)	1,166	95	1,261	145	1,392	1,537	1,311	1,487	2,798

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
8 – R414 (Access Junction 5)	1,072	127	1,199	145	1,392	1,537	1,217	1,519	2,736
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	1,392	1,537	1,098	1,448	2,546
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	1,392	1,537	5,065	1,858	6,923
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,744	183	1,927	145	1,392	1,537	1,889	1,575	3,464
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,418	432	3,850	145	1,392	1,537	3,563	1,824	5,387
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	1,392	1,537	4,718	2,333	7,052
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	1,392	1,537	18,085	4,683	22,768
15 – R420 (Proposed	9,806	1,135	10,941	145	1,392	1,537	9,951	2,527	12,478

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Turbine Delivery Route)									
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	1,392	1,537	6,907	2,192	9,100
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	1,392	1,537	5,371	2,178	7,549
18 – L1003 (Proposed Grid Connection underground electrical cable route)	1,286	149	1,434	145	1,392	1,537	1,431	1,541	2,971
19 – R400 (Proposed Grid Connection underground electrical cable route)	2,088	214	2,303	145	1,392	1,537	2,233	1,606	3,840
20 – R401 (Proposed Grid Connection underground electrical cable route)	2,494	382	2,876	145	1,392	1,537	2,639	1,774	4,413
21 – R148 (Proposed Grid Connection underground electrical cable route)	12,006	2,404	14,409	145	1,392	1,537	12,151	3,796	15,946
22 – R403 (Proposed Grid Connection underground electrical cable route)	12,333	2,092	14,424	145	1,392	1,537	12,478	3,484	15,961
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	1,392	1,537	2,887	1,526	4,413

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
24 – R403 (Proposed Grid Connection underground electrical cable route)	7,209	1,464	8,673	145	1,392	1,537	7,354	2,856	10,210
25 – R402 (Proposed Grid Connection underground electrical cable route)	10,221	1,510	11,731	145	1,392	1,537	10,366	2,902	13,268
26 – R403 (Proposed Grid Connection underground electrical cable route)	7,208	1,443	8,651	145	1,392	1,537	7,353	2,835	10,188
27 – R402 (Proposed Grid Connection underground electrical cable route)	5,082	1,104	6,186	145	1,392	1,537	5,227	2,496	7,723
28 – R402 (Proposed Grid Connection underground electrical cable route)	6,852	1,567	8,418	145	1,392	1,537	6,997	2,959	9,955
29 – R402 (Proposed Grid Connection underground electrical cable route)	4,170	1,112	5,282	145	1,392	1,537	4,315	2,504	6,819
30 – R401 (Proposed Grid Connection underground electrical cable route)	2,204	435	2,639	145	1,392	1,537	2,349	1,827	4,176
31 – R401 (Proposed Grid Connection	7,950	816	8,765	145	1,392	1,537	8,095	2,208	10,302

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
underground electrical cable route)									
32 – R414 (Proposed Grid Connection underground electrical cable route)	4,751	280	5,031	145	1,392	1,537	4,896	1,672	6,568
33 – R401 (Proposed Grid Connection underground electrical cable route)	8,619	817	9,437	145	1,392	1,537	8,764	2,209	10,974
34 – R415 (Proposed Grid Connection underground electrical cable route)	6,481	1,261	7,742	145	1,392	1,537	6,626	2,653	9,279
35 – R415 (Proposed Grid Connection underground electrical cable route)	5,689	903	6,592	145	1,392	1,537	5,834	2,295	8,129
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,784	565	3,350	145	1,392	1,537	2,929	1,957	4,887

Table 15-24 Daily traffic volumes during Proposed Turbine Concrete Foundation Deliveries - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	384	529	2,379	1,178	3,558

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	384	529	2,250	420	2,669
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	384	529	2,247	435	2,681
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	384	529	2,287	436	2,723
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	384	529	1,877	1,000	2,877
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	384	529	5,878	1,388	7,266
7 – R414 (Access Junction 6)	1,166	95	1,261	145	384	529	1,311	479	1,790
8 – R414 (Access Junction 5)	1,072	127	1,199	145	384	529	1,217	511	1,728
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	384	529	1,098	440	1,537
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	384	529	5,065	850	5,915
11 – L7073 (Potential Proposed Grid Connection underground	1,744	183	1,927	145	384	529	1,889	567	2,456

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
electrical cable route diversion)									
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,418	432	3,850	145	384	529	3,563	816	4,379
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	384	529	4,718	1,325	6,044
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	384	529	18,085	3,675	21,760
15 – R420 (Proposed Turbine Delivery Route)	9,806	1,135	10,941	145	384	529	9,951	1,519	11,470
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	384	529	6,907	1,184	8,092
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	384	529	5,371	1,170	6,541
18 – L1003 (Proposed Construction Haul Route)	1,286	149	1,434	145	384	529	1,431	533	1,963
19 – R400 (Proposed Construction Haul Route)	2,088	214	2,303	145	384	529	2,233	598	2,832
20 – R401 (Proposed Construction Haul Route)	2,494	382	2,876	145	384	529	2,639	766	3,405

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
21 – R148 (Proposed Construction Haul Route)	12,006	2,404	14,409	145	384	529	12,151	2,788	14,938
22 – R403 (Proposed Construction Haul Route)	12,333	2,092	14,424	145	384	529	12,478	2,476	14,953
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	384	529	2,887	518	3,405
24 – R403 (Proposed Construction Haul Route)	7,209	1,464	8,673	145	384	529	7,354	1,848	9,202
25 – R402 (Proposed Construction Haul Route)	10,221	1,510	11,731	145	384	529	10,366	1,894	12,260
26 – R403 (Proposed Construction Haul Route)	7,208	1,443	8,651	145	384	529	7,353	1,827	9,180
27 – R402 (Proposed Construction Haul Route)	5,082	1,104	6,186	145	384	529	5,227	1,488	6,715
28 – R402 (Proposed Construction Haul Route)	6,852	1,567	8,418	145	384	529	6,997	1,951	8,947
29 – R402 (Proposed Construction Haul Route)	4,170	1,112	5,282	145	384	529	4,315	1,496	5,811
30 – R401 (Proposed Construction Haul Route)	2,204	435	2,639	145	384	529	2,349	819	3,168
31 – R401 (Proposed	7,950	816	8,765	145	384	529	8,095	1,200	9,294

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Construction Haul Route)									
32 – R414 (Proposed Construction Haul Route)	4,751	280	5,031	145	384	529	4,896	664	5,560
33 – R401 (Proposed Construction Haul Route)	8,619	817	9,437	145	384	529	8,764	1,201	9,966
34 – R415 (Proposed Construction Haul Route)	6,481	1,261	7,742	145	384	529	6,626	1,645	8,271
35 – R415 (Proposed Construction Haul Route)	5,689	903	6,592	145	384	529	5,834	1,287	7,121
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,784	565	3,350	145	384	529	2,929	949	3,879

Table 15-25 Daily traffic volumes during General Construction and Proposed Turbine Deliveries (Abnormally Sized Loads) - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	1,380	1,525	2,379	2,174	4,554
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	1,380	1,525	2,250	1,416	3,665
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	1,380	1,525	2,247	1,431	3,677

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	1,380	1,525	2,287	1,432	3,719
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	1,380	1,525	1,877	1,996	3,873
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	1,380	1,525	5,878	2,384	8,262
7 – R414 (Access Junction 6)	1,166	95	1,261	145	1,380	1,525	1,311	1,475	2,786
8 – R414 (Access Junction 5)	1,072	127	1,199	145	1,380	1,525	1,217	1,507	2,724
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	1,380	1,525	1,098	1,436	2,534
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	1,380	1,525	5,065	1,846	6,911
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,744	183	1,927	145	1,380	1,525	1,889	1,563	3,452
12 – L7081 (Potential Proposed Grid Connection underground	3,418	432	3,850	145	1,380	1,525	3,563	1,812	5,375

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
electrical cable route diversion)									
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	1,380	1,525	4,718	2,321	7,040
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	1,380	1,525	18,085	4,671	22,756
15 – R420 (Proposed Turbine Delivery Route)	9,806	1,135	10,941	145	1,380	1,525	9,951	2,515	12,466
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	1,380	1,525	6,907	2,180	9,088
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	1,380	1,525	5,371	2,166	7,537
18 – L1003 (Proposed Construction Haul Route)	1,286	149	1,434	145	1,380	1,525	1,431	1,529	2,959
19 – R400 (Proposed Construction Haul Route)	2,088	214	2,303	145	1,380	1,525	2,233	1,594	3,828
20 – R401 (Proposed Construction Haul Route)	2,494	382	2,876	145	1,380	1,525	2,639	1,762	4,401
21 – R148 (Proposed Construction Haul Route)	12,006	2,404	14,409	145	1,380	1,525	12,151	3,784	15,934
22 – R403 (Proposed	12,333	2,092	14,424	145	1,380	1,525	12,478	3,472	15,949

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Construction Haul Route)									
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	1,380	1,525	2,887	1,514	4,401
24 – R403 (Proposed Construction Haul Route)	7,209	1,464	8,673	145	1,380	1,525	7,354	2,844	10,198
25 – R402 (Proposed Construction Haul Route)	10,221	1,510	11,731	145	1,380	1,525	10,366	2,890	13,256
26 – R403 (Proposed Construction Haul Route)	7,208	1,443	8,651	145	1,380	1,525	7,353	2,823	10,176
27 – R402 (Proposed Construction Haul Route)	5,082	1,104	6,186	145	1,380	1,525	5,227	2,484	7,711
28 – R402 (Proposed Construction Haul Route)	6,852	1,567	8,418	145	1,380	1,525	6,997	2,947	9,943
29 – R402 (Proposed Construction Haul Route)	4,170	1,112	5,282	145	1,380	1,525	4,315	2,492	6,807
30 – R401 (Proposed Construction Haul Route)	2,204	435	2,639	145	1,380	1,525	2,349	1,815	4,164
31 – R401 (Proposed Construction Haul Route)	7,950	816	8,765	145	1,380	1,525	8,095	2,196	10,290
32 – R414 (Proposed Construction Haul Route)	4,751	280	5,031	145	1,380	1,525	4,896	1,660	6,556

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
33 – R401 (Proposed Construction Haul Route)	8,619	817	9,437	145	1,380	1,525	8,764	2,197	10,962
34 – R415 (Proposed Construction Haul Route)	6,481	1,261	7,742	145	1,380	1,525	6,626	2,641	9,267
35 – R415 (Proposed Construction Haul Route)	5,689	903	6,592	145	1,380	1,525	5,834	2,283	8,117
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,784	565	3,350	145	1,380	1,525	2,929	1,945	4,875

Table 15-26 Daily traffic volumes during General Construction and Proposed Turbine Deliveries (Standard HGVs) - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	1,339	1,484	2,379	2,133	4,513
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	1,339	1,484	2,250	1,375	3,624
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	1,339	1,484	2,247	1,390	3,636
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	1,339	1,484	2,287	1,391	3,678
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	1,339	1,484	1,877	1,955	3,832

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	1,339	1,484	5,878	2,343	8,221
7 – R414 (Access Junction 6)	1,166	95	1,261	145	1,339	1,484	1,311	1,434	2,745
8 – R414 (Access Junction 5)	1,072	127	1,199	145	1,339	1,484	1,217	1,466	2,683
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	1,339	1,484	1,098	1,395	2,493
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	1,339	1,484	5,065	1,805	6,870
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,744	183	1,927	145	1,339	1,484	1,889	1,522	3,411
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,418	432	3,850	145	1,339	1,484	3,563	1,771	5,334
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	1,339	1,484	4,718	2,280	6,999

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	1,339	1,484	18,085	4,630	22,715
15 – R420 (Proposed Turbine Delivery Route)	9,806	1,135	10,941	145	1,339	1,484	9,951	2,474	12,425
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	1,339	1,484	6,907	2,139	9,047
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	1,339	1,484	5,371	2,125	7,496
18 – L1003 (Proposed Construction Haul Route)	1,286	149	1,434	145	1,339	1,484	1,431	1,488	2,918
19 – R400 (Proposed Construction Haul Route)	2,088	214	2,303	145	1,339	1,484	2,233	1,553	3,787
20 – R401 (Proposed Construction Haul Route)	2,494	382	2,876	145	1,339	1,484	2,639	1,721	4,360
21 – R148 (Proposed Construction Haul Route)	12,006	2,404	14,409	145	1,339	1,484	12,151	3,743	15,893
22 – R403 (Proposed Construction Haul Route)	12,333	2,092	14,424	145	1,339	1,484	12,478	3,431	15,908
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	1,339	1,484	2,887	1,473	4,360
24 – R403 (Proposed	7,209	1,464	8,673	145	1,339	1,484	7,354	2,803	10,157

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Construction Haul Route)									
25 – R402 (Proposed Construction Haul Route)	10,221	1,510	11,731	145	1,339	1,484	10,366	2,849	13,215
26 – R403 (Proposed Construction Haul Route)	7,208	1,443	8,651	145	1,339	1,484	7,353	2,782	10,135
27 – R402 (Proposed Construction Haul Route)	5,082	1,104	6,186	145	1,339	1,484	5,227	2,443	7,670
28 – R402 (Proposed Construction Haul Route)	6,852	1,567	8,418	145	1,339	1,484	6,997	2,906	9,902
29 – R402 (Proposed Construction Haul Route)	4,170	1,112	5,282	145	1,339	1,484	4,315	2,451	6,766
30 – R401 (Proposed Construction Haul Route)	2,204	435	2,639	145	1,339	1,484	2,349	1,774	4,123
31 – R401 (Proposed Construction Haul Route)	7,950	816	8,765	145	1,339	1,484	8,095	2,155	10,249
32 – R414 (Proposed Construction Haul Route)	4,751	280	5,031	145	1,339	1,484	4,896	1,619	6,515
33 – R401 (Proposed Construction Haul Route)	8,619	817	9,437	145	1,339	1,484	8,764	2,156	10,921
34 – R415 (Proposed Construction Haul Route)	6,481	1,261	7,742	145	1,339	1,484	6,626	2,600	9,226

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
35 – R415 (Proposed Construction Haul Route)	5,689	903	6,592	145	1,339	1,484	5,834	2,242	8,076
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	2,784	565	3,350	145	1,339	1,484	2,929	1,904	4,834

Table 15-27 Daily traffic volumes during General Construction Only - background, Proposed Project generated and total (PCUs), year 2032

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R401 (Access Junction 1)	2,234	794	3,029	145	1,320	1,465	2,379	2,114	4,494
2 – L1001 (Access Junction 4)	2,105	36	2,140	145	1,320	1,465	2,250	1,356	3,605
3 – L3001 (Access Junction 3)	2,102	51	2,152	145	1,320	1,465	2,247	1,371	3,617
4 – L3001 (Access Junction 2)	2,142	52	2,194	145	1,320	1,465	2,287	1,372	3,659
5 – L1005 (Proposed Construction Haul Route)	1,732	616	2,348	145	1,320	1,465	1,877	1,936	3,813
6 – R403 (Proposed Construction Haul Route)	5,733	1,004	6,737	145	1,320	1,465	5,878	2,324	8,202
7 – R414 (Access Junction 6)	1,166	95	1,261	145	1,320	1,465	1,311	1,415	2,726

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
8 – R414 (Access Junction 5)	1,072	127	1,199	145	1,320	1,465	1,217	1,447	2,664
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	953	56	1,009	145	1,320	1,465	1,098	1,376	2,474
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,920	466	5,386	145	1,320	1,465	5,065	1,786	6,851
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,744	183	1,927	145	1,320	1,465	1,889	1,503	3,392
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,418	432	3,850	145	1,320	1,465	3,563	1,752	5,315
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	4,573	941	5,515	145	1,320	1,465	4,718	2,261	6,980
14 – N52 (Proposed Turbine Delivery Route)	17,940	3,291	21,231	145	1,320	1,465	18,085	4,611	22,696
15 – R420 (Proposed	9,806	1,135	10,941	145	1,320	1,465	9,951	2,455	12,406

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Turbine Delivery Route)									
16 – R402 (Proposed Turbine Delivery Route)	6,762	800	7,563	145	1,320	1,465	6,907	2,120	9,028
17 – R402 (Proposed Turbine Delivery Route)	5,226	786	6,012	145	1,320	1,465	5,371	2,106	7,477
18 – L1003 (Proposed Construction Haul Route)	1,286	149	1,434	145	1,320	1,465	1,431	1,469	2,899
19 – R400 (Proposed Construction Haul Route)	2,088	214	2,303	145	1,320	1,465	2,233	1,534	3,768
20 – R401 (Proposed Construction Haul Route)	2,494	382	2,876	145	1,320	1,465	2,639	1,702	4,341
21 – R148 (Proposed Construction Haul Route)	12,006	2,404	14,409	145	1,320	1,465	12,151	3,724	15,874
22 – R403 (Proposed Construction Haul Route)	12,333	2,092	14,424	145	1,320	1,465	12,478	3,412	15,889
23 – L6002 (Access Junction 7)	2,742	134	2,876	145	1,320	1,465	2,887	1,454	4,341
24 – R403 (Proposed Construction Haul Route)	7,209	1,464	8,673	145	1,320	1,465	7,354	2,784	10,138
25 – R402 (Proposed Construction Haul Route)	10,221	1,510	11,731	145	1,320	1,465	10,366	2,830	13,196

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
26 – R403 (Proposed Construction Haul Route)	7,208	1,443	8,651	145	1,320	1,465	7,353	2,763	10,116
27 – R402 (Proposed Construction Haul Route)	5,082	1,104	6,186	145	1,320	1,465	5,227	2,424	7,651
28 – R402 (Proposed Construction Haul Route)	6,852	1,567	8,418	145	1,320	1,465	6,997	2,887	9,883
29 – R402 (Proposed Construction Haul Route)	4,170	1,112	5,282	145	1,320	1,465	4,315	2,432	6,747
30 – R401 (Proposed Construction Haul Route)	2,204	435	2,639	145	1,320	1,465	2,349	1,755	4,104
31 – R401 (Proposed Construction Haul Route)	7,950	816	8,765	145	1,320	1,465	8,095	2,136	10,230
32 – R414 (Proposed Construction Haul Route)	4,751	280	5,031	145	1,320	1,465	4,896	1,600	6,496
33 – R401 (Proposed Construction Haul Route)	8,619	817	9,437	145	1,320	1,465	8,764	2,137	10,902
34 – R415 (Proposed Construction Haul Route)	6,481	1,261	7,742	145	1,320	1,465	6,626	2,581	9,207
35 – R415 (Proposed Construction Haul Route)	5,689	903	6,592	145	1,320	1,465	5,834	2,223	8,057
36 – L7081 (Potential	2,784	565	3,350	145	1,320	1,465	2,929	1,885	4,815

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Project)		
Proposed Grid Connection underground electrical cable route diversion)									

Table 15-28 Summary daily effects of Proposed Project traffic – General Construction and Proposed Offsite Substation Construction- % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	1,807	4,836	59.7%	100
2 – L1001 (Access Junction 4)	2,140	1,807	3,947	84.4%	100
3 – L3001 (Access Junction 3)	2,152	1,807	3,959	84.0%	100
4 – L3001 (Access Junction 2)	2,194	1,807	4,001	82.4%	100
5 – L1005 (Proposed Construction Haul Route)	2,348	1,807	4,155	77.0%	100
6 – R403 (Proposed Construction Haul Route)	6,737	1,807	8,544	26.8%	100
7 – R414 (Access Junction 6)	1,261	1,807	3,068	143.3%	100
8 – R414 (Access Junction 5)	1,199	1,807	3,006	150.7%	100
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	1,807	2,816	179.0%	100
10 – R415 (Potential Proposed Grid Connection underground	5,386	1,807	7,193	33.5%	100

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
electrical cable route diversion)					
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	1,807	3,734	93.8%	100
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,850	1,807	5,657	46.9%	100
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	1,807	7,322	32.8%	100
14 – N52 (Proposed Turbine Delivery Route)	21,231	1,807	23,038	8.5%	100
15 – R420 (Proposed Turbine Delivery Route)	10,941	1,807	12,748	16.5%	100
16 – R402 (Proposed Turbine Delivery Route)	7,563	1,807	9,370	23.9%	100
17 – R402 (Proposed Turbine Delivery Route)	6,012	1,807	7,819	30.1%	100
18 – L1003 (Proposed Construction Haul Route)	1,434	1,807	3,241	126.0%	100

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
19 – R400 (Proposed Construction Haul Route)	2,303	1,807	4,110	78.5%	100
20 – R401 (Proposed Construction Haul Route)	2,876	1,807	4,683	62.8%	100
21 – R148 (Proposed Construction Haul Route)	14,409	1,807	16,216	12.5%	100
22 – R403 (Proposed Construction Haul Route)	14,424	1,807	16,231	12.5%	100
23 – L6002 (Access Junction 7)	2,876	1,807	4,683	62.8%	100
24 – R403 (Proposed Construction Haul Route)	8,673	1,807	10,480	20.8%	100
25 – R402 (Proposed Construction Haul Route)	11,731	1,807	13,538	15.4%	100
26 – R403 (Proposed Construction Haul Route)	8,651	1,807	10,458	20.9%	100
27 – R402 (Proposed Construction Haul Route)	6,186	1,807	7,993	29.2%	100
28 – R402 (Proposed Construction Haul Route)	8,418	1,807	10,225	21.5%	100
29 – R402 (Proposed	5,282	1,807	7,089	34.2%	100

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
30 – R401 (Proposed Construction Haul Route)	2,639	1,807	4,446	68.5%	100
31 – R401 (Proposed Construction Haul Route)	8,765	1,807	10,572	20.6%	100
32 – R414 (Proposed Construction Haul Route)	5,031	1,807	6,838	35.9%	100
33 – R401 (Proposed Construction Haul Route)	9,437	1,807	11,244	19.1%	100
34 – R415 (Proposed Construction Haul Route)	7,742	1,807	9,549	23.3%	100
35 – R415 (Proposed Construction Haul Route)	6,592	1,807	8,399	27.4%	100
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	1,807	5,157	53.9%	100

Table 15-29 Summary daily effects of Proposed Project traffic – General Construction and Proposed Grid Connection underground electrical cabling route Construction - % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	1,537	4,566	50.7%	171
2 – L1001 (Access Junction 4)	2,140	1,537	3,677	71.8%	171

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
3 – L3001 (Access Junction 3)	2,152	1,537	3,689	71.4%	171
4 – L3001 (Access Junction 2)	2,194	1,537	3,731	70.1%	171
5 – L1005 (Proposed Construction Haul Route)	2,348	1,537	3,885	65.5%	171
6 – R403 (Proposed Construction Haul Route)	6,737	1,537	8,274	22.8%	171
7 – R414 (Access Junction 6)	1,261	1,537	2,798	121.9%	171
8 – R414 (Access Junction 5)	1,199	1,537	2,736	128.2%	171
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	1,537	2,546	152.3%	171
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,386	1,537	6,923	28.5%	171
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	1,537	3,464	79.8%	171
12 – L7081 (Potential Proposed Grid Connection underground	3,850	1,537	5,387	39.9%	171

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
electrical cable route diversion)					
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	1,537	7,052	27.9%	171
14 – N52 (Proposed Turbine Delivery Route)	21,231	1,537	22,768	7.2%	171
15 – R420 (Proposed Turbine Delivery Route)	10,941	1,537	12,478	14.0%	171
16 – R402 (Proposed Turbine Delivery Route)	7,563	1,537	9,100	20.3%	171
17 – R402 (Proposed Turbine Delivery Route)	6,012	1,537	7,549	25.6%	171
18 – L1003 (Proposed Construction Haul Route)	1,434	1,537	2,971	107.2%	171
19 – R400 (Proposed Construction Haul Route)	2,303	1,537	3,840	66.7%	171
20 – R401 (Proposed Construction Haul Route)	2,876	1,537	4,413	53.4%	171
21 – R148 (Proposed Construction Haul Route)	14,409	1,537	15,946	10.7%	171
22 – R403 (Proposed	14,424	1,537	15,961	10.7%	171

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
23 – L6002 (Access Junction 7)	2,876	1,537	4,413	53.4%	171
24 – R403 (Proposed Construction Haul Route)	8,673	1,537	10,210	17.7%	171
25 – R402 (Proposed Construction Haul Route)	11,731	1,537	13,268	13.1%	171
26 – R403 (Proposed Construction Haul Route)	8,651	1,537	10,188	17.8%	171
27 – R402 (Proposed Construction Haul Route)	6,186	1,537	7,723	24.8%	171
28 – R402 (Proposed Construction Haul Route)	8,418	1,537	9,955	18.3%	171
29 – R402 (Proposed Construction Haul Route)	5,282	1,537	6,819	29.1%	123
30 – R401 (Proposed Construction Haul Route)	2,639	1,537	4,176	58.3%	171
31 – R401 (Proposed Construction Haul Route)	8,765	1,537	10,302	17.5%	171
32 – R414 (Proposed Construction Haul Route)	5,031	1,537	6,568	30.6%	171

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
33 – R401 (Proposed Construction Haul Route)	9,437	1,537	10,974	16.3%	171
34 – R415 (Proposed Construction Haul Route)	7,742	1,537	9,279	19.9%	171
35 – R415 (Proposed Construction Haul Route)	6,592	1,537	8,129	23.3%	171
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	1,537	4,887	45.9%	171

Table 15-30 Summary daily effects of Proposed Project traffic – Proposed Turbine Concrete Foundation Deliveries- % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	529	3,558	17.5%	46
2 – L1001 (Access Junction 4)	2,140	529	2,669	24.7%	46
3 – L3001 (Access Junction 3)	2,152	529	2,681	24.6%	46
4 – L3001 (Access Junction 2)	2,194	529	2,723	24.1%	46
5 – L1005 (Proposed Construction Haul Route)	2,348	529	2,877	22.5%	46
6 – R403 (Proposed Construction Haul Route)	6,737	529	7,266	7.9%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
7 – R414 (Access Junction 6)	1,261	529	1,790	41.9%	46
8 – R414 (Access Junction 5)	1,199	529	1,728	44.1%	46
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	529	1,537	52.4%	46
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,386	529	5,915	9.8%	46
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	529	2,456	27.5%	46
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,850	529	4,379	13.7%	46
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	529	6,044	9.6%	46
14 – N52 (Proposed Turbine Delivery Route)	21,231	529	21,760	2.5%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
15 – R420 (Proposed Turbine Delivery Route)	10,941	529	11,470	4.8%	46
16 – R402 (Proposed Turbine Delivery Route)	7,563	529	8,092	7.0%	46
17 – R402 (Proposed Turbine Delivery Route)	6,012	529	6,541	8.8%	46
18 – L1003 (Proposed Construction Haul Route)	1,434	529	1,963	36.9%	46
19 – R400 (Proposed Construction Haul Route)	2,303	529	2,832	23.0%	46
20 – R401 (Proposed Construction Haul Route)	2,876	529	3,405	18.4%	46
21 – R148 (Proposed Construction Haul Route)	14,409	529	14,938	3.7%	46
22 – R403 (Proposed Construction Haul Route)	14,424	529	14,953	3.7%	46
23 – L6002 (Access Junction 7)	2,876	529	3,405	18.4%	46
24 – R403 (Proposed Construction Haul Route)	8,673	529	9,202	6.1%	46
25 – R402 (Proposed	11,731	529	12,260	4.5%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
26 – R403 (Proposed Construction Haul Route)	8,651	529	9,180	6.1%	46
27 – R402 (Proposed Construction Haul Route)	6,186	529	6,715	8.6%	46
28 – R402 (Proposed Construction Haul Route)	8,418	529	8,947	6.3%	46
29 – R402 (Proposed Construction Haul Route)	5,282	529	5,811	10.0%	46
30 – R401 (Proposed Construction Haul Route)	2,639	529	3,168	20.0%	46
31 – R401 (Proposed Construction Haul Route)	8,765	529	9,294	6.0%	46
32 – R414 (Proposed Construction Haul Route)	5,031	529	5,560	10.5%	46
33 – R401 (Proposed Construction Haul Route)	9,437	529	9,966	5.6%	46
34 – R415 (Proposed Construction Haul Route)	7,742	529	8,271	6.8%	46
35 – R415 (Proposed Construction Haul Route)	6,592	529	7,121	8.0%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	529	3,879	15.8%	46

Table 15-31 Summary daily effects of Proposed Project traffic – General Construction and Proposed Turbine Deliveries (Abnormally Sized Loads) - % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	1,525	4,554	50.4%	123
2 – L1001 (Access Junction 4)	2,140	1,525	3,665	71.3%	123
3 – L3001 (Access Junction 3)	2,152	1,525	3,677	70.8%	123
4 – L3001 (Access Junction 2)	2,194	1,525	3,719	69.5%	123
5 – L1005 (Proposed Construction Haul Route)	2,348	1,525	3,873	65.0%	123
6 – R403 (Proposed Construction Haul Route)	6,737	1,525	8,262	22.6%	123
7 – R414 (Access Junction 6)	1,261	1,525	2,786	120.9%	123
8 – R414 (Access Junction 5)	1,199	1,525	2,724	127.2%	123
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	1,525	2,534	151.1%	123
10 – R415 (Potential	5,386	1,525	6,911	28.3%	123

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Proposed Grid Connection underground electrical cable route diversion)					
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	1,525	3,452	79.1%	123
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,850	1,525	5,375	39.6%	123
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	1,525	7,040	27.7%	123
14 – N52 (Proposed Turbine Delivery Route)	21,231	1,525	22,756	7.2%	123
15 – R420 (Proposed Turbine Delivery Route)	10,941	1,525	12,466	13.9%	123
16 – R402 (Proposed Turbine Delivery Route)	7,563	1,525	9,088	20.2%	123
17 – R402 (Proposed Turbine Delivery Route)	6,012	1,525	7,537	25.4%	123
18 – L1003 (Proposed	1,434	1,525	2,959	106.3%	123

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
19 – R400 (Proposed Construction Haul Route)	2,303	1,525	3,828	66.2%	123
20 – R401 (Proposed Construction Haul Route)	2,876	1,525	4,401	53.0%	123
21 – R148 (Proposed Construction Haul Route)	14,409	1,525	15,934	10.6%	123
22 – R403 (Proposed Construction Haul Route)	14,424	1,525	15,949	10.6%	123
23 – L6002 (Access Junction 7)	2,876	1,525	4,401	53.0%	123
24 – R403 (Proposed Construction Haul Route)	8,673	1,525	10,198	17.6%	123
25 – R402 (Proposed Construction Haul Route)	11,731	1,525	13,256	13.0%	123
26 – R403 (Proposed Construction Haul Route)	8,651	1,525	10,176	17.6%	123
27 – R402 (Proposed Construction Haul Route)	6,186	1,525	7,711	24.7%	123
28 – R402 (Proposed Construction Haul Route)	8,418	1,525	9,943	18.1%	123

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
29 – R402 (Proposed Construction Haul Route)	5,282	1,525	6,807	28.9%	123
30 – R401 (Proposed Construction Haul Route)	2,639	1,525	4,164	57.8%	123
31 – R401 (Proposed Construction Haul Route)	8,765	1,525	10,290	17.4%	123
32 – R414 (Proposed Construction Haul Route)	5,031	1,525	6,556	30.3%	123
33 – R401 (Proposed Construction Haul Route)	9,437	1,525	10,962	16.2%	123
34 – R415 (Proposed Construction Haul Route)	7,742	1,525	9,267	19.7%	123
35 – R415 (Proposed Construction Haul Route)	6,592	1,525	8,117	23.1%	123
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	1,525	4,875	45.5%	123

Table 15-32 Summary daily effects of Proposed Project traffic – General Construction and Proposed Turbine Deliveries (Standard HGVs) - % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	1,484	4,513	49.0%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
2 – L1001 (Access Junction 4)	2,140	1,484	3,624	69.3%	46
3 – L3001 (Access Junction 3)	2,152	1,484	3,636	68.9%	46
4 – L3001 (Access Junction 2)	2,194	1,484	3,678	67.6%	46
5 – L1005 (Proposed Construction Haul Route)	2,348	1,484	3,832	63.2%	46
6 – R403 (Proposed Construction Haul Route)	6,737	1,484	8,221	22.0%	46
7 – R414 (Access Junction 6)	1,261	1,484	2,745	117.7%	46
8 – R414 (Access Junction 5)	1,199	1,484	2,683	123.7%	46
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	1,484	2,493	147.0%	46
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,386	1,484	6,870	27.6%	46
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	1,484	3,411	77.0%	46
12 – L7081 (Potential Proposed Grid	3,850	1,484	5,334	38.5%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Connection underground electrical cable route diversion)					
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	1,484	6,999	26.9%	46
14 – N52 (Proposed Turbine Delivery Route)	21,231	1,484	22,715	7.0%	46
15 – R420 (Proposed Turbine Delivery Route)	10,941	1,484	12,425	13.6%	46
16 – R402 (Proposed Turbine Delivery Route)	7,563	1,484	9,047	19.6%	46
17 – R402 (Proposed Turbine Delivery Route)	6,012	1,484	7,496	24.7%	46
18 – L1003 (Proposed Construction Haul Route)	1,434	1,484	2,918	103.5%	46
19 – R400 (Proposed Construction Haul Route)	2,303	1,484	3,787	64.4%	46
20 – R401 (Proposed Construction Haul Route)	2,876	1,484	4,360	51.6%	46
21 – R148 (Proposed Construction Haul Route)	14,409	1,484	15,893	10.3%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
22 – R403 (Proposed Construction Haul Route)	14,424	1,484	15,908	10.3%	46
23 – L6002 (Access Junction 7)	2,876	1,484	4,360	51.6%	46
24 – R403 (Proposed Construction Haul Route)	8,673	1,484	10,157	17.1%	46
25 – R402 (Proposed Construction Haul Route)	11,731	1,484	13,215	12.6%	46
26 – R403 (Proposed Construction Haul Route)	8,651	1,484	10,135	17.2%	46
27 – R402 (Proposed Construction Haul Route)	6,186	1,484	7,670	24.0%	46
28 – R402 (Proposed Construction Haul Route)	8,418	1,484	9,902	17.6%	46
29 – R402 (Proposed Construction Haul Route)	5,282	1,484	6,766	28.1%	46
30 – R401 (Proposed Construction Haul Route)	2,639	1,484	4,123	56.2%	46
31 – R401 (Proposed Construction Haul Route)	8,765	1,484	10,249	16.9%	46
32 – R414 (Proposed	5,031	1,484	6,515	29.5%	46

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
33 – R401 (Proposed Construction Haul Route)	9,437	1,484	10,921	15.7%	46
34 – R415 (Proposed Construction Haul Route)	7,742	1,484	9,226	19.2%	46
35 – R415 (Proposed Construction Haul Route)	6,592	1,484	8,076	22.5%	46
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	1,484	4,834	44.3%	46

Table 15-33 Summary daily effects of Proposed Project traffic – General Construction Only - % increase and number of days, year 2032

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R401 (Access Junction 1)	3,029	1,465	4,494	48.4%	151
2 – L1001 (Access Junction 4)	2,140	1,465	3,605	68.5%	151
3 – L3001 (Access Junction 3)	2,152	1,465	3,617	68.1%	151
4 – L3001 (Access Junction 2)	2,194	1,465	3,659	66.8%	151
5 – L1005 (Proposed Construction Haul Route)	2,348	1,465	3,813	62.4%	151
6 – R403 (Proposed Construction Haul Route)	6,737	1,465	8,202	21.7%	151

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
7 – R414 (Access Junction 6)	1,261	1,465	2,726	116.2%	151
8 – R414 (Access Junction 5)	1,199	1,465	2,664	122.2%	151
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,009	1,465	2,474	145.1%	151
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,386	1,465	6,851	27.2%	151
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	1,927	1,465	3,392	76.0%	151
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,850	1,465	5,315	38.1%	151
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,515	1,465	6,980	26.6%	151
14 – N52 (Proposed Turbine Delivery Route)	21,231	1,465	22,696	6.9%	151

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
15 – R420 (Proposed Turbine Delivery Route)	10,941	1,465	12,406	13.4%	151
16 – R402 (Proposed Turbine Delivery Route)	7,563	1,465	9,028	19.4%	151
17 – R402 (Proposed Turbine Delivery Route)	6,012	1,465	7,477	24.4%	151
18 – L1003 (Proposed Construction Haul Route)	1,434	1,465	2,899	102.1%	151
19 – R400 (Proposed Construction Haul Route)	2,303	1,465	3,768	63.6%	151
20 – R401 (Proposed Construction Haul Route)	2,876	1,465	4,341	50.9%	151
21 – R148 (Proposed Construction Haul Route)	14,409	1,465	15,874	10.2%	151
22 – R403 (Proposed Construction Haul Route)	14,424	1,465	15,889	10.2%	151
23 – L6002 (Access Junction 7)	2,876	1,465	4,341	50.9%	151
24 – R403 (Proposed Construction Haul Route)	8,673	1,465	10,138	16.9%	151
25 – R402 (Proposed	11,731	1,465	13,196	12.5%	151

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
Construction Haul Route)					
26 – R403 (Proposed Construction Haul Route)	8,651	1,465	10,116	16.9%	151
27 – R402 (Proposed Construction Haul Route)	6,186	1,465	7,651	23.7%	151
28 – R402 (Proposed Construction Haul Route)	8,418	1,465	9,883	17.4%	151
29 – R402 (Proposed Construction Haul Route)	5,282	1,465	6,747	27.7%	151
30 – R401 (Proposed Construction Haul Route)	2,639	1,465	4,104	55.5%	151
31 – R401 (Proposed Construction Haul Route)	8,765	1,465	10,230	16.7%	151
32 – R414 (Proposed Construction Haul Route)	5,031	1,465	6,496	29.1%	151
33 – R401 (Proposed Construction Haul Route)	9,437	1,465	10,902	15.5%	151
34 – R415 (Proposed Construction Haul Route)	7,742	1,465	9,207	18.9%	151
35 – R415 (Proposed Construction Haul Route)	6,592	1,465	8,057	22.2%	151

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	3,350	1,465	4,815	43.7%	151

Table 15-34 Delivery routes link type and link capacity (at Level of Service D)

Link	Link type	Link capacity (Level of Service D)
1 – R401 (Access Junction 1)	Type 3 single	5,000
2 – L1001 (Access Junction 4)	Type 3 single	5,000
3 – L3001 (Access Junction 3)	Type 3 single	5,000
4 – L3001 (Access Junction 2)	Type 3 single	5,000
5 – L1005 (Proposed Construction Haul Route)	Type 3 single	5,000
6 – R403 (Proposed Construction Haul Route)	Type 3 single	5,000
7 – R414 (Access Junction 6)	Type 3 single	5,000
8 – R414 (Access Junction 5)	Type 3 single	5,000
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000

Link	Link type	Link capacity (Level of Service D)
14 – N52 (Proposed Turbine Delivery Route)	Type 1 single	11,600
15 – R420 (Proposed Turbine Delivery Route)	Type 2 single	8,600
16 – R402 (Proposed Turbine Delivery Route)	Type 3 single	8,600
17 – R402 (Proposed Turbine Delivery Route)	Type 3 single	8,600
18 – L1003 (Proposed Construction Haul Route)	Type 3 single	3,300
19 – R400 (Proposed Construction Haul Route)	Type 3 single	5,000
20 – R401 (Proposed Construction Haul Route)	Type 3 single	5,000
21 – R148 (Proposed Construction Haul Route)	Type 3 single	5,000
22 – R403 (Proposed Construction Haul Route)	Type 3 single	5,000
23 – L6002 (Access Junction 7)	Type 3 single	5,000
24 – R403 (Proposed Construction Haul Route)	Type 3 single	5,000
25 – R402 (Proposed Construction Haul Route)	Type 1 single	11,600
26 – R403 (Proposed Construction Haul Route)	Type 3 single	5,000
27 – R402 (Proposed Construction Haul Route)	Type 3 single	8,600
28 – R402 (Proposed Construction Haul Route)	Type 3 single	8,600
29 – R402 (Proposed Construction Haul Route)	Type 3 single	5,000
30 – R401 (Proposed Construction Haul Route)	Type 3 single	5,000
31 – R401 (Proposed Construction Haul Route)	Type 3 single	5,000

Link	Link type	Link capacity (Level of Service D)
32 – R414 (Proposed Construction Haul Route)	Type 3 single	5,000
33 – R401 (Proposed Construction Haul Route)	Type 3 single	5,000
34 – R415 (Proposed Construction Haul Route)	Type 3 single	5,000
35 – R415 (Proposed Construction Haul Route)	Type 3 single	5,000
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	Type 3 single	5,000

Table 15-35 Delivery route link capacity and summary of link flows by construction delivery day

Link	Link capacity (Level of Service D)	Construction delivery day						
		Background traffic only	General construction + Proposed Offsite Substation	General construction + Proposed Grid Connection underground electrical cabling route	Proposed Turbine Concrete foundations	General construction + Proposed Turbine delivery (abnormal loads)	General construction + Proposed Turbine delivery (standard loads)	General construction only
1 – R401 (Access Junction 1)	5,000	3,029	4,836	4,566	3,558	4,554	4,513	4,494
2 – L1001 (Access Junction 4)	5,000	2,140	3,947	3,677	2,669	3,665	3,624	3,605
3 – L3001 (Access Junction 3)	5,000	2,152	3,959	3,689	2,681	3,677	3,636	3,617
4 – L3001 (Access Junction 2)	5,000	2,194	4,001	3,731	2,723	3,719	3,678	3,659
5 – L1005 (Proposed Construction Haul Route)	5,000	2,348	4,155	3,885	2,877	3,873	3,832	3,813
6 – R403 (Proposed Construction Haul Route)	5,000	6,737	8,544	8,274	7,266	8,262	8,221	8,202
7 – R414 (Access Junction 6)	5,000	1,261	3,068	2,798	1,790	2,786	2,745	2,726
8 – R414 (Access Junction 5)	5,000	1,199	3,006	2,736	1,728	2,724	2,683	2,664

9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	1,009	2,816	2,546	1,537	2,534	2,493	2,474
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	5,386	7,193	6,923	5,915	6,911	6,870	6,851
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	1,927	3,734	3,464	2,456	3,452	3,411	3,392
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	3,850	5,657	5,387	4,379	5,375	5,334	5,315
13 – R409 (Potential Proposed Grid Connection underground	5,000	5,515	7,322	7,052	6,044	7,040	6,999	6,980

electrical cable route diversion)								
14 – N52 (Proposed Turbine Delivery Route)	11,600	21,231	23,038	22,768	21,760	22,756	22,715	22,696
15 – R420 (Proposed Turbine Delivery Route)	8,600	10,941	12,748	12,478	11,470	12,466	12,425	12,406
16 – R402 (Proposed Turbine Delivery Route)	8,600	7,563	9,370	9,100	8,092	9,088	9,047	9,028
17 – R402 (Proposed Turbine Delivery Route)	8,600	6,012	7,819	7,549	6,541	7,537	7,496	7,477
18 – L1003 (Proposed Construction Haul Route)	3,300	1,434	3,241	2,971	1,963	2,959	2,918	2,899
19 – R400 (Proposed Construction Haul Route)	5,000	2,303	4,110	3,840	2,832	3,828	3,787	3,768
20 – R401 (Proposed Construction Haul Route)	5,000	2,876	4,683	4,413	3,405	4,401	4,360	4,341
21 – R148 (Proposed Construction Haul Route)	5,000	14,409	16,216	15,946	14,938	15,934	15,893	15,874

22 – R403 (Proposed Construction Haul Route)	5,000	14,424	16,231	15,961	14,953	15,949	15,908	15,889
23 – L6002 (Access Junction 7)	5,000	2,876	4,683	4,413	3,405	4,401	4,360	4,341
24 – R403 (Proposed Construction Haul Route)	5,000	8,673	10,480	10,210	9,202	10,198	10,157	10,138
25 – R402 (Proposed Construction Haul Route)	11,600	11,731	13,538	13,268	12,260	13,256	13,215	13,196
26 – R403 (Proposed Construction Haul Route)	5,000	8,651	10,458	10,188	9,180	10,176	10,135	10,116
27 – R402 (Proposed Construction Haul Route)	8,600	6,186	7,993	7,723	6,715	7,711	7,670	7,651
28 – R402 (Proposed Construction Haul Route)	8,600	8,418	10,225	9,955	8,947	9,943	9,902	9,883
29 – R402 (Proposed Construction Haul Route)	5,000	5,282	7,089	6,819	5,811	6,807	6,766	6,747

30 – R401 (Proposed Construction Haul Route)	5,000	2,639	4,446	4,176	3,168	4,164	4,123	4,104
31 – R401 (Proposed Construction Haul Route)	5,000	8,765	10,572	10,302	9,294	10,290	10,249	10,230
32 – R414 (Proposed Construction Haul Route)	5,000	5,031	6,838	6,568	5,560	6,556	6,515	6,496
33 – R401 (Proposed Construction Haul Route)	5,000	9,437	11,244	10,974	9,966	10,962	10,921	10,902
34 – R415 (Proposed Construction Haul Route)	5,000	7,742	9,549	9,279	8,271	9,267	9,226	9,207
35 – R415 (Proposed Construction Haul Route)	5,000	6,592	8,399	8,129	7,121	8,117	8,076	8,057
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	3,350	5,157	4,887	3,879	4,875	4,834	4,815

Table 15-36 Delivery route link capacity and % capacity by link and delivery day

Link	Link capacity (Level of Service D)	Construction delivery day						
		Background traffic only	General construction + Proposed Offsite Substation	General construction + grid	Concrete foundations	General construction + Proposed Turbine delivery (abnormal loads)	General construction + Proposed Turbine delivery (standard loads)	General construction only
1 – R401 (Access Junction 1)	5,000	61%	97%	91%	71%	91%	90%	90%
2 – L1001 (Access Junction 4)	5,000	43%	79%	74%	53%	73%	72%	72%
3 – L3001 (Access Junction 3)	5,000	43%	79%	74%	54%	74%	73%	72%
4 – L3001 (Access Junction 2)	5,000	44%	80%	75%	54%	74%	74%	73%
5 – L1005 (Proposed Construction Haul Route)	5,000	47%	83%	78%	58%	77%	77%	76%
6 – R403 (Proposed Construction Haul Route)	5,000	135%	171%	165%	145%	165%	164%	164%
7 – R414 (Access Junction 6)	5,000	25%	61%	56%	36%	56%	55%	55%
8 – R414 (Access Junction 5)	5,000	24%	60%	55%	35%	54%	54%	53%

9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	20%	56%	51%	31%	51%	50%	49%
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	108%	144%	138%	118%	138%	137%	137%
11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	39%	75%	69%	49%	69%	68%	68%
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	77%	113%	108%	88%	107%	107%	106%
13 – R409 (Potential Proposed Grid Connection underground	5,000	110%	146%	141%	121%	141%	140%	140%

electrical cable route diversion)								
14 – N52 (Proposed Turbine Delivery Route)	11,600	183%	199%	196%	188%	196%	196%	196%
15 – R420 (Proposed Turbine Delivery Route)	8,600	127%	148%	145%	133%	145%	144%	144%
16 – R402 (Proposed Turbine Delivery Route)	8,600	88%	109%	106%	94%	106%	105%	105%
17 – R402 (Proposed Turbine Delivery Route)	8,600	70%	91%	88%	76%	88%	87%	87%
18 – L1003 (Proposed Construction Haul Route)	3,300	43%	98%	90%	59%	90%	88%	88%
19 – R400 (Proposed Construction Haul Route)	5,000	46%	82%	77%	57%	77%	76%	75%
20 – R401 (Proposed Construction Haul Route)	5,000	58%	94%	88%	68%	88%	87%	87%
21 – R148 (Proposed Construction Haul Route)	5,000	288%	324%	319%	299%	319%	318%	317%

22 – R403 (Proposed Construction Haul Route)	5,000	288%	325%	319%	299%	319%	318%	318%
23 – L6002 (Access Junction 7)	5,000	58%	94%	88%	68%	88%	87%	87%
24 – R403 (Proposed Construction Haul Route)	5,000	173%	210%	204%	184%	204%	203%	203%
25 – R402 (Proposed Construction Haul Route)	11,600	101%	117%	114%	106%	114%	114%	114%
26 – R403 (Proposed Construction Haul Route)	5,000	173%	209%	204%	184%	204%	203%	202%
27 – R402 (Proposed Construction Haul Route)	8,600	72%	93%	90%	78%	90%	89%	89%
28 – R402 (Proposed Construction Haul Route)	8,600	98%	119%	116%	104%	116%	115%	115%
29 – R402 (Proposed Construction Haul Route)	5,000	106%	142%	136%	116%	136%	135%	135%

30 – R401 (Proposed Construction Haul Route)	5,000	53%	89%	84%	63%	83%	82%	82%
31 – R401 (Proposed Construction Haul Route)	5,000	175%	211%	206%	186%	206%	205%	205%
32 – R414 (Proposed Construction Haul Route)	5,000	101%	137%	131%	111%	131%	130%	130%
33 – R401 (Proposed Construction Haul Route)	5,000	189%	225%	219%	199%	219%	218%	218%
34 – R415 (Proposed Construction Haul Route)	5,000	155%	191%	186%	165%	185%	185%	184%
35 – R415 (Proposed Construction Haul Route)	5,000	132%	168%	163%	142%	162%	162%	161%
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	67%	103%	98%	78%	97%	97%	96%

Table 15-37 Summary results of link capacity assessment for busiest construction days (General Construction and Proposed Offsite Substation Construction)

Link	Link capacity (Level of Service D)	Maximum link flow during construction (all day pcus)	Key results of link capacity test for busiest days			
			% capacity	% increase due to construction traffic	Combined impacts based on link capacity assessment	Comment / next step
1 – R401 (Access Junction 1)	5,000	4,836	97%	60%	Acceptable	Include as Access Junction 1 capacity test
2 – L1001 (Access Junction 4)	5,000	3,947	79%	84%	Acceptable	Include as Access Junction 4 capacity test
3 – L3001 (Access Junction 3)	5,000	3,959	79%	84%	Acceptable	Include as Access Junction 3 capacity test
4 – L3001 (Access Junction 2)	5,000	4,001	80%	82%	Acceptable	Include as Access Junction 2 capacity test
5 – L1005 (Proposed Construction Haul Route)	5,000	4,155	83%	77%	Acceptable	Include as external junction capacity test - Junction D
6 – R403 (Proposed Construction Haul Route)	5,000	8,544	171%	27%	Requires junction capacity test	Not proposed as access junction now
7 – R414 (Access Junction 6)	5,000	3,068	61%	143%	Acceptable	Include as Access Junction 6 capacity test
8 – R414 (Access Junction 5)	5,000	3,006	60%	151%	Acceptable	Include as Access Junction 5 capacity test
9 – L1020 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	2,816	NA	NA	NA	NA
10 – R415 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	7,193	NA	NA	NA	NA

11 – L7073 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	3,734	NA	NA	NA	NA
12 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	5,657	NA	NA	NA	NA
13 – R409 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	7,322	NA	NA	NA	NA
14 – N52 (Proposed Turbine Delivery Route)	11,600	23,038	199%	8%	Acceptable	NA
15 – R420 (Proposed Turbine Delivery Route)	8,600	12,748	148%	17%	Acceptable	NA
16 – R402 (Proposed Turbine Delivery Route)	8,600	9,370	109%	24%	Acceptable	NA
17 – R402 (Proposed Turbine Delivery Route)	8,600	7,819	91%	30%	Acceptable	Include as external junction capacity test - Junction A
18 – L1003 (Proposed Construction Haul Route)	3,300	3,241	98%	126%	Requires junction capacity test	Include as external junction capacity test - Junction A
19 – R400 (Proposed Construction Haul Route)	5,000	4,110	82%	78%	Acceptable	Include as external junction capacity test - Junction A

20 – R401 (Proposed Construction Haul Route)	5,000	4,683	94%	63%	Acceptable	Not proposed as Proposed Construction Haul Route now
21 – R148 (Proposed Construction Haul Route)	5,000	16,216	324%	12%	Requires junction capacity test	Not proposed as Proposed Construction Haul Route now
22 – R403 (Proposed Construction Haul Route)	5,000	16,231	325%	12%	Requires junction capacity test	Include as external junction capacity test - Junction G
23 – L6002 (Access Junction 7)	5,000	4,683	94%	63%	Acceptable	Include as Access Junction 7 capacity test
24 – R403 (Proposed Construction Haul Route)	5,000	10,480	210%	21%	No further assessment required	No traffic proposed between R403 and R414 (Shee Bridge)
25 – R402 (Proposed Construction Haul Route)	11,600	13,538	117%	15%	Acceptable	Include as external junction capacity test - Junction D
26 – R403 (Proposed Construction Haul Route)	5,000	10,458	209%	21%	Requires junction capacity test	Include as external junction capacity test - Junction D
27 – R402 (Proposed Construction Haul Route)	8,600	7,993	93%	29%	Acceptable	Include as external junction capacity test - Junction B
28 – R402 (Proposed Construction Haul Route)	8,600	10,225	119%	21%	Acceptable	Include as external junction capacity test - Junctions B and C
29 – R402 (Proposed Construction Haul Route)	5,000	7,089	142%	34%	Requires junction capacity test	Include as external junction capacity test - Junction A
30 – R401 (Proposed Construction Haul Route)	5,000	4,446	89%	68%	Acceptable	Include as external junction capacity test - Junction E

31 – R401 (Proposed Construction Haul Route)	5,000	10,572	211%	21%	Requires junction capacity test	Include as external junction capacity test - Junction E
32 – R414 (Proposed Construction Haul Route)	5,000	6,838	137%	36%	Requires junction capacity test	Not proposed as Proposed Construction Haul Route now
33 – R401 (Proposed Construction Haul Route)	5,000	11,244	225%	19%	Requires junction capacity test	Refer to external junction capacity test - Junction E
34 – R415 (Proposed Construction Haul Route)	5,000	9,549	191%	23%	Requires junction capacity test	Include as external junction capacity test - Junction F
35 – R415 (Proposed Construction Haul Route)	5,000	8,399	168%	27%	Requires junction capacity test	Include as external junction capacity test - Junction F
36 – L7081 (Potential Proposed Grid Connection underground electrical cable route diversion)	5,000	5,157	103%	54%	Acceptable	NA

Junctions

The following outlines the junction capacity assessment undertaken for the construction phase of the Proposed Project.

All turning flow diagrams and model output files for the junction capacity tests are included as Appendix 15-5.

Precautionary construction trip generation scenario for junction testing

Based on the trip generation figures presented in above the maximum trip generation days are forecast to be the days that ***General construction + Construction of the Proposed Offsite Substation*** takes place simultaneously, with the estimated trips generated by the Proposed Project as follows;

- 1,662 no 2-way HGV PCUs generated per day, equating to 166 no 2-way pcus per hour over a 10 hour day, or 83 HGV PCUs travelling to and from the Project Site per hour.
- For construction staff 145 staff will arrive to the Project Site during the AM peak hour, with the same number leaving the Project Site during the PM peak hour. Based on 2 staff per car, this will generate 73 car trips to and from the Project Site during the peak hours.

- Equating to a maximum total of 1,807 PCUs per day for 100 days.

Under a precautionary scenario, the junction capacity tests undertaken for the 7 no. proposed access junctions (Access Junctions 1 to 7), inclusive of the 4 no. existing site entrances, and the 7 external junctions on the construction delivery routes (External Junctions A to G), as indicated in Figure 15-6, were based on all of the above traffic generated passing through each junction during the AM and PM peak hours. These were established from the traffic count data included as Appendix 15-1 to be 08:00 to 09:00 consistently for the AM peak hour and either 16:00 to 17:00 or 17:00 to 18:00 for the PM peak hour. It is noted that for one location, the R414 at the proposed site crossing at Site Access 5, the PM peak hour was observed to be between the hours of 15:00 to 16:00.

Test year for junction tests

The construction of the Proposed Project will commence in 2030 and will take 36 months to complete. As the construction of the Proposed Project will continue in 2032, the year 2032 is adopted as the test year.

Locations included in the junction capacity tests

The access junctions and existing junction included in the junction capacity tests are as follows;

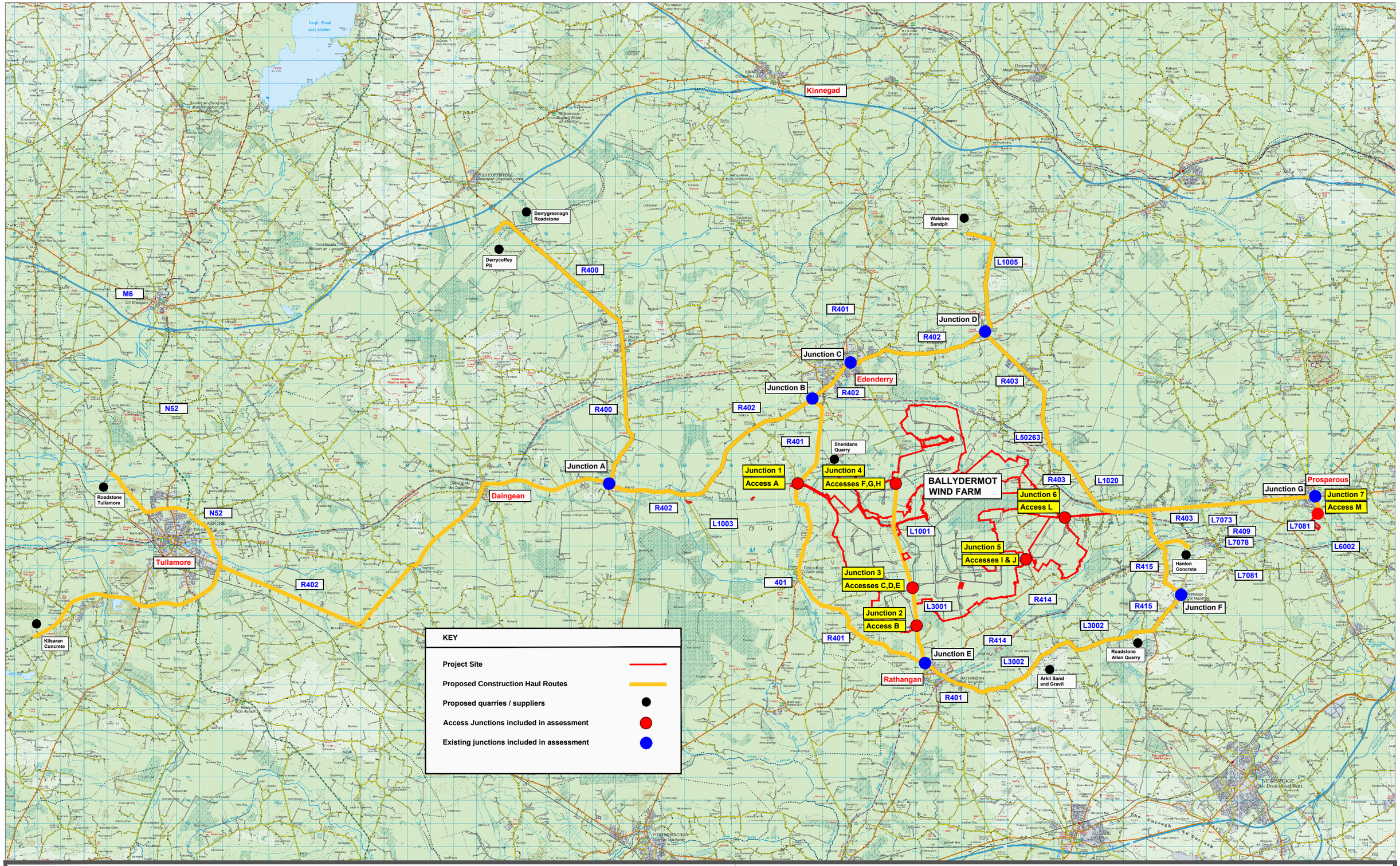
Project Site Access Junctions;

- Access Junction 1 – Site Access A – R401,
- Access Junction 2 – Site Access B – L3001 (Existing Ballydermot Works),
- Access Junction 3 – Site Accesses C and E – L3001 (D is not included as managed crossing only),
- Access Junction 4 – Site Accesses F and G – L1001 (H is not included as managed crossing only),
- Access Junction 5 – Site Accesses I and J – R414 (Construction traffic crossing only)
- Note there is no Site Access K
- Access Junction 6 – Site Access L – R414 (Proposed Onsite Substation, staff only)
- Junction 7 – Site Access M – L6002 (Proposed Offsite Substation).

External existing Junctions;

- External Junction A – R402 / R400 staggered priority junction, Mountlucas
- External Junction B - R402 / R401 priority junction, Edenderry
- External Junction C – R402 / R401 mini-roundabout, Edenderry
- External Junction D – R402 / R401 roundabout, Carbury
- External Junction E – R401 / L3001 roundabout, Rathangan
- External Junction F – R415 / L7081 priority junction, Kilmeague
- External Junction G – R403 / R408 / L6002 signalised junction, Prosperous.

The location of each of these junctions is shown in the Figure 15-6 Location plan for junction capacity assessment.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-6 Location plan for junction capacity assessment

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Method adopted for junction capacity tests

Junction capacity tests were undertaken using the UK Transport Research Laboratory (TRL) Industry standard junction simulation software JUNCTIONS suite of programs, which is also a standard method of assessment in Ireland, which permits the capacity of any junction to be assessed with respect to existing or forecast traffic movements for a given time period. Within JUNCTIONs, the program PICADY 11 was used to model the various priority type junctions, ARCADY 11 the roundabout junctions, and OSCADY 11 the sole signalised junction in Prosperous.

For each of these programs the capacity for each movement possible at the junction being assessed is determined from geometric data input into the program with the output used in the assessment, as identified in the aforementioned modelling software manual, as follows:

- Degree of Saturation or Ratio of Flow to Capacity (% Sat or RFC) – As suggested, this offers a measure of the amount of available capacity being utilised for each movement. Each movement should operate at a level of 85% of capacity or less, indicating that there is spare capacity available at the junction, in accordance with TII requirements. as stated in the Traffic and Transport Assessment Guidelines (PE-PDV-02045[3]), TII, May 2014).
- Delay – Output in seconds, this gives an indication of the forecast average delay during the time period modelled for each movement.
- Queue – This is the average queue forecast for each movement and is useful to ensure that queues will not interfere with adjacent junctions.

In accordance with advice provided in the Traffic and Transport Assessment Guidelines (PE-PDV-02045), TII, May 2014, the key indicator that a junction will operate within acceptable levels is when the Ratio of Flow to Capacity (RFC) for each movement is forecast to approach 85%, or that a "junction or link is considered to be congested when traffic flows are at 85% of the estimated capacity of the junction or link". This is normally set as a target not to exceed for a proposed development or new road scheme. It is noted that a junction operating slightly over 85% capacity is acceptable, particularly if the impacts are short term and where mitigation measures are proposed, while a junction approaching 100% would indicate unacceptable levels of congestion and queuing.

Traffic flows for junction capacity tests

The junction turning movements for each of the 14 junctions included in the capacity tests are provided in Figures A15-6-1a to A15-6-16e Appendix 15-5, and include the following information for each junction;

- AM and PM peak hour base year 2025 turning movements (in PCUs), as observed from the traffic count surveys undertaken by Traffinomics Ltd in October 2025.
- As above factored to the construction year of 2032.
- The additional AM and PM peak hour turning movements forecast to be generated by construction HGVs, set out in PCUs.
- As above for the additional movements generated by construction staff, again in PCUs.
- The "*with construction traffic*" traffic flows for the year 2032.

Scenarios modelled

The junction capacity assessment were undertaken for each junction for the following scenarios;

- **Years** - Construction Year 2032,

[3] https://cdn.tii.ie/publications/PE-PDV-02045-01.pdf

- **Time periods** – The AM and PM peak hours were tested for all junctions. For the majority of locations, the peak hours 08:00 to 09:00 for the AM peak hour and 17:00 for the PM peak, although the peak hours observed at each location are adopted and indicated.
- **Development scenarios** - For the proposed Access Junctions, the "*with construction traffic*" scenarios are the only scenarios of relevance. The exception to this is Access Junction 1 on the R401, which is an existing priority junction[4].
- **Existing External Junctions** - For the existing External Access Junctions the "*background traffic*" and the "*with construction traffic*" scenarios are tested, and the impacts of the additional traffic assessed.

Summary capacity test results

The junction capacity test results are set out in the Table 15-38 to 15-53, as set out below;

- A summary of the key results in terms of the maximum RFC forecast for each of the proposed Access Junctions is set out in Table 15-38, while the same information is provided for all existing External Access Junctions tested in Table 15-39.
- More detailed results, including forecast RFCs, queues and delays by arm, are shown for each junction for the "*without construction traffic*" and "*with construction traffic*" scenarios in Tables 15-40 to 15-53.

The main points to note from the summary tables 15-38 and 15-39 are as follows;

Project Site Access Junctions

- All of the proposed Access Junctions are forecast to operate well within capacity.
- For all of the proposed Access Junctions a maximum RFC of 31.8% is forecast, which has been determined for Site Entrance 3C on the L3001 local road north of Rathangan..

External Junction on the Proposed Construction Haul Routes and Proposed Turbine Delivery Route

- Of the 7 External Junctions tested 4 no. are forecast to operate with significant spare capacity for all scenarios.
- For the mini roundabout in Edenderry (External Junction C, see Table 15-49) it is forecast that this junction will operate at capacity (maximum RFC = 83.8% during AM peak hour and 94.2% during PM peak hour) for short periods within the peak hours without and with the construction traffic in place. It is recommended that construction traffic through this junction in Edenderry avoids the two peak hours between 08:00 – 09:00 and 17:00 – 18:00 (Refer to Section 15.1.8.5 for further detail).
- A similar situation is forecast for External Junction F (See Table 15-52), the priority junction with the L7081 on the bend of the R415 at Kilmeague. Based on all of the construction generated traffic passing through this junction on the R415 it is forecast that during a short period within the PM peak hour, the junction will operate at capacity, with a maximum RFC of 86.2%. It is noted that the test scenario assessed at this location includes a high level of double counting of HGVs, as the base observed traffic volumes will already include the concrete deliveries generated by the supplier (Hanlon Concrete) travelling on the R415. If included for deliveries for the Proposed Project it will likely be the same loads but redirected to the Project Site, resulting in no actual increase in traffic volumes. However, based on the findings of the

[4] *Priority junctions are the most common form of junction control. The basic concept of priority junctions is that traffic on the minor road gives way to traffic on the major road, such that through traffic on the major road is not delayed (i.e., a T-Junction or a Cross Road). Source: TII DN-GEO-03063 <https://cdn.tii.ie/publications/DN-GEO-03060-03.pdf>*

assessment, it is recommended that construction traffic through this junction avoids the PM peak hour between 17:00 – 18:00 (refer to Section 15.1.8.5 for further detail).

- The junction capacity tests undertaken for the existing External Junction G, the R403 / R408 / L6002 signalised junction in Prosperous, indicates that the junction is forecast to operate over capacity for the base no development scenario by the future test year of 2032 for short periods (one hour) during the AM and PM peak periods, outside of which the junction is forecast to operate within capacity. The detailed results for the junction set out in Table 15-53, and summarised in Table 15-39, show that a maximum RFC of 112.3% is forecast for the AM peak period in 2032, which is forecast to increase temporarily to 113.3% with the addition of the construction traffic generated by the Proposed Project. For the PM peak period it is forecast that the junction will operate with a maximum RFC of 117.1% increasing to 122.0% with the additional construction traffic. It is proposed that construction traffic avoids passing through this junction during the hours from 08:00 to 09:00, and 17:00 – 18:00, as outside of these hours the junction is forecast to operate within capacity for all scenarios (Refer to Section 15.1.8.5 for further detail).

Table 15-38 Junction capacity test result summary table, Proposed Project access junctions, without and with construction traffic, year 2032

Access junction	AM peak hour – Ratio of flow to capacity (RFC)			PM peak hour – Ratio of flow to capacity (RFC)		
	No con	With Con	Maximum required	No con	With con	Maximum required
Access junction 1, Site entrance A -	4.1%	17.1%	85.0%	2.7%	24.6%	85.0%
Access junction 2, Site entrance B	NA	16.4%	85.0%	NA	30.4%	85.0%
Access junction 3, Site entrance C	NA	17.2%	85.0%	NA	31.8%	85.0%
Access junction 3, Site entrance E	NA	30.5%	85.0%	NA	22.3%	85.0%
Access junction 4, Site entrance F	NA	17.2%	85.0%	NA	31.8%	85.0%
Access junction 4, Site entrance G	NA	30.5%	85.0%	NA	22.3%	85.0%
Access junction 5, Site entrance I and J	NA	19.5%	85.0%	NA	17.0%	85.0%

Access junction	AM peak hour – Ratio of flow to capacity (RFC)			PM peak hour – Ratio of flow to capacity (RFC)		
	No con	With Con	Maximum required	No con	With con	Maximum required
Access junction 6, Site entrance L	NA	13.3%	85.0%	NA	11.2%	85.0%
Access junction 7, Site entrance M	NA	17.5%	85.0%	NA	13.0%	85.0%

Table 15-39 Junction capacity test result summary table, Existing Junctions on delivery routes, without and with construction traffic, year 2032

Existing junction	AM peak hour – Ratio of flow to capacity (RFC)			PM peak hour – Ratio of flow to capacity (RFC)		
	No con	With Con	Maximum required	No con	With con	Maximum required
Junction A – R402 / R400	4.1%	17.1%	85.0%	2.7%	24.6	85%
Junction B – R402 / R401	23.2%	41.6%	85.0%	27.0%	57.2	85%
Junction C – R402 / R401	72.1%	83.8%	85.0%	83.5%	94.2	85%
Junction D – R402 / R403	43.7%	51.2%	85.0%	54.3%	61.9	85%
Junction E – R401 / L3001	23.5%	41.6%	85.0%	38.7%	50.7	85%
Junction F – R415 / L7081	36.5%	42.1%	85.0%	78.5%	86.2	85%
Junction G – R408 / R403 / L6002	112.3%	113.3%	85.0%	117.1%	122.0%	85%

Table 15-40 Junction capacity test results, Access Junction 1 – Site Access A – R401, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
AM	From Site Entrance A – straight and left	0.0%	0.0	0.0	0.0%	0.0	0.0

	From Site Entrance A – straight and right	0.0%	0.0	0.0	17.1%	0.2	8.3
	Right turn from R401 (n) to L5006	2.5%	0.0	5.4	2.8%	0.0	5.0
	From L5006	4.1%	0.0	6.4	4.3%	0.0	6.6
	Right turn from R401 (s) to Site Entrance A	0.0%	0.0	0.0	7.6%	0.1	6.0
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	From Site Entrance A – straight and left	0.0%	0.0	0.0	6.9%	0.1	6.8
	From Site Entrance A – straight and right	0.0%	0.0	0.0	24.6%	0.3	9.2
	Right turn from R401 (n) to L5006	1.8%	0.0	5.3	1.9%	0.0	4.9
	From L5006	2.7%	0.0	6.0	2.8%	0.0	6.1
	Right turn from R401 (s) to Site Entrance A	0.0%	0.0	0.0	0.0%	0.01	0.0

Table 15-41 Junction capacity test results, Assess Junction 2 – Site Access B – L3001, AM and PM peak hours, with construction traffic, by time period, year 2032

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance B	0.0%	0.0	0.0
	Right from Site Entrance B	16.4%	0.2	7.8
	Right turn from L3001 to Site Entrance B	0.0%	0.0	0.0
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	Left from Site Entrance B	0.0%	0.0	0.0
	Right from Site Entrance B	30.4%	0.5	9.4
	Right turn from L3001 to Site Entrance B	0.0%	0.0	0.0

Table 15-42 Junction capacity test results, Assess Junction 3 – Site Entrance C – L3001, AM and PM peak hours, with construction traffic, by time period, year 2032 (Note – The results set out in this table also apply to Access Junction 4 – Site Access F)

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance C	0.0%	0.0	0.0
	Right from Site Entrance C	17.2%	0.2	8.3
	Right turn from L3001 to Site Entrance C	0.0%	0.0	0.0
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance C	0.0%	0.0	0.0
	Right from Site Entrance C	31.8%	0.5	10.4
	Right turn from L3001 to Site Entrance C	0.0%	0.0	0.0

Table 15-43 Junction capacity test results, Assess Junction 3 – Site Access E – L3001, AM and PM peak hours, with construction traffic, by time period, year 2032 (Note – The results set out in this table also apply to Access Junction 4 – Site Access G)

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance E	12.2%	0.1	5.6
	Right from Site Entrance E	0.0%	0.0	0.0
	Right turn from L3001 to Site Entrance E	30.5%	0.5	8.0
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance E	22.3%	0.3	6.2
	Right from Site Entrance E	0.0%	0.0	0.0
	Right turn from L3001 to Site Entrance E	16.8%	0.3	6.3

Table 15-44 Junction capacity test results, Assess Junction 5 – Site Accesses I and J – R414, AM and PM peak hours, with construction traffic, by time period, year 2032

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	From Access J crossing to Access I	16.9%	0.2	7.7
	From Access I crossing to Access J	19.5%	0.2	8.0
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	From Access J crossing to Access I	17.0%	0.2	7.8
	From Access I crossing to Access J	16.9%	0.2	7.7

Table 15-45 Junction capacity test results, Assess Junction 6 – Site Access L – R414, AM and PM peak hours, with construction traffic, by time period, year 2032 (Note; Construction staff only, no HGV access)

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	Right turn into Access L	13.3%	0.2	6.4
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	Left turn from Access L	11.2%	0.1	5.9

Table 15-46 Junction capacity test results, Assess Junction 7 – Site Access M – L6002, AM and PM peak hours, with construction traffic, by time period, year 2032

Period	Movement	With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)
	Left from Site Entrance M	1.5%	0.0	5.7
	Right from Site Entrance M	0.0%	0.0	0.0
	Right turn from L6002 to Site Entrance M	17.5%	0.3	6.6
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**

Period	Movement	With construction traffic		
		RFC	Queue (vehicles)	Delay (seconds)
AM	Left from Site Entrance M	1.5%	0.0	5.7
	Right from Site Entrance M	0.0%	0.0	0.0
	Right turn from L6002 to Site Entrance M	17.5%	0.3	6.6
	Left from Site Entrance M	13.0%	0.2	6.3
	Right from Site Entrance M	0.0%	0.0	0.0
	Right turn from L6002 to Site Entrance M	1.8%	0.0	5.8

Table 15-47 Junction capacity test results, Existing Junction A – R402 / R400 staggered priority junction, Mount Lucas, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
AM	From R400 (n)	0.0%	0.0	0.0	0.0%	0.0	0.0
	Right turn from R402 (w)	0.0%	0.0	0.0	17.1 %	0.2	8.3
	From R400 (s)	2.5%	0.0	5.4	2.8%	0.0	5.0
	Right turn from R402 (e)	4.1%	0.0	6.4	4.3%	0.0	6.6
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R400 (n)	0.0%	0.0	0.0	6.9%	0.1	6.8
	Right turn from R402 (w)	0.0%	0.0	0.0	24.6 %	0.3	9.2
	From R400 (s)	1.8%	0.0	5.3	1.9%	0.0	4.9

	Right turn from R402 (e)	2.7%	0.0	6.0	2.8%	0.0	6.1

Table 15-48 Junction capacity test results Existing Junction B – R402 / R401priority junction, Edenderry, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R401 (s)	23.2%	0.3	10.9	39.7%	0.7	12.5
	Right turn from R402 (w)	18.4%	0.4	5.5	41.6%	1.1	7.7
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R401 (s)	27.0%	0.4	11.2	57.2%	1.4	16.8
	Right turn from R402 (w)	4.0%	0.1	5.7	24.1%	0.5	7.2

Table 15-49 Junction capacity test results, Existing Junction C – R402 / R401 mini-roundabout, Edenderry, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R402 (w)	72.1%	2.5	15.9	83.8%	4.8	26.7
	From R401 (n)	47.6%	0.9	12.8	69.3%	2.2	24.2
	From R402 (e)	70.3%	2.3	13.5	85.5%	5.3	28.0
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R402 (w)	67.2%	2.0	13.4	88.4%	6.6	34.9
	From R401 (n)	43.8%	0.8	11.7	48.7%	1.0	14.3

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R402 (w)	72.1%	2.5	15.9	83.8%	4.8	26.7
	From R401 (n)	47.6%	0.9	12.8	69.3%	2.2	24.2
	From R402 (e)	70.3%	2.3	13.5	85.5%	5.3	28.0
	From R402 (e)	83.5%	4.7	24.0	94.2%	11.1	51.2

Table 15-50 Junction capacity test results, Existing Junction D – R402 / R403 roundabout, Carbury, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R402 (e)	29.6%	0.4	4.2	43.5%	0.8	5.1
	From R403 (s)	36.0%	0.6	5.1	39.4%	0.7	5.9
	From R402 (w)	43.7%	0.8	5.1	51.2%	1.0	5.8
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R402 (e)	54.3%	1.2	6.4	61.9%	1.6	7.7
	From R403 (s)	45.7%	0.8	6.9	56.9%	1.3	9.2
	From R402 (w)	31.9%	0.5	4.1	45.6%	0.8	5.2

Table 15-51 Junction capacity test results, Existing Junction E – R401 / L3001 roundabout, Rathangan, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)

	From L7081	20.9%	0.3	5.0	30.8%	0.5	5.6
	From R401 (e)	12.9%	0.2	4.6	18.1%	0.2	5.0
	From Temple Mills Lane	21.5%	0.3	5.6	23.4%	0.3	6.2
	Right turn from R401 (w)	23.5%	0.3	6.0	41.6%	0.7	8.0
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	From L3001	13.4%	0.2	4.3	30.8%	0.5	5.3
	From R401 (e)	38.7%	0.6	6.2	50.7%	1.0	8.2
	From Temple Mills Lane	19.0%	0.2	6.2	22.2%	0.3	7.5
	Right turn from R401 (w)	14.2%	0.2	5.5	26.5%	0.4	6.4

Table 15-52 Junction capacity test results, Existing Junction F – R415 / L7081 priority junction, Kilmeague, AM and PM peak hours, without and with construction traffic, by time period, year 2032

Period	Movement	Without construction traffic			With construction traffic		
AM		**RFC**	**Queue (vehicles)**	**Delay (seconds)**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	From L7081	33.5%	0.5	10.4	37.3%	0.6	12.3
	Right turn from R415 (s)	36.5%	0.7	9.9	42.1%	1.0	10.3
PM	**Movement**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**	**RFC**	**Queue (vehicles)**	**Delay (seconds)**
	From L7081	78.5%	3.5	33.1	86.2%	5.5	52.5
	Right turn from R415 (s)	30.8%	0.6	7.5	36.2%	1.0	7.1

Table 15-53 Junction capacity test results, Existing Junction G – R403 / L6002 Signalised junction, Prosperous, AM and PM peak hours, without and with construction traffic, by time period, year 2032 (included pedestrian stage being called each cycle)

Period	Movement	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R408	112.3%	41.0	229.0	113.3%	45.2	248.1
	From R403 (east)	98.2%	18.9	145.5	108.2%	33.9	234.4
	From L6002	53.2%	7.3	42.3	53.7%	9.4	51.0
	From R403 (west)	102.0%	30.2	144.2	105.2%	41.7	178.0
PM	**Movement**	RFC	Queue (vehicles)	Delay (seconds)	RFC	Queue (vehicles)	Delay (seconds)
	From R408	117.1%	55.6	286.3	122.0%	67.9	345.4
	From R403 (east)	105.2%	39.1	198.9	108.8%	53.3	263.8
	From L6002	34.3%	7.3	48.1	46.1%	14.2	64.6
	From R403 (west)	106.2%	39.9	207.6	108.4%	52.4	257.9

15.1.6.1.2 Development Trip Generation – During Operation

The quantum of the traffic volumes that will be generated on the roads contained within the Traffic and Transport Study Area during the operational phase of the Proposed Project is considered in this section and assessed in Section 15.1.8.3 below.

Once the Proposed Project is operational there will be relatively modest number of trips generated to and from the Project Site by;

- Site staff undertaking monitoring and maintenance of plant, and,
- By amenity trips visiting the site for leisure activities and parking in one of the proposed amenity car parks.

There will be no staff permanently present on the Project Site once the Proposed Project is operational, as, in general, it will be remotely monitored. As summarised in Table 15-2, it is proposed that staff undertaking monitoring and maintenance of the Proposed Wind Farm, the Proposed Onsite Substation and the Proposed Offsite Substation will gain access to the Project Site via all of the 7 no. proposed Access Junctions. It is estimated that the traffic volumes that will be generated by the Proposed Project once it is operational will be minimal, with an estimated 1-2 staff travelling in and out of each of the 7 no. Access Junctions on any given day.

While there will be no scheduled trips required for the Proposed Grid Connection, maintenance may be required, although this will occur rarely generating a modest number of trips via Site Access Junctions 6 and 7.

In addition, there will be tourists and members of the local community accessing the Proposed Wind Farm site for the purposes of amenity via Access Junction 2 on the L3001 with a total of 58 no. spaces for private vehicles, 3 no. spaces for accessible parking, and 1 no. space for bus parking, Access Junction 4 on the L1001 with 15 no. spaces for private vehicles, 3 no. spaces for accessible parking, and 1 no. space for bus parking, and Access Junction 5, comprised of 2 no. car parks, on the R414, with a total of 59 no. spaces for private vehicles (and horse boxes), 6 no. spaces for accessible parking, and 2 no. space for bus parking. Please see Section 4.4.1.9 of Chapter 4 for further detail on amenity car parks.

The impact on the network of these trips during the operational stage is discussed in Section 15.1.8.3 below.

Link Flows

Once the Proposed Project is operational it is estimated that there will be 1-2 staff members accessing the Project Site each day via Access Junctions 1 to 7, with a similar number of vehicle trips. In addition, there will be a low level of amenity/recreational trips travelling to the Project Site by car or LGV via 3 of the proposed Access Junctions (Access Junction 2 on the L3001 with an estimated 50 trips per day, Access Junction 4 on the L1001 with and estimated 50 trips per day, and Access Junction 5 on the R414, with estimated 50 trips per day. It is considered that the magnitude of the traffic impact during the operational phase of the Proposed Project will be imperceptible.

15.1.6.1.3 *Development Trip Generation – During Decommissioning*

Traffic generation to the Proposed Wind Farm site during decommissioning will be significantly less than the trip generation estimates presented for the construction phase presented in Section 15.1.6.1.1 above. This is because much of the materials (i.e. stone and gravel) brought into the site during construction will be left in-situ during the decommissioning stage. Please see Appendix 4-9 Decommissioning Plan for further detail.

During this phase, there will be no traffic generation as a result of the Proposed Grid Connection as these elements of the Proposed Project will not be decommissioned.

15.1.6.2 Proposed Turbine Delivery Route

For the purposes of this EIAR, the Port of Galway has been selected and assessed to facilitate turbine delivery to the Project Site. A detailed swept path analysis has confirmed that the Proposed Turbine Delivery Route from the M6 motorway can accommodate the Proposed Turbine components with minor and temporary accommodation works (Appendix 15-3).

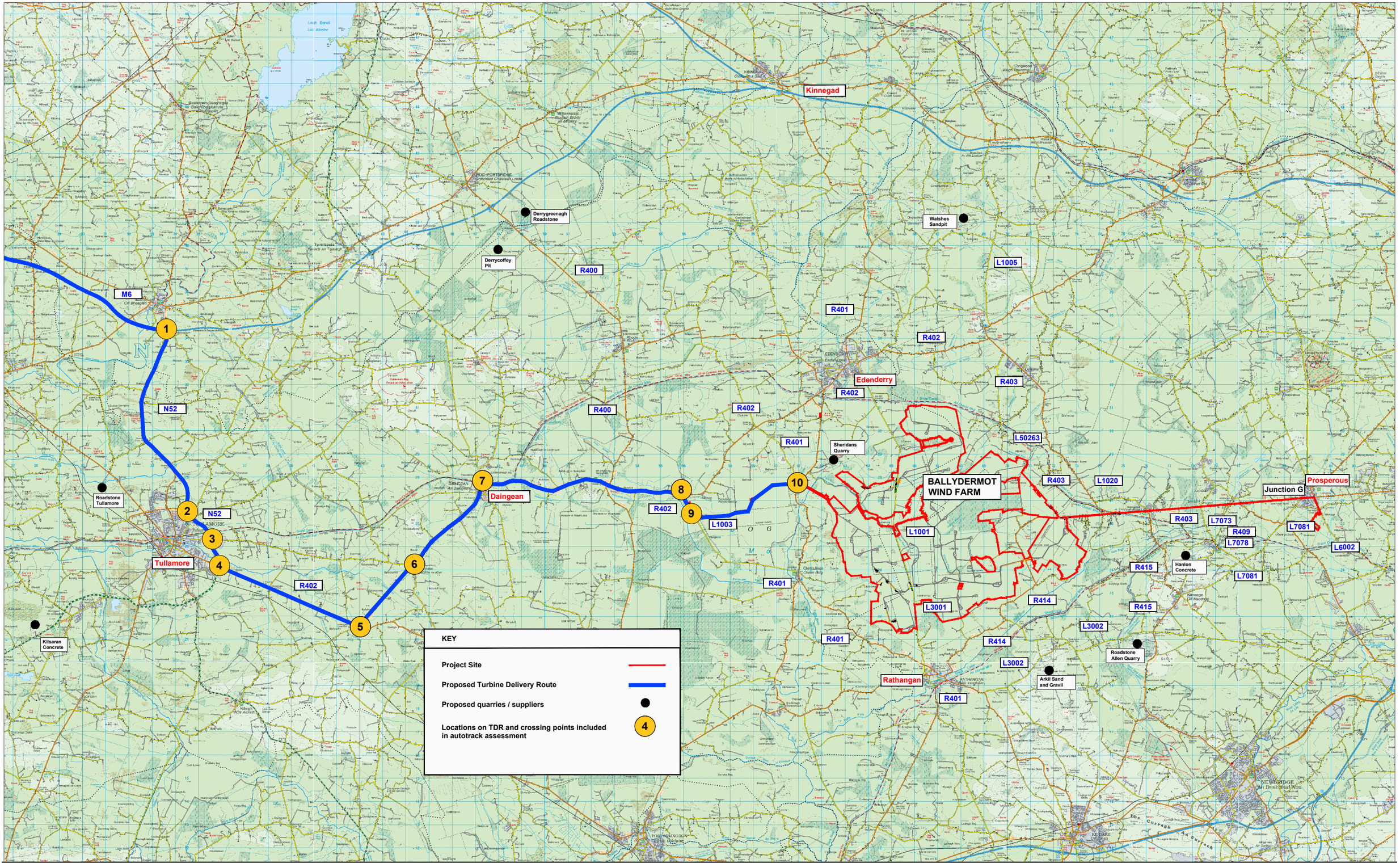
Prior to the commencement of turbine component delivery, the final port of entry will be confirmed following a detailed review of Irish ports and their capacity to facilitate the transport of the Proposed Project's turbine components via the national motorway network.

It is proposed that the large wind turbine components will be delivered to the Project Site via the M6. The Proposed Turbine Delivery Route, as shown in Figure 15-2 is as follows:

- From Galway Harbour through Galway city on the L5048 Lough Atalia Road, the L5034 and the R336 Tuam Road to the signalised junction with the N6 (3.3km).
- From the junction with the R336 Tuam Road in Galway City the Proposed Turbine Delivery Route heads eastbound on the N6 passing through junctions with the R865 at Ballybrit and the R339 Monivea Road at Briarhill, before heading southeast to the Coonagh Roundabout (3.2km).

- From the Coonagh Roundabout the Proposed Turbine Delivery Route heads east on the N6 and M6 for approximately 111.3 km, to Junction 5 of the M6 (Tullamore/Kilbeggan) with the N52.
- From here the Proposed Turbine Delivery Route heads south on the N52 national secondary road for approximately 11.6 km, bypassing Tullamore to the east.
- The turbine delivery vehicles will then continue southeast along R420 regional road for approximately 6.6km before turning northeast travelling along the R402 for approximately 13.5km through Daingean.
- From this point the Proposed Turbine Delivery Route heads southeast on the L1003 local for approximately 0.8 km before turning left to travel east through the existing Cloncreen Wind Farm for approximately 4.2 km to reach the R401 and Access Junction 1, Site Entrance A of the Project Site.

An assessment of the Proposed Turbine Delivery Route was undertaken by Collett & Sons Ltd which included an autotrack assessment for Junction 5 of the M6 (Tullamore/Kilbeggan) to the Proposed Site as shown in Figure 15-7 and Appendix 15-3. The results of the assessment are discussed in detail in Section 15.1.8 of this EIAR.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-7 Autotrack assessment location plan

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 20.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.6.2.1 Abnormal Load Route Assessment

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation due to the oversized loads involved. With respect to the geometric requirements of the road network, blades are the longest turbine component. In the case of the Proposed Project, Collett & Sons Ltd provided an assessment for the transportation of blade length of 85m via a Clamp and Dolly trailer, which includes independent steering for the rear wheels of the trailer. The report prepared by Collett & Sons Ltd is included as Appendix 15-3 of this EIAR.

For the purpose of the assessment set out in this EIAR, as set out above, the blades, which are the largest turbine components, will be transported using a Clamp and Dolly trailer. As this method involves transporting the blade in a horizontal position it represents the precautionary case in terms of the geometric requirements on the road network.

The critical vehicles in terms of size and turning geometry requirements and used in the detailed route assessment discussed in Section 15.1.8 are set out below.

The key dimensions of the vehicles tested are as follows:

- Transport of Blades – Clamp and Dolly
  - Total length of vehicle – 100.5m
  - Length of blade – 85m

The vehicles used to transport the tower sections and the nacelles will be shorter in length compared to the blade transporters.

All other vehicles requiring access to the Project Site will be standard HGVs and will be significantly smaller than the design test vehicles. Standard HGVs and LGVs will navigate the National, Regional and Local Road networks to access the Project Site.

There are a number of ports on the island of Ireland that have proven capability to accept and store large wind turbine components such as Cork, Shannon Foynes, Galway and Dublin ports. Furthermore, subsequent access to the national motorway network during transportation from these ports has been demonstrated. The facilities within the ports and access to and from the ports is continually being upgraded as part of general improvements. It is on this basis that it is not foreseen that the Proposed Project will result in any material change to the port selected should it be consented and enter into the construction phase.

For the purposes of this EIAR, Galway Port has been selected as the proposed point of arrival for all Proposed Turbine infrastructure (i.e., turbine blades, turbine towers and other large wind turbine components). Prior to the commencement of turbine component delivery, the final port of entry will be confirmed following a detailed review of Irish ports and their capacity to facilitate the transport of the Proposed Project's turbine components via the national motorway network.

From the exit off the M6, a swept path assessment was undertaken for the Proposed Turbine Delivery Route at the locations shown in Figure 15-7. The assessment was undertaken in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required.

The swept path analysis was undertaken by Collett & Sons Ltd based on an 85m blade being transported using a Clamp and Dolly trailer, which includes fully independent rear steering. The Route Access Report prepared by Collett & Sons is included as Appendix 15-3, with the profile of the transport vehicle used for the swept path analysis included as Drawing No 414429-A of Appendix 15-3.

The swept path analysis undertaken for each potential pinch point on the Proposed Turbine Delivery Route, together with all works required on the public road network are extracted from the Route Access Report and summarised below.

All measures will be temporary in nature and will be required during the period that the abnormally sized loads are delivered to the site only. On completion of this stage all locations requiring temporary measures will be reinstated to the pre-delivery condition. It is estimated that these measures will be in place for a minimum of 123 nights spread over a 25 week period.

All drawing numbers referred to in the assessment summary below are included in Appendix 15-3-. The locations discussed are as follows:

- Location 1 – M6 East / N52 Roundabout and N52 / M6 West Roundabout Autotrack Assessments (Dwg Nos. 414429-60A1.2 and Dwg Nos. 414429-70A1.1),
- Location 2 – N52 Arden Roundabout Autotrack Assessment (Dwg No. 414429-80A1.1),
- Location 3 – N52 / L2025 Cappancur Roundabout Autotrack Assessment (Dwg No. 414429-90A1.2),
- Location 4 – N52 / R420 Cloncollog Roundabout Autotrack Assessment (Dwg No. 414429-300A1.1),
- Location 5 – R420 / R402 Junction Autotrack Assessment (Dwg No. 414429-310A1.1),
- Location 6 – R402 / L2025 Junction in Ballinagar Autotrack Assessment (Dwg No. 414429-320A1.3),
- Location 7 – Left bend on R402 in Ballinagar Autotrack Assessment (Dwg No. 414429-140A1.1),
- Location 8 – Right bend on R402 in Daingean Autotrack Assessment (Dwg No. 414429-150A1.1),
- Location 9 – R402 / L1003 Junction Autotrack Assessment (Dwg No. 414429-160A1.1),
- Location 10 – L1003 / Cloncreen Wind Farm Junction Autotrack Assessment (Dwg No. 414429-170A1.2),

Location 1 – M6 East / N52 Roundabout and N52 / M6 West Roundabout

Dwg Nos. 414429-60A1.2 and Dwg Nos. 414429-70A1.1

The abnormally sized loads will undertake a three point turn at the northern M6 East / N52 Roundabout. At this location the roundabout centre island and 2 splitter islands will be levelled and surfaced to provide temporary routes for the abnormally sized loads. The temporary removal of bollards, road signs, a lamp post and some trees will be required.

At the southern N52 / M6 West Roundabout the abnormally sized loads will drive through the centre island of the roundabout. At this location the route through the roundabout centre island will be levelled and surfaced to provide the temporary route for the abnormally sized loads. It is noted that this resurfacing is already in place. The temporary removal of road signs will be required.

Location 2 – N52 Arden Roundabout

Dwg No. 414429-80A1.1

At this roundabout the abnormally sized loads will drive on a temporary route proposed on the eastern side of the roundabout centre island that will connect the N52 north and N52 south arms of the roundabout. The route through the roundabout centre island will be levelled and surfaced to provide for the abnormally sized loads.

Location 3 – N52 / L2025 Cappancur Roundabout

Dwg No. 414429-90A1.2

It is proposed that the abnormally sized loads will travel contraflow through this roundabout. It is also proposed that they will drive on a temporary route proposed on the western side of the roundabout centre island that will connect the N52 north and N52 south arms of the roundabout. The route through the roundabout centre island will be levelled and surfaced to provide for the abnormally sized loads. The temporary removal of one road signs will be required.

Location 4 – N52 / R420 Cloncollog Roundabout

Dwg No. 414429-300A1.1

It is proposed that the eastern section of the centre island of this roundabout will be temporarily levelled and surfaced to provide for the abnormally sized loads travelling from the N52 north arm to the R420 south eastern arm of the roundabout. The temporary removal of road signs and a lamp post will be required.

Location 5 – R420 / R402 Junction Autotrack Assessment

Dwg No. 414429-310A1.1

It is noted that significant temporary works have been undertaken for the delivery of turbine components at this location which have since been fenced off.

The extent of the area on the northeast corner of the junction that will be surfaced to accommodate the wheels of the abnormally sized delivery vehicles, is illustrated, as is the additional are that is required to be cleared to facilitate overhang of the blade. The temporary removal of road signs an electricity pole, trees and existing boundary will be required.

Location 6 – R402 / L2025 Junction in Ballinagar Autotrack Assessment

Dwg No. 414429-320A1.3

An area on the western side of the R402 comprising of third-party land and a public park, will be required temporarily to provide an over-run area for the delivery of the abnormally sized loads, with an additional area required to provide for oversail of the blade tip. In this area trees, 2 poles, a hedgerow, a fence, a wall and road signs will be temporarily removed. To the east of the junction with the L2025, a splitter island and associated street furniture will also be removed temporarily.

Location 7 – Left bend on R402 in Ballinagar Autotrack Assessment

Dwg No. 414429-140A1.1

At this left hand band on the R402 one electricity pole located on the north side of the road will be temporarily removed in order to facilitate blade overhang of the northern carriageway edge.

Location 8 – Right bend on R402 in Daingean Autotrack Assessment

Dwg No. 414429-150A1.1

In order to accommodate the abnormally sized vehicles at the right hand bend on the R402 in Daingean a narrow section of temporary road widening will be implemented on the northern side of the road. The assessment also shows an area on the west side of the R402 that will be cleared temporarily of all obstructions to facilitate oversail of the blade time, and similarly an area on the south

east corner of the bend that will be cleared to accommodate overhang of the blade. During the delivery period, on-street parking restrictions will be required in addition to the removal of a lamp post, an electricity pole and the pruning of some trees.

Location 9 – R402 / L1003 Junction Autotrack Assessment

Dwg No. 414429-160A1.1

At this junction the autotrack assessment shows that the tip of the blade will oversail the northern carriageway edge of the R402 but will not extend beyond the existing boundary fence. The assessment also shows that the body of the blade will overhang the south western corner of the R402/ L1003 junction into third party lands. During the delivery period, a telegraph and 2 road signs will be removed on the southwest corner of the junction.

Location 10 – L1003 / Cloncreen Wind Farm Junction Autotrack Assessment

Dwg No. 414429-170A1.2

It is proposed that the abnormally sized delivery vehicles will enter the Cloncreen Wind Farm at the existing access off the eastern side of the L1003. The autotrack assessment shows that an addition to the existing access road and area on the eastern side of the L1003 and to the south of the existing access will be temporarily surfaces in order to accommodate the largest vehicles. In addition a short strip to the north of the existing access road will be cleared of any obstruction to accommodate overhang of the blade. A narrow strip on the west side of the L1003 to the north of the access road will also be kept clear to permit minor oversail of the blade tip across the western carriageway edge. Existing boundary features at the temporary access will also be removed.

Remaining Route to Site Entrance 1A

The abnormally sized loads will then travel east via the internal road network of the Cloncreen Wind Farm, with minor temporary remedial works required at 2 locations to accommodate the abnormally sized loads generated by the Proposed Project, as shown in Drawing Nos. 414429-230A1.1 and 414429-240A1.1 of the report prepared by Collett & Sons Ltd and included as Appendix 15-3.

The Proposed Turbine Delivery Route then enters the Proposed Wind Farm site by means of a crossing of the R401 (Site Entrance 1A), with the loads abnormally sized loads distributed through the Proposed Wind Farm site via crossings of the L3001 (Site Entrance 2B) and the L1001 (Site Entrance 3D and Site Entrance 3E), as shown in Figure 15-4. It is noted that all 3 of these locations are straight crossing and are accommodated within the proposed junction designs.

15.1.6.3 Proposed Construction Haul Routes

Construction materials will be delivered to the Project Site via the selected Proposed Construction Haul Routes, these have been determined based on the identified proposed source of the construction materials and the preliminary assessment of the capacity of the routes as set out in Section 15.1.6.3. All crushed stone, hardcore materials and ready-mix concrete that will be required during the construction phase will be sourced from local, appropriately authorised quarries. There are no borrow pits proposed as part of the Proposed Project. For the purposes of assessment within the EIAR, 9 no. existing, authorised quarries, located within 20km of the Project Site have been selected and are shown in Figure 15-3.

It is envisaged that general construction traffic (including materials and staff) will travel to the Project Site via the public road network to the relevant construction site Access Junctions summarised in Table 15-2. The delivery of stone and ready-mix concrete to the Project Site will utilise the regional and local road network as shown in Figure 15-3 and discussed as below.

15.1.6.3.1 *Identification of Optimum Delivery Strategy*

A preliminary capacity assessment of Proposed Construction Haul Routes was undertaken by Alan Lipscombe Traffic & Transport Consultants Ltd and provided in full in Appendix 15-4. The purpose of this preliminary assessment was to inform the design of the Proposed Project and the selection of the potential haul routes for the construction phase. The findings of the preliminary assessment, and the design and route-selection measures embedded in the Proposed Project as a result, are summarised below.

Findings Informing Design

As a result of the preliminary capacity assessment (Appendix 15-4), the following mitigation has been embedded in the design of the Proposed Project through the selection of routes and the construction delivery strategy:

- Preferential selection of the delivery routes from the north and west of the Project Site, which the assessment confirmed to be the more suitable, to minimise the effect of construction traffic on the road network.
- Avoidance of through-movements of development traffic at the constrained Shee Bridge R403 / R414 junction, with Proposed Onsite Substation access instead provided via a crossing at Access Junction 5 and Access Junction 6 within the Project Site; please see Section 3.2.6.1.1 of Chapter 3 for further detail on access junctions and associated site entrances.
- Selection of Proposed Construction Haul Routes, having regard to constraints such as the R415 humpback bridges.
- Removal of delivery route on the R148 through Kinnegad, on the R401 approach from the north into Edenderry, along the R414 adjacent to the Bog of Allen Nature Centre, and through Tullamore town.
- Adoption of a longer construction programme (30 to 36 months) in preference to the shortest (24-month) programme, to reduce the daily concentration of HGV movements on the road network.

It is noted that the final scenarios tested and presented in Section 15.1.8 of this EIAR are based on the following;

- A construction period of 36 months with a precautionary scenario that all deliveries will be made in within a 30 month period.
- A total of 6 different delivery days were tested, based on the scenarios set out above and summarised in Table 15-21, which are based on the construction of the Proposed Wind Farm and Proposed Grid Connection.
- The total daily HGV loads for the 6 delivery days tested ranged from a minimum of 80 loads per day to a maximum of 346 loads per day, with an average of 277 loads per day.

The proposed access junctions and Proposed Construction Haul Routes, that were informed by the preliminary link capacity assessment, and are assessed in this EIAR, as shown in Figures 15-3 and 15-4.

The link capacity assessment and the detailed junction capacity assessment for the actual trip generations estimated for the Proposed Project are set out in Section 15.1.6.1.1 above.

Proposed Construction Haul Routes from Suppliers located Northwest and North of the Project Site

As is established from the link capacity assessment discussed in Section 15.1.6.1.1 above, the Proposed Construction Haul Routes from the suppliers in the northwest and north of the Project Site, are best

placed to access the Project Site via the regional R400 / R402 roads, from the northwest, the L1005 and R402 from the north, and via the R401 which travels south along the western boundary of the Proposed Wind Farm.

As well as accessing the Project Site via Access Junction 1, Site Entrance A, these delivery vehicles may also access the Project Site by continuing south on the R401 to Rathangan, before travelling north on the L3001 / L1001 to gain access to the Proposed Turbines in the west of the Proposed Wind Farm site via Access Junctions 2, 3 or 4, or to the Proposed Turbines in the east of the Proposed Wind Farm site via Access Junctions 3 and 4.

As identified above, it is not proposed that any construction traffic will travel south on the R403 located to the east of the Proposed Wind Farm, and gain access to the Project Site (i.e., the Proposed Wind Farm and Proposed Onsite Substation) via either Access Junctions 5 or Access Junction 6. As is stated above, no construction traffic will travel between the R403 and the R414 at the Shee Bridge.

The only construction traffic that will travel south along the R403 to the east of the Proposed Wind Farm site will be delivery vehicles continuing east on the R403 travelling toward Prosperous, Co. Kildare and the Proposed Offsite Substation located off the L6002 approximately 0.8km south of Prosperous and for the delivery of materials to the Proposed Grid Connection underground electrical cabling route.

Proposed Construction Haul Routes from Suppliers located Southeast of the Project Site

It is proposed that all materials delivered from the suppliers located to the southeast of the Project Site will travel south and west on the R415, L3002 and R401 to Rathangan, and then access the Proposed Wind Farm site via the L3001 and the L3001 via Access Junctions 1, 2, 3 and 4 as discussed above. These suppliers may also be used during the construction of the Proposed Offsite Substation with materials delivered to the site via the L7081, R403 and L6002.

The Proposed Construction Haul Routes for HGVs from each identified quarry to the closest relevant site entrance location is provided below. The impacts of the deliveries of stone and ready-mix concrete and other materials for use in construction of the Proposed Project, are discussed in detail in Section 15.1.8 below.

15.1.6.3.2 *Detailed Overview of Proposed Construction Haul Routes*

Roadstone Quarry, Derrygreenagh Co. Offaly

HGVs will depart from Roadstone Quarry in the townland of Derrygreenagh, Co. Offaly and turn left onto the R400 regional road. They will travel for 6.3 km before taking the second exit at the roundabout to continue on the R400. After travelling south on the R400 for 1.6 km the HGVs will turn left on to the R401. They will continue on the R401 for 9.4 km before taking the second exit on the roundabout to continue on the R401 for 400 m. The HGVs will then turn right and travel for 900 m before turning right onto the R402. They will continue on the R402 for 600 m and then turn left onto the R401 the HGVs will continue travelling in a southerly direction for 3.7 km to Site Entrance 1A where they will turn left to enter the Proposed Wind Farm.

Kilsaran Quarry, Derryarkin/Derrycoffey Co. Offaly

HGVs will depart from Kilsaran Quarry in the townland of Derryarkin, Co. Offaly and turn right onto the R400 regional road. They will travel for 6.3 km before taking the second exit at the roundabout to continue on the R400. After travelling south on the R400 for 1.6 km the HGVs will turn left on to the R401. They will continue on the R401 for 9.4 km before taking the second exit on the roundabout to continue on the R401 for 400 m. The HGVs will then turn right and travel for 900 m before turning right onto the R402. They will continue on the R402 for 600 m and then turn left onto the R401 the

HGVs will continue travelling in a southerly direction for 3.7 km to Site Entrance 1A where they will turn left to enter the Proposed Wind Farm.

Walshes Sandpit, Carbury, Co. Kildare

HGVs will depart from Walshes Sandpit in the townland of Carbury, Co. Kildare and turn left onto L1006. They will travel for 1.3 km before turning right onto the L1005. The HGVs will continue on the L1006 for 3.8 km before turning right onto the R402 for 400 m. They will then take the first exit at the roundabout to travel on the R403 for 5.9 km to Site Entrance 6L where they will turn left to enter the Proposed Wind Farm.

Hanlon Concrete, Robertstown, Co. Kildare

HGVs will depart from Hanlon Concrete in the townland of Robertstown, Co. Kildare and turn left onto Lowtown local road for 1.5 km. They will then turn right onto the R415. The HGVs will continue on the R415 for 1.8 km and then turn left onto the R403. They will travel on the R403 for 6.6 km to Site Entrance 6L where they will turn left to enter the Proposed Wind Farm.

Roadstone Quarry, Allen, Co. Kildare

HGVs will depart from Roadstone Quarry in the townland of Allen, Co. Kildare and turn right to continue for 1.2km on the L3002 before turning left onto the R415. They will continue for 2 km before turning left to stay on the R415. They will continue on the R415 for 5.4 km and then turn left onto the R403. They will travel on the R403 for 6.6 km to Site Entrance 6L where they will turn left to enter the Proposed Wind Farm.

Arkil Sand and Gravel, Rathangan, Co. Kildare

HGVs will depart from Arkil Sand and Gravel in the townland of Rathangan, Co. Kildare and turn left onto the L3002 local road. They will continue on the L3002 for 2.1 km and then continue onto the R401 for 1.7 km before bearing right over Rathangan Bridge. They will travel for 1.2 km and then take the third exit at the roundabout onto the L3001 where they will continue for 1.8 km to Site Entrance 2C and Site Entrance 3E where they will enter the Proposed Wind Farm.

Sheridans Quarry, Shean, Co. Offaly

HGVs will depart from Sheridans Quarry in the townland of Shean, Co. Offaly and turn right onto a local road for 700 m before turning left onto the R401. They will continue on the R401 for 1.1 km to Site Entrance 1A where they will turn left to enter the Proposed Wind Farm.

Kilsaran Concrete, Bunaterin, Tullamore, Co. Offaly

HGVs will depart from Kilsaran batching plant in the townland of Bunaterin, Co. Offaly and turn left onto the N52 before turning right onto the R420. They will turn left onto the R402 until they turn right onto the R401 until they reach Site Entrance 1A where they will turn left to enter the Proposed Wind Farm.

Roadstone Concrete, Tullamore, Co. Offaly

HGVs will depart from Roadstones batching plant in the townland of Ballykilmurry, Co. Offaly and turn Right onto the R420 before turning left onto the R443 and then right onto the N52. They will turn left onto the R420 before turning left again onto the R402 until they turn right onto the R401 until they reach Site Entrance 1A where they will turn left to enter the Proposed Wind Farm.

15.1.6.4 Proposed Grid Connection

The Proposed Onsite Substation is located in the townland of Allenwood South, Co. Kildare, and will connect to the Proposed Offsite Substation in Killybegs, Co. Kildare via approximately 13.1km of underground 220kV electrical cabling, located primarily within the public road network. The Proposed Offsite Substation connects into the existing Maynooth-Dunstown 220kV OHL. During the operational phase, EirGrid and ESB Networks will access the Proposed Onsite Substation via the R414 (Site Entrance 6L) and the Proposed Offsite Substation via the L6002 (Site Entrance 7M).

The townlands in which the Proposed Grid Connection will pass through are detailed in Table 1-1 of Chapter 1. Refer to Section 4.4.2 of Chapter 4 for further detail on the Proposed Grid Connection.

The Proposed Grid Connection and associated traffic-related impacts are discussed in Section 15.1.8.

A detailed description of the Proposed Grid Connection is provided in Section 4.3.2 of Chapter 4 of this EIAR. The Proposed Onsite Substation located within Lodge Bog, Co. Kildare is connected to the Proposed Offsite Substation, located at Killybegs, Co. Kildare, by means of an underground electrical cable route.

The Proposed Grid Connection underground cabling route measures approximately 13.1km of which approximately 11.6km is located within the public road corridor, with 0.5km located within the Proposed Wind Farm site connecting to the Proposed Onsite Substation and 1km located within private agricultural land connecting into the Proposed Offsite Substation.

The Proposed Grid Connection underground electrical cabling route will originate at the Proposed Onsite Substation and travel approximately 0.5km north on internal access roads to exit the Proposed Wind Farm via the R414. The underground electrical cabling route will travel east on the R414 for approximately 2.1km to approximately 0.2km west of the Shee Bridge. The Proposed Grid Connection underground electrical cabling route will utilise HDD to cross the Grand Canal and will not interact with the Shee Bridge. Following the HDD crossing of the Grand Canal, the route will merge onto the R403 and continue east for approximately 8.7km where the route will turn right onto the L6002 local road. The Proposed Grid Connection underground electrical cabling route will travel south on the L6002 for 0.8km before turning right into Site Entrance 7M and into private agricultural land. Approximately 1km of proposed new access road will enable the Proposed Grid Connection underground electrical cabling route to access the Proposed Offsite Substation in the townland of Killybegs, Co. Kildare.

The volumes of stone and other materials that will be delivered for the purpose of the Proposed Grid Connection underground cabling route is considered in Section 15.1.6.3.1. All traffic for the Proposed Grid Connection will be delivered via the Proposed Construction Haul Routes as shown in Figure 15-3.

The extent of the Proposed Grid Connection underground electrical cabling route that will impact on the public road network is considered in the 6 sections shown in Figure 15-8 and summarised in Tables 15-54 and 15-55. Based on a rolling construction boundary of up to 500m with and active construction area ranging from 100m to 120m per day, it is estimated that the Proposed Grid Connection underground electrical cabling route will take approximately 131 working days to complete based on one construction crew operating at one location, with an additional 40 days required to construct the 11 no. water crossings along the Proposed Grid Connection underground electrical cabling route within the public road corridor, with these locations show in Figure 15-9, resulting in a total duration of 171 days. In practice the construction duration may be significantly reduced using 2 construction crews operating at different locations along the route.

Once this stage of the construction of the Proposed Grid Connection underground electrical cabling route is complete, an estimated additional 35 days will be required to draw the cables through the ducts. This will be done once the construction of the Proposed Grid Connection underground electrical

cabling route is complete, likely between months 30 and 36 of the construction program for the Proposed Project.

15.1.6.4.1 *Underground 220kV Electrical Cabling Construction – Traffic Management Modelling*

Of the approximately 11.6km public road sections of the Proposed Grid Connection, approximately 2.1km travels on the R414 Regional Road, approximately 8.7km on the R403 Regional Road, with the remaining 0.8km of the on-road Proposed Grid Connection travelling along the local L6002.

There are 2 traffic management options that may be used during construction of the Proposed Grid Connection underground electrical cabling route;

- **Stop & Go** traffic management system – This retains one traffic lane at all times with the flow alternating by direction controlled either manually by site staff, or by temporary traffic signals. The impacts of this option are set out below.
- **Road closures and diversions –** At locations where there is insufficient room, the road at the point of construction is closed, and the traffic is diverted onto alternative temporary routes.

The implementation of both of these traffic management systems are standard practice and are set out in the following documents;

- Traffic Sign Manual – Chapter 8 – Temporary Traffic Measures and Sign for Roadworks (DoTTS, 2019), and,
- Temporary Traffic Management Design Guidance (DoTTS, 2019).

A detailed survey and design of the Proposed Grid Connection underground electrical cabling route will be prepared prior to construction. Preliminary inspections of the roads along the Proposed Grid Connection underground electrical cabling route were undertaken in 2025 and again on 31st August, 2026. Based on significant experience gained by the BnM during the construction of existing grid connection underground cabling routes along similar road types and ground conditions for other renewable energy developments, it is proposed that the construction works will be undertaken whilst retaining 2-way traffic flow by means of a Stop & and Go traffic management arrangement. While it is acknowledged that there may be locations along the Proposed Grid Connection underground electrical cabling route where a road closure is required, the adoption of the Stop & Go Traffic Management arrangement is the proposed methodology, as included in Section 4.9.2 of the EIAR.

An assessment of the traffic related impacts that will be incurred during the construction of the Proposed Grid Connection underground electrical cabling route was undertaken for the proposed Stop & Go traffic management option, and for the precautionary option, based on road closures and traffic diversions, as set out below.

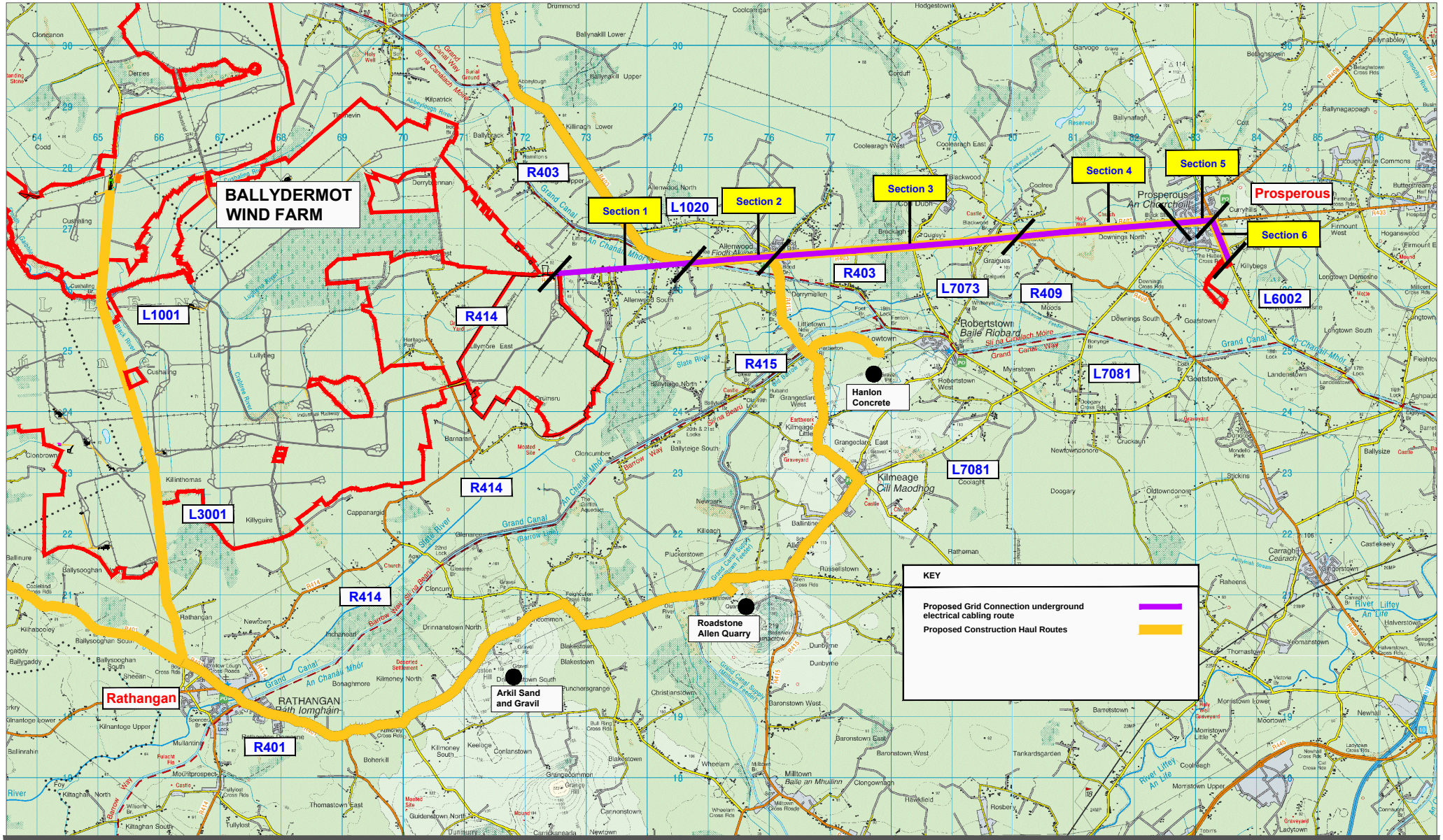
Proposed Stop & Go Traffic Management

As set out above, this is the preferable option as it avoids the requirement to implement road closures and diversions. It is dependent on having sufficient room to retain a 3.3m wide traffic lane (3.0m minimum), a safety buffer zone of 1.2m, and the required construction area within the space available. An assessment of the likely impacts that will be incurred on the various sections of the Proposed Grid Connection underground electrical cabling route was undertaken for traffic volumes forecast for the latest construction year of 2032.

The tests were undertaken for 4 different sections of the Proposed Grid Connection underground electrical cabling route, including Section 5, as indicated in Figure 15-8, which is on the R403 to the west of Prosperous, and is the busiest section of the Proposed Grid Connection underground electrical

cabling route in term of traffic volumes. Test were undertaken for the following Sections of the Proposed Grid Connection underground electrical cabling route;

- Section 1 – R414 east of the Proposed Onsite Substation operational access,
- Section 2 – R403 east of Shee Bridge,
- Section 5 – R403 west of Prosperous, and,
- Section 6 – L6002 south of Prosperous



NOTES:

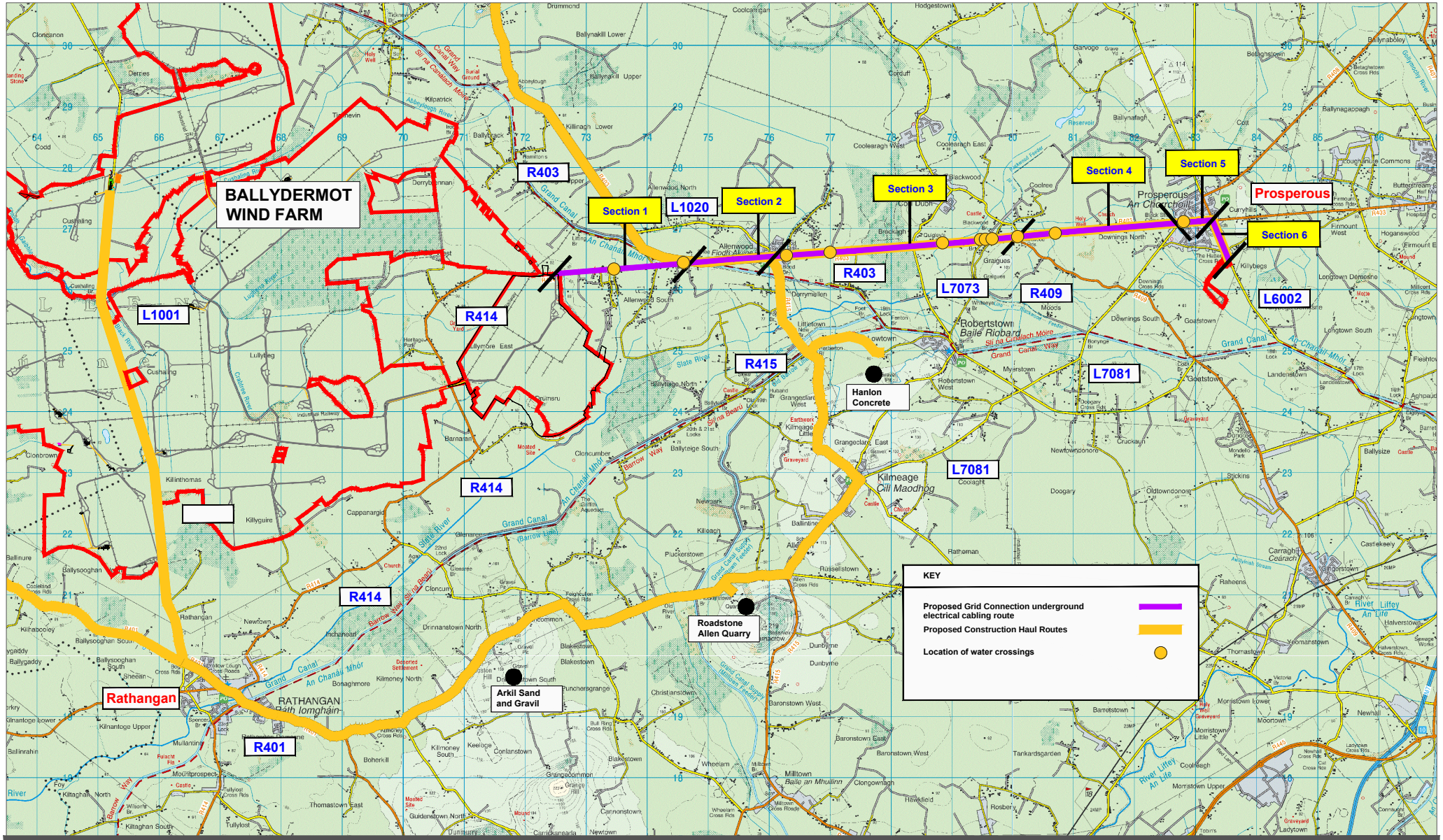
PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-8 Proposed Grid Connection underground electrical cabling route - Sections for assessment

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 22.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-9 Proposed Grid Connection underground electrical cabling route - Location of water crossings

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 22.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Table 15-54 Summary of the Proposed Grid Connection underground electrical cabling route by section and length

Proposed Grid Connection underground electrical cabling route section	Roads on route	Length of grid section (km)
Proposed Onsite Substation	Proposed internal site access road	0.5
1	R414	2.1
2	R403	1.7
3	R403	4.1
4	R403	2.6
5	R403	0.6
6	L6002	0.8
Proposed Offsite Substation	Internal at Proposed Offsite Substation	0.7
Total		13.1

Table 15-55 Summary of Proposed Grid Connection underground electrical cabling route by section - duration of construction period by section

Proposed Grid Connection underground electrical cabling route section	Roads along the Proposed Grid Connection underground electrical cabling route	Length of Proposed Grid Connection underground electrical cabling route section (km)	Duration for general construction (100m / day)	Water crossings			Duration for all construction (days)
				HDD crossings of canal - 10 days (No.)	HDD crossings at existing bridge / culvert - 3 days (No.)	Time to construct all water crossings (days)	
Proposed Onsite Substation	Proposed internal site access road	0.5	5	0	0	0	5
1	R414	2.1	21	1	1	13	34
2	R403	1.7	17	0	0	0	17
3	R403	4.1	41	0	7	21	62
4	R403	2.6	26	0	1	3	29
5	R403	0.6	6	0	1	3	9

6	L6002	0.8	8	0	0	0	8
Proposed Offsite Substation	Internal at Proposed Offsite Substation	0.7	7	0	0	0	7
Total		13.1	131	1	10	40	171

The tests were undertaken using the junction modelling software PICADY11 and are based on the following;

- Traffic forecasts observed in 2025 at each location and forecast to the construction year of 2032, with test based on AM and PM peak hours, and for an average interpeak hour, as set out in Table 15-56.
- An assumed working grid section of 100m with a total working length of 150m,
- An average speed of 30 kph for traffic passing the construction site.

The results of the capacity tests are set out in Table 15-57 with the main points to note as follows.

- Based on the busiest location (Section 5, R403 west of Prosperous), and the busiest time period (PM peak hour), the Stop & Go system is forecast to operate within acceptable limits with a maximum ratio of flow to capacity (RFC) of 93.0, a maximum mean queue of 27 PCUs and delay of 100 seconds.
- For the interpeak hours at this location the site it forecast to operate with a maximum ratio of flow to capacity (RFC) of 82.6%, with a maximum queue of 16 PCUs and delay of 64 seconds.
- All other locations on the proposed grid route have significantly lower traffic volumes and are therefore forecast to operate with lower queues and delays.

It is concluded based on the above assessment and professional judgement that the Stop & Go operation proposed during the construction of the Proposed Grid Connection underground cabling route will result in traffic delays and queues within acceptable limits.

For this traffic management option; Stop & Go it is forecast that the traffic impacts for trips on Proposed Grid Connection underground electrical cabling route will be negative, temporary and slight.

Table 15-56 Traffic flows along the Proposed Grid Connection underground electrical cabling route by direction, location, time period, pcus, Year 2032

Proposed Grid Connection underground electrical cable route Section	Time Period	Eastbound	Westbound	2-way
Section 5 – R403 west of prosperous	AM peak hour (08:00 – 09:00)	474	491	965
	PM peak hour (17:00 – 18:00)	425	681	1,106
	Average interpeak hour	411	461	872

Section 2 – R403 east of Shee Bridge	AM peak hour (08:00 – 09:00)	470	224	694
	PM peak hour (17:00 – 18:00)	244	546	790
	Average interpeak hour	233	254	487
Section 1 – R414 at Proposed Onsite Substation access (Site Entrance 6M)	AM peak hour (08:00 – 09:00)	150	46	196
	PM peak hour (17:00 – 18:00)	89	176	264
	Average interpeak hour	76	87	162
Section 6 – L6002 south of Prosperous	AM peak hour (08:00 – 09:00)	161	240	401
	PM peak hour (17:00 – 18:00)	99	182	281
	Average interpeak hour	75	102	176

Table 15-57 Forecast queues and delays at Stop & Go, by location, time period, pcus, Year 2032

Proposed Grid Connection underground electrical cable route Section	Time period	PICADY test criteria		
		Max RFC (%)	Max Mean Queue (pcus)	Max Mean Delay (seconds)
Section 5 – R403 west of prosperous	AM peak hour (08:00 – 09:00)	86.6%	19	68
	PM peak hour (17:00 – 18:00)	93.0%	27	100
	Average interpeak hour	82.6%	16	64
Section 2 – R403 east of Shee Bridge	AM peak hour (08:00 – 09:00)	69.7%	13	67
	PM peak hour (17:00 – 18:00)	75.5%	15	75
	Average interpeak hour	57.6%	7	45
Section 1 – R414 at Proposed Onsite Substation access (Site Entrance 6M)	AM peak hour (08:00 – 09:00)	30.2%	3	57
	PM peak hour (17:00 – 18:00)	37.1%	4	46

	Average interpeak hour	25.7%	2	32
Section 6 – L6002 south of Prosperous	AM peak hour (08:00 – 09:00)	49.7%	6	46
	PM peak hour (17:00 – 18:00)	38.6%	4	45
	Average interpeak hour	27.7%	3	37

Precautionary Road Closures and Diversions Traffic Management

The remainder of this section presents the traffic related impacts that will result from a precautionary scenario where all roads on the Proposed Grid Connection underground electrical cabling route will require a road closure at the point of construction. The potential diversion routes that will be used during the construction of the various sections of the Proposed Grid Connection underground electrical cabling route are shown in Figure 15-10, with the roads on each diversion set out in Table 15-58. For all of the sections of the Proposed Grid Connection underground electrical cabling route on the R414 and the R403, that is Sections 1 to 5, a road closure will result in the rerouting of traffic onto sections of local roads of a lower standard.

For the diversion routes shown in Figure 15-10, the length of the diversion route, together with the additional trip length are shown for each section of the Proposed Grid Connection underground electrical cabling route in Table 15-59. The figures show that for Sections 2, 4, and 5 on the R403, and Section 6 on the L6002, the potential diversion routes are relatively short, resulting in a temporary increase in trip length of between 0.9km and 1.3km. For section 3 on the R403, the available diversion is to the south via the R415 / L7081 and L7073, and results in a longer diversion with an estimated increase in trip length of 7.9km. The section of the Proposed Grid Connection underground electrical cabling route that will result in the longest detour will be Section 1 on the R414, which has no available local alternative and would require traffic to detour via the R414, R401, L3002 and R415, with a resulting maximum increased trip length of 27.10 km.

It is noted that the length of the diversion routes shown for the various sections of the Proposed Grid Connection underground electrical cabling route are the longest that may be incurred, measured from either end of the section being constructed, and that in practice the number of trips that incur the full diversion will be limited. It is also noted that many drivers undertaking longer trips will divert onto other parallel routes further afield to avoid the closure, incurring shorter actual diversions. The assessment therefore presents the upper limit of the impacts of the precautionary diversion scenario tested.

The daily traffic volumes that are forecast to travel on each of the 6 sections of the Proposed Grid Connection during the construction year of 2032 are extracted from the traffic flows set out in Table 15-8 above and included as Table 15-60. The length of the diversion that will be incurred for each section of the Proposed Grid Connection underground electrical cabling route is applied to the total number of trips that will incur the increased trip length, as shown in Table 15-61, with similar information shown for increased journey times (based on a 60kph average speed) shown in Table 15-62. The main points to note from these tables are as follows:

- It is estimated that traffic impacts on the local network will be experienced by local traffic on a total of 131 days on which diversions will occur, during which the effects will be experienced on one section of road per day.
- The maximum diversion that will be experienced will be on the 21 days when construction takes place on the R414 (Section 1) when a total of 1,206 trips per day

will require to travel an additional 27.1 kms adding an additional 0.45 hours, or 27.0 minutes to each journey.

- During the construction period of the Proposed Grid Connection underground electrical cabling route of 119 working days during which local diversions will take place, an estimated total of 783,746 trips on the route will experience an impact, resulting in a total of an additional 63,291 vehicle hours spent travelling on the network, and 3,797,455 vehicle kms travelled on the network during the construction period. For vehicles affected during the construction period this will result in an average of 4 minutes, 50 seconds added to each journey time, and an average detour of 4.8 km.

The locations of count locations on potential diversion routes are shown in Figure 15-11, with the traffic volumes extracted from Table 15-8 and summarised in Table 15-63. The link capacities of the sample diversion links A, B and C shown in Figure 15-11 are set out in Table 15-64, together with the background traffic flows for the latest construction year of 2032. Link capacities are based on road types and widths as set out in the TII Standards document *DN-GEO-03031 Rural Road Link Design*[5], Table 6-1. The additional traffic flows that will divert onto these links during the construction of the Proposed Grid Connection underground electrical cabling route are also included together with estimates of the percentage capacity that will be utilised for the background and with diversion traffic flow scenarios. For example, in the 5th line of the table, which is the link utilising the greatest % of link capacity, it shows that the Diversion Link C (L7081) (see Figure 15-11 below) has a link capacity of 5,000 PCUs per day and is forecast to have a background traffic flow of 3,020 PCUs in the year 2032, utilising 60.4% of link capacity. During the construction of Section 5 of the Proposed Grid Connection underground electrical cabling route all of the existing traffic flow on the R403 in Prosperous (13,204 PCUs) will divert onto Diversion Link C on the L7081, resulting in a total traffic demand of 16,224 PCUs, increasing the percentage of capacity utilised from 60.4% to 324%.

It is concluded that based on the sample of diversion links assessed, that they will operate significantly over capacity on the days that the diversions are in place and that a comprehensive suite of traffic management measures will be required during this period. It is again stated that the assessment presented is based on the upper limit of the impacts of the precautionary diversion scenario tested.

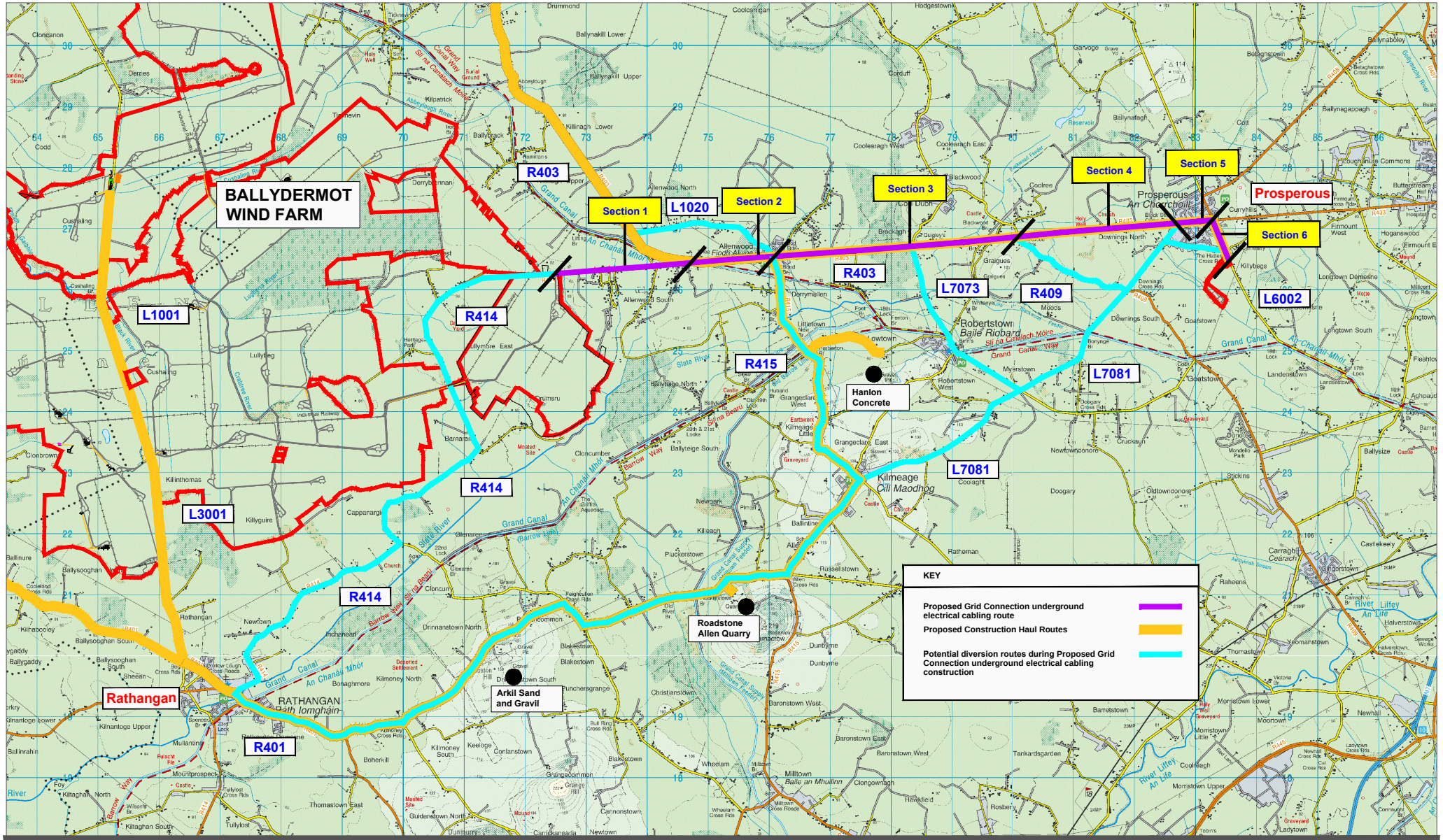
The impact of the additional traffic that will be generated on the network during the construction of the Proposed Grid Connection underground electrical cabling route is presented in Section 15.1.6.4 of this EIAR.

It is proposed that construction staff will travel to and from the point of construction along the Proposed Grid Connection underground electrical cabling route by minibus, or alternatively, staff will travel to the site by carpooling encouraged as part of a staff travel plan. By its nature the impacts of these additional trips on the network will be transient.

The construction methodology of providing a Proposed Grid Connection underground electrical cabling route under and along local road networks is well established and accepted nationwide. There are in excess of 300 wind farms currently operational in Ireland and the majority of these are connected to the national grid via underground cable connections predominantly along the public road networks.

A **Traffic Management Plan (TMP)**, incorporating all the mitigation measures is outlined in Section 15.1.8.5.1 below and included as Appendix 15-2 of this EIAR, and will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the road's authority and An Garda Síochána prior to construction works commencing on site.

[5] https://cdn.tii.ie/publications/DN-GEO-03031-12.pdf



NOTES:

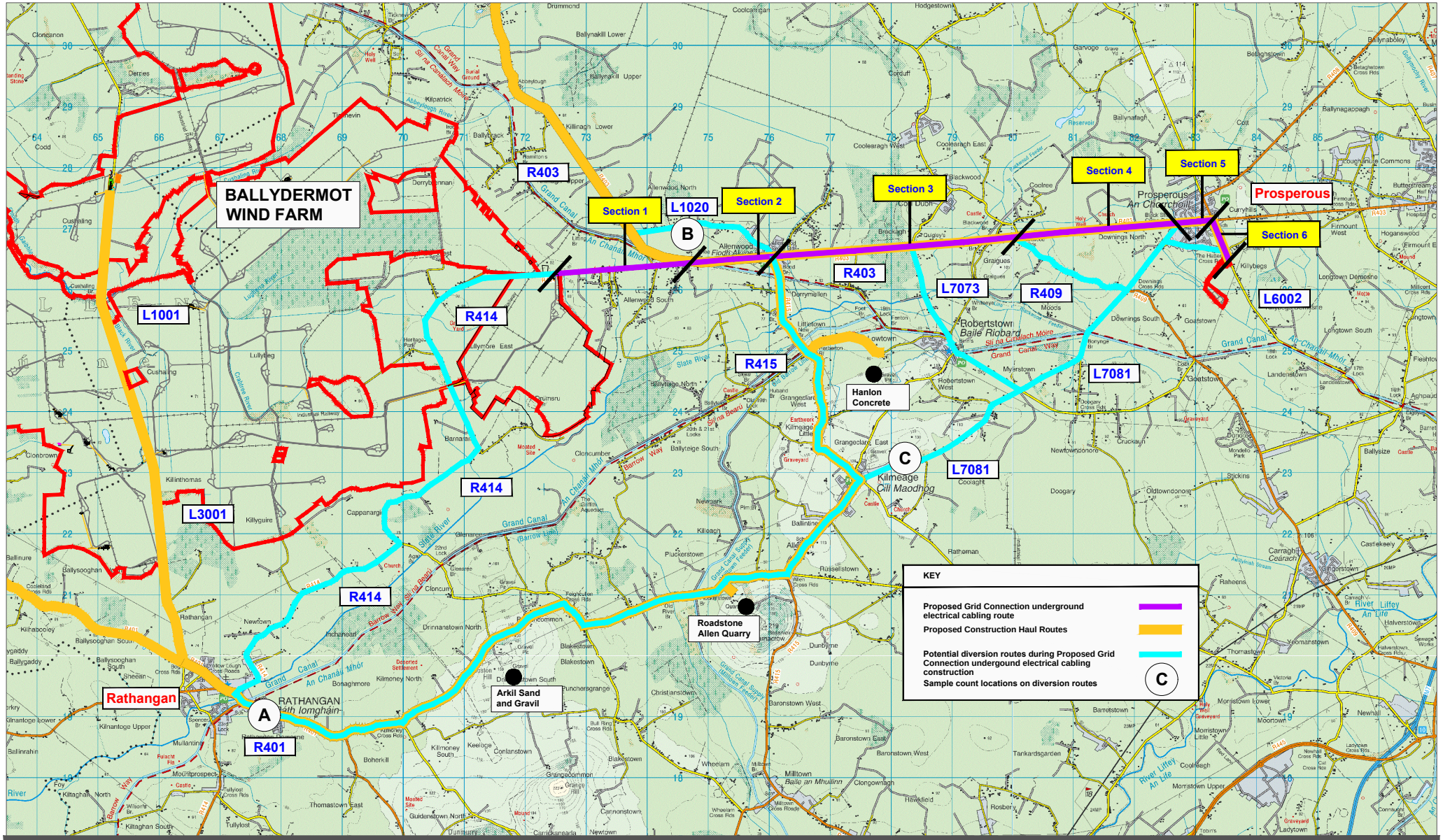
PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-10 Proposed Grid Connection underground electrical cabling route - Potential diversion routes

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 22.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-11 Sample count locations on Proposed Grid Connection underground electrical cabling diversion routes

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 22.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Table 15-58 Summary of Proposed Grid Connection underground electrical cabling route section - roads on diversion route

Proposed Grid Connection underground electrical cabling route section	Roads on Proposed Grid Connection underground electrical cabling route	Roads on diversion route (Precautionary scenario)
1	R414	R414, R401, L3002, R415, R403
2	R403	R403, L1020
3	R403	R415, L7081, R409
4	R403	R409, L7081
5	R403	L7081, Curry Hills L6002
6	L6002	R403, L7081, Curry Hills,

Table 15-59 Summary of Proposed Grid Connection underground electrical cabling route by route section - length of section and diversion route

Proposed Grid Connection underground electrical cabling route section	Roads on Proposed Grid Connection underground electrical cabling route	Length of Proposed Grid Connection underground electrical cabling route section (km)	Length of diversion route (km)	Change in trip length (km)
1	R414	2.10	29.20	27.10
2	R403	1.70	3.70	2.00
3	R403	4.10	12.00	7.90
4	R403	2.60	3.50	0.90
5	R403	0.60	1.90	1.30
6	L6002	0.80	2.00	1.20

Table 15-60 Observed and estimated base traffic flows along the Proposed Grid Connection underground electrical cabling route - traffic flows by year (2025 / 2032) - all day (vehicles)

Proposed Grid Connection underground electrical cabling route sections	Roads on Proposed Grid Connection underground electrical cabling route	Year 2025	Year 2032
Proposed Onsite Substation	Proposed internal site access road	NA	NA
1	R414	1,095	1,206
2	R403	7,102	7,819

3	R403	7,102	7,819
4	R403	7,102	7,819
5	R403	11,993	13,204
6	L6002	2,541	2,798
Proposed Offsite Substation	Internal at Proposed Offsite Substation	NA	NA

Table 15-61 Traffic impacts to background traffic during construction of the Proposed Grid Connection underground electrical cabling route due to traffic diversions - additional pcu kms

Proposed Grid Connection underground electrical cabling route section	Roads on Proposed Grid Connection underground electrical cabling route	Daily traffic flows impacted year 2032, 2-way (vehicles)	Duration of impact (days)	Total trips impacted, 2-way (pcus)	Additional length of diversion (km)	Total detour vehicle kms
1	R414	1,206	34	40,990	27.1	1,110,835
2	R403	7,819	17	132,928	2.0	265,856
3	R403	7,819	62	484,797	7.9	3,829,894
4	R403	7,819	29	226,760	0.9	204,084
5	R403	13,204	9	118,839	1.3	154,490
6	L6002	2,798	8	22,381	1.2	26,857
Total			159	1,026,695		5,592,017
Average detour						5.4

Table 15-62 Traffic impacts to background traffic during construction of the Proposed Grid Connection underground electrical cabling route due to traffic diversions - additional pcu hours

Proposed Grid Connection underground electrical cabling route section	Roads on Proposed Grid Connection underground electrical cabling route	Daily traffic flows impacted year 2030, 2-way (pcus)	Duration of impact (days)	Total trips impacted, 2-way (pcus)	Additional journey time of diversion (hours)	Total detour vehicle hours
1	R414	1,206	34	40,990	0.45	18,513.9
2	R403	7,819	17	132,928	0.03	4,430.9
3	R403	7,819	62	484,797	0.13	63,831.6

4	R403	7,819	29	226,760	0.02	3,401.4
5	R403	13,204	9	118,839	0.02	2,574.8
6	L6002	2,798	8	22,381	0.02	447.6
Total			159	1,026,695		93,200
Average increase in journey time						0.091 hours or 5 mins, 28 seconds

Table 15-63 Base year 2025 traffic flows and forecast construction year 2032 background traffic flows, sample diversion routes - all day (pcus)

Diversion location	Year 2025	Construction Year 2032
Diversion Location A – R401	8,138	8,959
Diversion Location B – L1020	887	977
Diversion Location C – L7081	2,743	3,020

Table 15-64 Diversion link, link capacity, background traffic flows, diversion route, diversion traffic flows, % link capacity by scenario, all day year 2032 pcus

Diversion section	Diversion link	Link capacity on diversion route	Background traffic flows on diversion link	Diverted traffic flows from grid route	Background + diversion traffic flows	% capacity utilised with background traffic	% capacity utilised with background + diversion
Section 1	Diversion Location A – R401	5,000	8,959	1,206	10,165	179.2%	203.3%
Section 2	Diversion Location B – L1020	5,000	977	7,819	8,796	19.5%	175.9%
Section 3	Diversion Location C – L7081	5,000	3,020	7,819	10,839	60.4%	216.8%
Section 4	Diversion Location	5,000	3,020	7,819	10.839	60.4%	216.8%

Diversion section	Diversion link	Link capacity on diversion route	Background traffic flows on diversion link	Diverted traffic flows from grid route	Background + diversion traffic flows	% capacity utilised with background traffic	% capacity utilised with background + diversion
	C – L7081						
Section 5	Diversion Location C – L7081	5,000	3,020	13,204	16,224	60.4%	324.5%
Section 6	Diversion Location C – L7081	5,000	3,020	2,798	5,818	60.4%	116.4%

Summary of Traffic Management for the Proposed Grid Construction underground electrical cabling route

It is concluded that the diversion route assessment set out above should be considered a precautionary assessment only. The proposed construction methodology is based on maintaining traffic flow through Stop & Go traffic management, thereby avoiding the need for extensive diversion routes for the majority of the Proposed Grid Connection underground electrical cabling route. The precautionary scenario assumes a complete closure of the affected road section and a diversion of all traffic to the proposed diversion route and therefore represents an intentionally conservative assessment.

At locations on the route where Stop & Go facility cannot be safely maintained, a location-specific traffic management solution will be developed in agreement with KCC, which may involve changes to the construction methodology, timing, sequencing, night-time works or diversion arrangement, and an over-capacity diversion route as modelled in the precautionary assessment will not simply be implemented.

15.1.6.5 Proposed Access Junctions

15.1.6.5.1 *Design considerations*

Traffic speeds

For each access junction the following speed related information was considered when deriving the appropriate visibility splays and forward visibility that will be provided;

- Speed limit,
- Observed 85th percentile speeds observed from surveys undertaken during a 7 day period commencing on Friday 17th October 2025,
- Visibility splay requirements in accordance with;
    - The relevant Development Plan (Offaly County Development Plan 2021 – 2027 and Kildare County Development Plan 2023 – 2029),

- Junction design guidelines (Geometric Design of Junctions, DN-GEO-03060, TII, May 2023)

Based on the above, appropriate visibility parameters were derived for each junction. In general, the observed 85th percentile speeds, followed by the designated speed limit are considered the best indicators of the design speed on each of the roads on which the proposed access junctions are located and were used to determine the extent of the visibility splays and forward visibility that should be provided.

Visibility splays and forward visibility

The provision of visibility splays at junctions is in accordance with those illustrated in Figure 5.11.a, for a simple priority junction, and Figure 5.11.b for situations where there is a hard shoulder, in the Geometric Design of Junctions DN-GEO-03060, TII, May 2023. It is recommended that the "x" distance, or setback from the stop-line should be 3m, or 2.4m at a minimum. A distance of 3m is adopted for all access junctions. It is noted that all visibility splays are shown to a point measured along the nearside carriageway edge.

Junction radii and tapers

As a significant percentage of traffic movements generated through all of the proposed Access Junctions will be HGVs it is proposed that all junction radii and tapers are in accordance with Figure 5.13 of the Geometric Design of Junctions DN-GEO-03060, TII, May 2023, including the provision of junction radii of 13m, and tapers of 1:10 for 25m. The tapers assist with HGV movement being able to undertake left turning movements without the need to cross over onto the opposing side of the priority road.

15.1.6.5.2 *Proposed Access Junctions and Site Entrances*

There are a total of 7 no. proposed Access Junctions (Nos 1 to 7) with a total of 12 Site Entrances (A to M, excluding K) that will provide access to the Project Site, as described above in Table 15-2, with the locations shown in Figures 15-4.

All junction designs were prepared by BnM and reviewed by Alan Lipscombe, with all Drawings referred to below included as Appendix 15-6.

Access Junction 1, Site Entrance A – Access on east side of R401 (previously used for Cushaling Wind Farm construction access), County Offaly

Drawing No BYD-BNM-0800-3A – Proposed junction layout, visibility splay and vertical profile
Drawing No BYD-BNM-0800-3B – Forward visibility on R401 through junction

Until recently this access was used for the construction phase of the Cushaling Wind Farm. It is proposed that this access will also be used as an access for general construction traffic for the Proposed Wind Farm and will also be the sole access for the abnormally sized turbine components to gain access to the Proposed Wind Farm site via the existing Cloncreen Wind Farm and a crossing of the R401. The delivery of the abnormally sized loads will be undertaken with the assistance of an escort provided by An Garda Síochána. Once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips.

The existing access has a gravelled surface and a wide-open junction mouth with no formal junction radii or road markings. There is a STOP sign located at the southern edge of the existing Cushaling Wind Farm access approach to the R401 and there is also a directional sign located in the centre of the access road.

As this junction is located in County Offaly, visibility / sight stopping distance requirements set out in the County Offaly Development Plan 2021 – 2027 (OCDP) apply. These are set out in the OCDP based on road category with a requirement for 150m for a regional road. This is similar to the 160m that would be required for the 80 kph design speed limit if based on TII guidelines.

The 85th percentile speeds observed at this location are 61.1kph northbound and 63.9kph southbound. Based on this it is considered a design speed of 70 kph is appropriate for this location, with corresponding visibility splay requirements of 120m in accordance with TII guidelines.

The visibility splay requirements are shown in Drawing No BYD-BNM-0800-3A and show the measures that will be implemented to provide them in the horizontal and vertical planes, including the removal and trimming of existing vegetation to the northeast and south of the junction, and the removal of a boundary wall to the south.

As this location is on a bend, the forward visibility splays along the R401 for general traffic to observe a vehicle turning right into the Project Site are shown in Drawing No BYD-BNM-0800-3B. This envelope will also be kept clear of all obstruction at all times.

Access Junction 2, Site Entrance B – Access junction off the west side of L3001 at existing Ballydermot Works, County Kildare

Drawing No BYD-BNM-0801-3 – Proposed junction layout, visibility splay and vertical profile

It is proposed that this access will be used during the construction phase for deliveries made by standard sized HGVs for site staff and once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips and also access to the proposed amenity carpark.

As stated in the County Kildare Development Plan 2023 – 2029 (KCDP), the visibility requirements at junction will be considered on a case by case basis. For the purpose of access junctions associated with the Proposed Project located in County Kildare, visibility / sight stopping distance requirements were determined in accordance with TII Guidelines.

While this section of the L3001 has a designated speed limit of 60 kph observed 85th percentile speeds of 88.9 kph and 86.3 kph were observed northbound and southbound respectively. In accordance with TII Guidelines it is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown in Drawing No BYD-BNM-0801-3. It is proposed that speeds will be monitored by means of a one-off 7 day traffic count at this location during the construction phase of the Proposed Project.

A section of the boundary wall to the north will be removed in order to provide the required visibility splays in the horizontal and vertical planes.

Access Junction 3, Site Entrance C – Access junction off the west side of L3001 between T08 and T11, County Kildare

Drawing No BYD-BNM-0802-3 – Proposed junction layout, visibility splay and vertical profile

It is proposed that this access will be used for construction phase deliveries made by standard sized HGVs and for site staff and once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips.

This section of the L3001 also has a designated speed limit of 60 kph with higher observed 85th percentile speeds of 94.9 kph and 94.1 kph observed northbound and southbound respectively. It is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown

in Drawing No BYD-BNM-0802-3. It is proposed that speeds will be monitored at this location by means of a one-off 7 day traffic count at this location during the construction of the Proposed Project.

Existing vegetation will be removed to the north and the south of the proposed access in order to provide the required visibility splays in the horizontal and vertical planes.

Access Junction 3, Site Entrance D which is also shown in Drawing No BYD-BNM-0802-3 is for the use of abnormally sized loads crossing the L3001 only under accompaniment by a Garda escort and therefore visibility splays are not required.

Access Junction 3, Site Entrance E – Access junction off the east side of L3001 between T08 and T11, County Kildare

Drawing No BYD-BNM-0803-3 – Proposed junction layout, visibility splay and vertical profile

It is proposed that this access will be used for construction phase deliveries made by standard sized HGVs and for site staff. This entrance will also be used for the crossing of the L3001 for the abnormally sized loads, which will be done during the night and with a Garda escort. Once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips.

This section of the L3001 also has a designated speed limit of 60 kph with higher observed 85th percentile speeds of 94.9 kph and 94.1 kph observed northbound and southbound respectively. 160m visibility splays which are appropriate for an 85 kph design speed will be provided, as shown in Drawing No BYD-BNM-0803-3. It is proposed that speeds will be monitored by means of a one-off 7 day traffic count at this location during the construction phase of the Proposed Project.

Access Junction 4, Site Entrance F – Access junction off the west side of L1001 between T23 and T24, County Offaly

Drawing No BYD-BNM-0805-3 – Proposed junction layout, visibility splay and vertical profile

It is proposed that this access will be used for construction phase deliveries made by standard sized HGVs and for site staff. This entrance will also be used for the crossing of the L1001 for the abnormally sized loads, which will be done during the night and with a Garda escort. Once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips.

This section of the L1001 also has a designated speed limit of 60 kph with observed 85th percentile speeds of 76.1 kph and 78.5 kph observed northbound and southbound respectively. It is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown in Drawing No BYD-BNM-0805-3.

Existing vegetation will be removed to the north and the south of the proposed access in order to provide the required visibility splays in the horizontal and vertical planes.

Access Junction 4, Site Entrance H which is also shown in Drawing No BYD-BNM-0805-3 is for the use of abnormally sized loads crossing the L3001 only under the accompaniment of Garda escort and therefore visibility splays are not required.

Access Junction 4, Site Entrance G – Access junction off the east side of L1001 between T23 and T24, County Offaly

Drawing No BYD-BNM-0804-3 – Proposed junction layout, visibility splay and vertical profile

It is proposed that this access will be used for construction phase deliveries made by standard sized HGVs and for site staff. This entrance will also be used for the crossing of the L1001 for the abnormally

sized loads, which will be done during the night and with a Garda escort. Once the Proposed Project is operational it is proposed that this access will provide for maintenance and monitoring staff trips.

This section of the L1001 also has a designated speed limit of 60 kph with observed 85th percentile speeds of 76.1 kph and 78.5 kph observed northbound and southbound respectively. 160m visibility splays which are appropriate for an 85 kph design speed, will be provided as shown in Drawing No BYD-BNM-0805-3.

Access Junction 5, Site Entrance I – Access junction off the west side of R414, County Kildare

Drawing No BYD-BNM-0807-3 – Proposed junction layout, visibility splay and vertical profile

This junction will serve as a crossing point between the Proposed Wind Farm on the west side of the R414 to the Proposed Onsite Substation on the eastern side of the R414. It is also proposed that this junction will provide access to the Proposed Wind Farm for maintenance and monitoring, and to the amenity carpark once the Proposed Project is operational.

It is proposed that this crossing point will be managed by site staff during the Construction phase.

This section of the R414 has a designated speed limit of 80 kph with observed 85th percentile speeds of 83.3 kph and 83.6 kph observed northbound and southbound respectively. It is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown in Drawing No BYD-BNM-0807-3. It is proposed that this crossing point will be managed by site staff on busy days during the construction phase.

The existing rail crossing and associated signs will be removed from this location and vegetation will be cleared to the north and the south of the proposed junction to provide the required visibility splays in the horizontal and vertical planes.

Access Junction 5, Site Entrance J – Access junction off the east side of R414, County Kildare

Drawing No BYD-BNM-0808-3 – Proposed junction layout, visibility splay and vertical profile

As per for Access Junction 5, Site Entrance I above, with the exception that this junction will not be used by amenity traffic.

Access Junction 6, Site Entrance L – Access junction off the south side of R414 to access the Proposed Onsite Substation, County Kildare

Drawing No BYD-BNM-0806-3 – Proposed junction layout, visibility splay and vertical profile

This junction will serve as a construction access for the Proposed Onsite Substation. It is also proposed that it will provide access to the Proposed Onsite Substation for maintenance and monitoring once the Proposed Project is operational.

This section of the R414 also has a designated speed limit of 80 kph with observed 85th percentile speeds of 75.2 kph in both the westbound and eastbound directions. It is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown in Drawing No BYD-BNM-0806-3.

Heavy vegetation along the south side of the R414 will be removed to the west and east of the proposed junction to provide the required visibility splays in the horizontal and vertical planes.

Access Junction 7, Site Entrance M – Access junction off the west side of the L6002 to access the Proposed Offsite Substation, County Kildare

Drawing No BYD-BNM-0810-3 – Proposed junction layout, visibility splay and vertical profile

This junction will serve as a construction access for the Proposed Offsite Substation. It is also proposed that this junction will provide access to the Proposed Offsite Substation for maintenance and monitoring once the Proposed Project is operational.

This section of the L6002 has a designated speed limit of 80 kph. It is proposed to provide 160m visibility splays which are appropriate for an 85 kph design speed, as shown in Drawing No BYD-BNM-0810-3.

Existing vegetation will be removed from the location of the entrance and trimmed back to the north and south to provide the required visibility splays in the horizontal and vertical planes.

15.1.6.6 Road Safety Audit

Traffico Road Safety Engineering Consultants Ltd were commissioned to undertake a Stage 1 Road Safety Audit for the access arrangements, as outlined in Section 15.1.6.5 above, for the Project Site, in accordance with GE-STY-01024 Road Safety Audit Guidelines, TII, December 2017[6]. The Stage 1 Road Safety Audit Report (hereafter the Audit Report) is attached as Appendix 15-7 of this EIAR.

As documented in the Audit Report, the Audit Team identified 12 no. potential Problems or point relating to locations where there were No Road Safety Issues Identified. For each Problem identified the Design Team are required to provide a response, as documented in Appendix A, Road Safety Audit Feedback Form of the Audit Report. The 12 no. potential Problems identified (shown in Appendix 15-7), together with the Design Teams response and whether the response was accepted by the Audit Team, are set out below.

Problem 2.1

Visibility Splays Partially Obscured, Location A – R401 | Existing boundary treatments either side of access

The Audit Teams notes that drivers attempting to leave the access are likely to have their line of sight to approaching traffic blocked in both directions by the existing field boundaries and an earthen bund. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundary and earthen bund should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – It is confirmed that the visibility splays and forward visibility described and shown in Figures BYD-BNM-0800-3A and BYD-BNM-0800-3B will be provided at all times during the construction phase and once the wind farm is operational.

The Design Team response was accepted in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

[6] https://www.tiipublications.ie/document/?id=2943

Problem 2.2

Signpost Currently in Centre of Wind Farm Access, Location A – R401 | Existing Directional Sign Currently in Access

The Audit Teams notes that the existing directional sign appears to be positioned within the proposed access where vehicles will be turning in and out. Retaining it here will place it at risk of being struck by a vehicle, especially in low light conditions.

The Audit Team recommends that the directional signpost should be moved to a suitable location where it is less likely to be struck by a vehicle.

The Design Team Response is as follows – Discussions will be held with Offaly County Council to establish an alternative location for the existing directional sign. This issue was discussed with Offaly County Council at the pre-application meeting held on 22nd July 2026, where it was indicated that a suitable location can be identified.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.3

No road safety issued were identified at Location B – L3001.

Problem 2.4

Visibility Splays Partially Obscured – Location C – L3001 | Existing boundary treatments either side of access

Drivers attempting to leave the access are likely to have their line of sight to approaching traffic blocked in both directions by the existing field boundaries. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundary should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – The visibility splays in both directions described and shown in Figure BYD-BNM-0802-3 will be provided at all times during the construction stage and once the Proposed Wind Farm is operational.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.5

Visibility Splays Partially Obscured – Location E – L3001 | Existing boundary treatments either side of access

Drivers attempting to leave the access are likely to have their line of sight to approaching traffic blocked in both directions by the existing field boundaries. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundaries should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – The visibility splays in both directions described and shown in Figure BYD-BNM-0803-3 will be provided at all times during the construction stage and once the Proposed Wind Farm is operational.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.6

No road safety issued were identified at Location F – L1001.

Problem 2.7

Visibility Splays Partially Obscured – Location G – L1001 | Existing boundary treatment to the right of the access

Drivers attempting to leave the access are likely to have their line of sight to traffic approaching from the right blocked by the existing field boundary. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundary should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – The visibility splays in both directions described and shown in Figure BYD-BNM-0804-3 will be provided at all times during the construction stage and once the Proposed Wind Farm is operational.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.8

No road safety issued were identified at Location I – R414.

Problem 2.9

Visibility Splays Partially Obscured – Location J – R414 | Existing boundary treatments to the right of the access

Drivers attempting to leave the access are likely to have their line of sight to traffic approaching from the right blocked by the existing field boundary. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundary should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – The visibility splays in both directions described and shown in Figure BYD-BNM-0808-3 will be provided at all times during the construction stage and once the Proposed Wind Farm is operational.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.10

Visibility Splays Partially Obscured – Location L – R414 | Existing boundary treatments either side of access

Drivers attempting to leave the access are likely to have their line of sight to approaching traffic blocked in both directions by the existing field boundaries. This could increase the risk of side-impact collisions at the access.

The Audit Team recommends that the field boundaries should be modified to ensure that an appropriate level of visibility can be provided for drivers exiting the access.

The Design Team Response is as follows – The visibility splays in both directions described and shown in Figure BYD-BNM-0806-3 will be provided at all times during the construction stage and once the Proposed Wind Farm is operational.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.11

Level Difference Leading to Steep Road Gradient – Location L – R414 | Ground Level Difference Within Roadside Verge at Access

The significant level difference between the existing carriageway and the surrounding ground levels which could lead to a steep gradient where the access addresses the road. This could lead to vehicles rolling back or engine stalls.

The Audit Team recommends that a suitable dwell area (incorporating minimal gradients) should be created along the access road where it addresses the carriageway to mitigate the risk as described.

The Design Team Response is as follows – The gradient for the Proposed Onsite Substation access arm of the junction proposed on the R414 will be in accordance with guidelines set out in Rural Road Link Design DN-GEO-03031, TII, June 2017, and will include a dwell area of a minimum of 15m which will have a gradient of a maximum of 2.5%.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.12

No road safety issued were identified at Location M – L6002.

Summary of Stage 1 Road Safety Audit

It is noted that Site Entrance 3D, 4H and reference to a 'location K' are not mentioned in The Stage 1 Road Safety Audit. Site Entrance 3D and 4H refer to spurs that will provide crossing facilities for abnormally sized loads at the L3001 and L1001 respectively. These locations will be open only during the times when the convoys of the abnormally sized loads will cross these roads, accompanied by an escort provided by An Garda Siochana. These 2 accesses will be closed at all other times. There is no site entrance K included as part of the Proposed Project.

The Audit Team raised 12 potential road safety problems. The Design Team agreed with each problem and each recommendation suggested by the Audit Team and provided a detailed solution describing

each mitigation measure proposed. It is confirmed that each solution was to the satisfaction of the RSA Team.

15.1.6.7 Provision for Sustainable Modes of Travel

15.1.6.7.1 *Walking and Cycling*

The provision for these modes is not relevant during the construction phase of the Proposed Project as travel distances will likely exclude any employees walking or cycling to the construction sites, and there is no continuous footpaths on any of the roads the proposed Access Junction 1 to 7 are located to facilitate access on foot. It is noted that once operational there will be approximately 40km of internal access road available for amenity, as well as 13.4km of dedicated amenity track, 0.84km (844m) of boardwalk, and 8.5km of circular trails for equestrian access only. Vehicle access is provided to these areas via the proposed amenity carparks accessed via Site Access Junctions 2, 4 and 5 off the L3001, L1001 and R414 roads respectively. See Section 15.1.6.1.2 above for further detail on amenity car parks.

15.1.6.7.2 *Public Transport*

There are a number of bus routes that serve the 3 main urban areas within the Traffic and Transport Study Area, including the following;

- Service No 126x, Route: Rathangan - Dublin, Frequency: 1 per day.
- Service No 888, Route: Allenwood – Rathangan - Athy, Frequency: 5 per day.
- Service No 120, Route: Edenderry – Clane – Dublin, Frequency: 17 per day.
  Service No 821, Route: Newbridge – Prosperous - Sallins, Frequency: 7 per day.

While construction staff will be encouraged to use these routes, they are unlikely to be suitable for most construction staff to access the Project Site due to hours of work and the fact that they do not provide direct access to the Proposed Site. The provision of minibuses will be considered for transporting staff via Rathangan, Edenderry and Prosperous, and further afield, based on the location of the contractors, in order to minimise traffic generation and parking demand on the Project Site. However, for the purpose of this assessment trip generation estimates are based on construction staff travelling by private car.

15.1.7 Likely Future Receiving Environment

This section considers the future receiving environment relating to traffic likely to exist at the Proposed Wind Farm site at the commencement of the construction phase. In accordance with the approach set out in Section 1.8.4 in Chapter 1, the assessment utilises the information presented in the baseline environment, Section 15.1.6 above, and uses any observed change over the survey period (2020 to 2026) to inform, the likely future receiving environment.

The Project Site is located predominantly on former industrial peat extraction lands within the Allen Bog Group. Industrial peat extraction ceased in June 2020. Since then, environmental conditions across these lands have continued to develop through natural revegetation, alongside ongoing site management, decommissioning work and environmental monitoring undertaken in accordance with IPC Licence P0503-01.

The quantum of the materials, HGV trips and additional traffic volumes that will be generated on the roads contained within the Traffic and Transport Study Area during the construction phase of the Proposed Project has been modelled between the years 2030 to 2032 inclusive. A summary of the 2-way delivery trips in terms of PCUs that will be generated on the 6 typical delivery days, together with the duration in days, is shown in Table 15-21.

As the continuation of natural revegetation, ongoing site management, decommissioning works and environmental monitoring, there is no pathway for these activities to introduce additional LGVs or HGVs to the area that would affect background traffic flows or volumes or alter the forecasted traffic and transport related activity present within the Traffic and Transport Study Area and associated activities established in Section 15.1.5 and Section 15.1.6 above and Section 15.1.8 below.

Accordingly, the likely future receiving environment at commencement of the construction phase will remain materially comparable to the existing baseline environment with respect to traffic.

The assessment of likely significant effects presented in Section 15.1.8 has therefore been undertaken against this likely future receiving environment. As the traffic and transport conditions predicted at commencement of construction are materially comparable to those described in the existing baseline environment presented in Section 15.1.5 and Section 15.1.6 remains representative of the traffic receiving environment against which the Proposed Project is assessed.

15.1.7.1 Future Environmental Trends

This section identifies the future environment trends relating to traffic and transport likely to exist within the Traffic and Transport Study Area following implementation of the Draft Rehabilitation Plans throughout the operational phase.

Continued natural revegetation, ongoing site management, decommissioning works and environmental monitoring, and implementation of the targeted rehabilitation measures as required under Condition 10 of IPC Licence Reg. No. P0503-01, are not anticipated to introduce additional LGVs or HGVs to the area that would affect traffic flows or volumes or alter the forecasted traffic and transport related activity present within the Traffic and Transport Study Area. There is therefore no pathway through which these processes could materially alter future trends relating to traffic.

Accordingly, notwithstanding the continued natural revegetation, and compliance with the IPC license the future trends of the receiving environment for traffic will remain materially comparable to the traffic conditions described above and do not require separate consideration elsewhere in the traffic impact assessment.

The continuation of the aforementioned activities in the absence of the Proposed Project is considered in the Do-Nothing Scenario in Section 16.11.1 and assessed in Section 16.9.5 below.

15.1.8 Likely and Significant Effects

15.1.8.1 ‘Do-Nothing’ Scenario

If the Proposed Project were not to proceed, there would be no potential for the Proposed Project infrastructure to impact on traffic and transportation.

Under a 'Do-Nothing' scenario, the Proposed Wind Farm site would continue to be managed as per the requirements of the IPC licence as detailed in Chapter 4 section 4.6.7. The lands required for the Proposed Project would continue to function, with no changes to the current land-use and no alteration to current traffic and transport activities.

Under a ‘Do-Nothing’ scenario, continued natural revegetation, ongoing site management, decommissioning works and environmental monitoring, and compliance with the IPC License will proceed irrespective of whether the Proposed Project is permitted.

If the Proposed Project were not to proceed, the opportunity to capture a significant part of County Offaly’s, County Kildare’s and Ireland’s valuable renewable energy resources would be lost, as would the opportunity to contribute to meeting Government and EU Targets for the production and

consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

15.1.8.2 Construction Phase: Traffic and Transport

15.1.8.3 Proposed Project

With respect to traffic and transport related impacts that will be incurred during the construction of the Proposed Project that all impacts are considered with the design mitigation measures included, as set out in Section 15.1.8.5, including the identification of the proposed suppliers and optimum delivery routes, form an integral part of the design of the Proposed Project. Best practice traffic and transportation mitigation as outlined below Section 15.1.8.5.2 to Section 15.1.8.5.4 are further considered in Section 15.1.8.6 below.

The traffic and transport related impacts that will be incurred on the Traffic and Transport Study Area during the construction of the Proposed Project are considered under three criteria, as follows;

- The impacts incurred on the Turbine Delivery Route during the delivery of the abnormally sized loads,
- The impacts due to the increased in traffic volumes on the Traffic and Transport Study Area during the remainder of construction of the Proposed Project,
  The impacts to existing traffic due to the traffic management measure required during the construction of the Proposed Grid Connection underground electrical cabling route.

Effects on the Proposed Turbine Delivery Route

A summary of the impacts that are forecast on the Proposed Turbine Delivery Route during the delivery of the abnormally sized loads are set out in Table 15-65 below. During this phase it is forecast that the additional traffic generated on the Proposed Turbine Delivery Route will have a ***short-term (123 nights), slight, negative effect***, which is Not Significant.

Mitigation measures for the Proposed Turbine Delivery Route are detailed in Section 15.1.8.5.2 below.

Effects during all delivery of all other materials

Due to the extent of the Traffic and Transport Study Area that will potentially be impacted during the general construction phase of the Proposed Project, a summary of the effects was undertaken separately for the 6 sections of the road network (U to Z) shown in Figure 15-12, with the effects summarised in Tables 15-66 to 15-71 below.

For all sections of the road network in the Traffic and Transport Study Area it is forecast that the effects during the general construction of the Proposed Project will be a ***short-term (ranging from 271 days to 637 days), slight, negative effect***, which is Not Significant.

Mitigation measures for the delivery of construction materials along the Proposed Construction Haul Routes are detailed in Section 15.1.8.5.2 below.

Effects during the construction of the Proposed Grid Connection underground electrical cabling route

A summary of the traffic management modelling for the Proposed Grid Connection underground electrical cabling route is detailed in Section 15.1.6.4.1 above. Modelling was carried out for the

proposed method of traffic management (Stop & Go) and the precautionary method (Road Closures and Diversion), in Tables 15-73 and 15-74 below. For either Stop & Go or Road Closures & Diversions, it is forecast that the works will have a ***negative, short term (171 days)*** effect, with the impacts forecast to be ***slight*** for the former (i.e., Stop & Go), and ***moderate*** for the later (i.e., Road Closure and Diversion), which is Not Significant.

Mitigation measures for the Proposed Grid Connection underground electrical cabling route are detailed in Section 15.1.8.5.2 below.

Table 15-65 Summary of traffic effects for Proposed Turbine Delivery Route

Turbine Delivery Route	Route Information
Route description	The delivery route section from Tullamore through Ballinagar, Daingean and Mount Lucas and section of L1003.
Key Roads	N52, R420, R402 and L1003.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 14, 15, 16, 17, 19 27 & 29 – The route from Tullamore is busy with the majority of the route operating at or over link capacity without any additional construction traffic. As these deliveries will be made during night-time hours they will have a negligible impact on the function of the Proposed Turbine Delivery Route.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	Junction A – This junction is forecast to operate within capacity without and with the construction traffic scenario.
Access junctions on route (See Figure 15-6)	All abnormally sized loads will access the Proposed Wind Farm Site by crossing the R401 from the existing Cloncreen Wind Farm at Site Access 1. All movements will be made during night-time hours with transient traffic management measures provided by An Guarda Siochana. The junction will operate within capacity during these deliveries.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (123 nights) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	An escort and transient traffic management measures by provided by An Guarda Siochana and staff provided by the haulage company.
Residual traffic effects with additional mitigation measures	Traffic effects will be negative, short term and imperceptible.

Table 15-66 Summary of traffic effects for Construction Route Section U

Construction Route U	Route Information
Route description	The delivery route section from Tullamore through Ballinagar, Daingean and Mount Lucas to R402 / R401 junction west of Edenderry, and route from Derrygreenagh.

Key Roads	N52, R420, R402 and R400.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 14, 15, 16, 17, 19 27 & 29 – The route from Tullamore is busy with the majority of the route operating at or over link capacity for both the without and with construction traffic scenarios.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	Junctions A and B – Both junctions are forecast to operate within capacity without and with construction traffic scenarios.
Access junctions on route (See Figure 15-6)	There are no access junctions on this section.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 637 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	There are no additional mitigation measures proposed.
Residual traffic effects with additional mitigation measures	Traffic effects will be negative, short term and slight.

Table 15-67 Summary of traffic effects for Construction Route Section V

Construction Route V	Route Information
Route description	The delivery route section from Ballinderry through Edenderry to R402 / R401 junction.
Key Roads	L1005, R402.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 5, 25, and 28 – The section of the route on the R402 is forecast to operate slightly over link capacity for both the without and with construction traffic scenarios.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	Junctions B, C and D – While junctions B and D are forecast to operate within capacity without and with construction traffic scenarios, Junction C, the R402 / R401 mini-roundabout in Edenderry, is forecast to operate just over capacity during the PM peak hour with the construction traffic in place.
Access junctions on route (See Figure 15-6)	There are no access junctions on this section.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 637 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	In mitigation it is proposed that deliveries will not be made on this route during the AM and PM peak hours.

Residual traffic effects with additional mitigation measures.	Traffic effects will remain negative, short term (up to 637 days) and slight.

Table 15-68 Summary of traffic effects for Construction Route Section W

Construction Route W	Route Information
Route description	The delivery route section from the R402 / R401 junction west of Edenderry south to Rathangan.
Key Roads	R401.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 1 and 30 – Theses sections of the R401 are forecast to operate within capacity for both the without and with construction traffic scenarios.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	Junctions E – The R401 / L3001 roundabout in Rathangan is forecast to operate within capacity for the without and with construction traffic scenarios.
Access junctions on route (See Figure 15-6 and Table 15-38)	Site Access Junction A on the R401 is forecast to operate within capacity.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 637 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	There are no additional mitigation measures proposed.
Residual traffic effects with additional mitigation measures.	Traffic effects will remain negative, short term and slight.

Table 15-69 Summary of traffic effects for Construction Route Section X

Construction Route X	Route Information
Route description	The delivery route section from Rathangan north on the L3001 and L1001.
Key Roads	L3001 and L1001.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 2, 3 and 4 – Theses sections of the L3001 and L1001 are forecast to operate within capacity for both the without and with construction traffic scenarios.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	There are no existing junctions on this section of the construction route.
Access junctions on route (See Figure 15-6 and Table 15-38)	Site Access Junctions 2 and 3 on the R3001 and Junction 4 on the L1001 are forecast to operate within capacity.

Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 637 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	There are no additional mitigation measures proposed.
Residual traffic effects with additional mitigation measures.	Traffic effects will remain negative, short term and slight.

Table 15-70 Summary of traffic effects for Construction Route Section Y

Construction Route Y	Route Information
Route description	The delivery route section from Allenwood south to Kilmeage and west to Rathangan.
Key Roads	R415, L3002 and R401.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 10, 31, 33, 34 and 35 – The sections of the route on the R415 and R402 are forecast to operate over link capacity for both the without and with construction traffic scenarios.
Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	Junction F – The junction between the R415 and the L7081 is forecast to operate at capacity during the PM peak hour for the without and with construction traffic scenarios.
Access junctions on route (See Figure 15-6)	There are no access junctions on this section.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 637 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	In mitigation it is proposed that deliveries will not be made on this route during the AM and PM peak hours.
Residual traffic effects with additional mitigation measures.	Traffic effects will remain negative, short term and slight.

Table 15-71 Summary of traffic effects for Construction Route Section Z

Construction Route Z	Route Information
Route description	The delivery route section from Carbury to Allenwood to Prosperous and south to access junction for the Offsite substation located off the L6002.
Key Roads	R403 and L6002.
Links assessed on route and comment (see Figure 15-5 and Table 15-36)	Links 6, 26, 22, 23 and 24 – It is noted that all locations on the R403 are forecast to operate over capacity for both the without and with construction traffic scenarios, while the L6002 is forecast to operate within capacity for both scenarios.

Existing junctions assessed on route and comments (See Figure 15-6 and Table 15-39)	External Junction G – The junction between the R408 / R403 / L6002 junction is forecast to operate over capacity during the AM and PM peak hour for the without and with construction traffic scenarios.
Access junctions on route (See Figure 15-6 and Table 15-38)	Access Junctions 7 on the L6002 is forecast to operate within capacity.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 271 days) and slight.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	In mitigation it is proposed that this section of the route will be used for the delivery of material associated with the construction of the proposed Offsite substation and the Proposed Grid Connection underground cabling route only. In addition, it is proposed that deliveries will not be made on this route during the AM and PM peak hours.
Residual traffic effects with additional mitigation measures.	Traffic effects will remain negative, short term and slight.

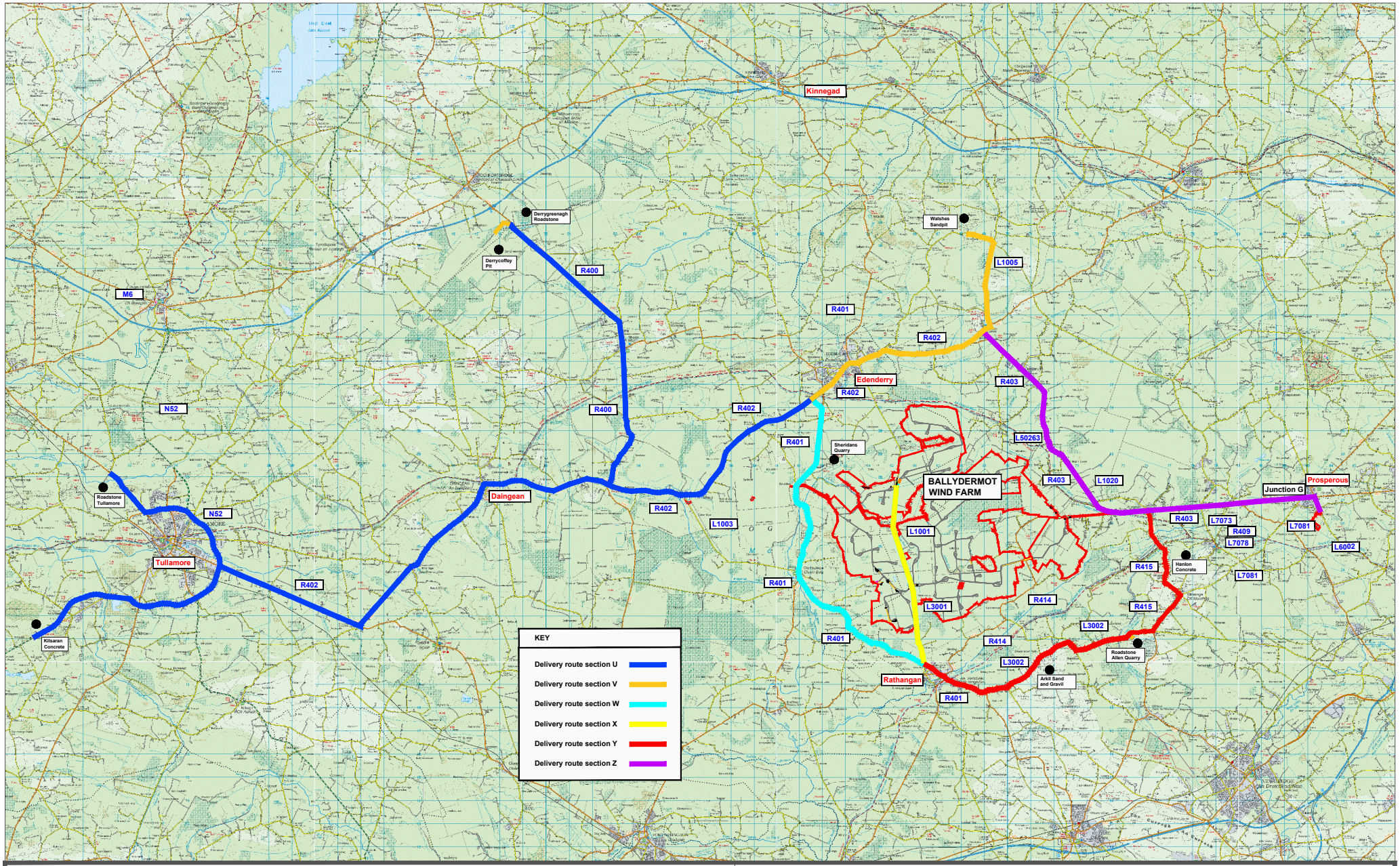
Table 15-72 Summary of traffic effects during the construction of the Proposed Grid Connection underground cabling route – Scenario with traffic flow retained using Stop & Go

Turbine Delivery Route	Route Information
Route description	Proposed Grid Connection underground electrical cabling route 13.1km long with 11.9km constructed within the curtilage of the public road.
Key Roads	R414, R402 and L6002.
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 171 days) and slight to moderate.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	All construction works will be made outside school term time.
Residual traffic effects with additional mitigation measures	Traffic effects will be negative, short term and slight.

Table 15-73 Summary of traffic effects during the construction of the Proposed Grid Connection underground cabling route – Scenario with road closures and diversions

Turbine Delivery Route	Route Information
Route description	Proposed Grid Connection underground electrical cabling route13.1km long with11.9km constructed within the curtilage of the public road.
Key Roads	R414, R402 and L6002.

Turbine Delivery Route	Route Information
Traffic effects with design mitigation measures (See Section 15.1.8.2.1)	Traffic effects will be negative, short term (up to 171 days) and moderate.
Additional mitigation measures proposed (See Section 15.1.8.5.1)	All construction works will be made outside school term time.
Residual traffic effects with additional mitigation measures	Traffic effects will be negative, short term and moderate.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-12 Delivery route sections for assessment of potential effects

PROJECT:	Ballydermot Wind Farm Co. Offaly and Co. Kildare		
CLIENT:	BnM	SCALE:	NTS
PROJECT NO: 8570	DATE: 22.10.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.8.4 Operational Phase: Traffic and Transport

The impacts on the surrounding local road network will be negligible once the Proposed Project is operational based on the following forecast trip generation as outlined in Section 15.1.11 above;

- An average of approximately 1 to 2 trips made by site staff in and out of each of the proposed 7 Access Junctions made by private car or light goods vehicle, and,
- Approximately 50 amenity trips in and out of 3 Access Junctions available for amenity car parking by car or light goods vehicle per day, and,
- No regular visits required for the Proposed Grid Connection.

The effects of the maintenance/monitoring staff trips together with the traffic generated by amenity trips on the surrounding road network will therefore be ***imperceptible, negative and long term***, which is Not Significant.

Mitigation measures for operational phase traffic and transport are detailed in Section 15.1.8.5.3.

15.1.8.5 Decommissioning Phase: Traffic and Transport

The Proposed Turbines are expected to have a lifespan of 35 years. Following the end of their useful life, the Proposed Turbines may be replaced with new turbines, subject to planning permission being obtained, or the Proposed Turbines may be decommissioned fully.

Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during part of the construction phase when the Proposed Turbines were being erected. The impacts and associated effects will be materially less than during the construction phase as significant ground works are not required to decommission a wind farm.

The Proposed Project internal site access roads will be in use for purposes other than the operation of the Proposed Project by the time the decommissioning of the Proposed Wind Farm is to be considered, and therefore it will be more appropriate to leave the proposed internal site access roads in situ for future use. It is envisaged that the roads will be widely utilised for amenity purposes by the local community.

While the actual number of loads that will be required to remove materials from the Proposed Wind Farm in the event that the Proposed Wind Farm is decommissioned has not been determined at this stage, the impact in terms of traffic volumes will be significantly less than during the construction stage. It is proposed that the decommissioning phase will have a ***temporary, imperceptible, negative*** effect on traffic which is Not Significant.

The Proposed Grid Connection and all the associated transmission infrastructure i.e. underground cables, overhead line cabling, steel masts, etc. will form part of the national grid infrastructure and operate in perpetuity as part of Transmission System and TAO assets and will remain in-situ. The assets transferred to the TAO will not form part of the decommissioning works, therefore there are no Traffic and Transport impacts associated with these works.

The works required during the decommissioning phase are described in Section 4.12 of Chapter 4: Description of the Proposed Project and the accompanying Decommissioning Plan included as Appendix 4-7 of this EIAR.

Mitigation measures for decommissioning phase traffic and transport are detailed in Section 15.1.8.5.4 below.

15.1.8.6 Mitigation Measures

This section summarises the mitigation measures to minimise the effects of the Proposed Project following implementation of mitigation by design (included in the preceding sections) during both the construction and operational phase (decommissioning will be same as construction where required), encompassing best practice traffic and transport mitigation measures that will be in place throughout the construction, operation, and decommissioning phases of the Proposed Project.

As outlined in Section 15.1.4, mitigation by design has been used to inform the Proposed Project. Best practice traffic and transport mitigation that will be utilised to ensure no significant effects during the construction and operational phases is detailed in the following sections.

15.1.8.6.1 *Mitigation Measures During the Construction Phase*

The successful completion of the Proposed Project will require significant coordination and planning, and it is therefore recommended that the following comprehensive set of mitigation measures will be put in place before and during the construction phase in order to minimise the effects of the additional traffic generated by the Proposed Project.

Traffic Management of Large Deliveries

Traffic management measures include the following:

- Identification of a delivery schedule;
- Details of the alterations required to the infrastructure identified in this report and any other minor alteration identified (hedgerows, etc.);
- A dry run of the route using vehicles with similar dimensions.

The transport of large components is challenging and can only be done following extensive route selection, route proofing and consultation with An Garda Síochána, the local authority and its road section and roads authorities. Turbine components are usually transported at night when traffic is lightest and this is done in consultation with the road authorities, An Garda Síochána Traffic Corp and special permits are generally required.

In some cases, minor accommodation works are required along a turbine delivery route such as hedge or tree cutting, temporary relocation of powerlines/poles, lampposts, signage, local road widening, and at one location, the provision of a temporary over-run areas over a roundabout centre island. Any upgrades to the public road network will be carried out in advance of turbine deliveries and following consultation and agreement with the relevant authorities. It is not anticipated that any sections of the local road network will be closed during the delivery of the abnormally sized loads. Speeds at Site Entrance 2B, Site Entrance 3C and Site Entrance 3E be monitored by means of a one-off 7 day traffic count during the construction phase of the Proposed Project

Refer to Section 15.1.6.2.1 above for the abnormal route assessment for the Proposed Turbine Delivery Route and Appendix 15-2 of this EIAR, for the Traffic Management Plan.

The following are the main points to note for these deliveries which will take place after peak evening traffic:

- The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised.
- The deliveries will be made in consultation with the Local Authority and An Garda Síochána.

- These nights will be spread out over an approximate period of 25 weeks and will be agreed in advance with the relevant authorities,
- In order to manage each of the travelling convoys, for each there will be two Garda escort vehicles that will stop traffic when required at the front and rear of the convoy of 3 vehicles.
- There will also be two escort vehicles provided by the haulage company for each convoy.

Traffic Management Plan

A detailed **Traffic Management Plan (TMP)** (Appendix 15-2) will be provided specifying details relating to traffic management and included in the CEMP (Appendix 4-4) prior to the commencement of the construction phase of the Proposed Project. The TMP will be agreed with the local authority and An Garda Síochána prior to construction works commencing onsite. The detailed TMP will include the following:

- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the development, and this person will be the main point of contact for all matters relating to traffic management. Based on the scale of the Proposed Project it is envisaged that more than one person will be required for this role.
- **Delivery Programme** – a programme of deliveries will be submitted to Kildare and Offaly County Councils in advance of deliveries of turbine components to the Proposed Wind Farm. Liaison with the relevant local authorities, TII and MMaRC will be carried out where required regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the Project Site.
- **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. the delivery of turbine components at night via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number for the Traffic Management Co-Ordinator will also be provided.
- **A Pre and Post Construction Condition Survey** – Where required by Kildare and Offaly County Councils Road Sections, a pre-condition survey of roads associated with the Proposed Project will be carried out immediately prior to construction commencement to record an accurate condition of the road network at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The timing of these surveys will be agreed with the local authorities. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.
- **Liaison with the relevant local authority** - Liaison with Kildare and Offaly County Councils and An Garda Síochána, will be carried out during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (in compliance with the provisions of the CEMP), the Road Sections of Kildare and Offaly County Council will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager.
- **Implementation of temporary alterations to road network at critical junctions** – at locations highlighted in Section 15.1.6.1.
- **Identification of delivery routes** – The optimal delivery routes for general construction traffic have been identified as part of the detailed link capacity

assessment set out in Section 15.1.6.1 and are adopted for the traffic impact assessment presented in this EIAR. Prior to construction these routes will be agreed with Kildare and Offaly County Councils and adhered to by all contractors.

- **Time restriction and locations** on routes - Construction traffic on the R402 through Edenderry will avoid the two peak hours between 08:00 – 09:00 and 17:00 – 18:00. Construction traffic on the R415 through Kilmeage will avoid the PM peak hour of 17:00 – 18:00. Grid construction on the R402 / R414 and L6002 should avoid school term time.
- **Delivery times of large turbine components** – The large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.
- **Temporary traffic signs** – As part of the traffic management measures temporary traffic signs will be put in place at Access Junctions 5 on the R414 to facilitate the crossing of general construction traffic between Site Entrances I and J. All measures will be in accordance with the *"Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works"* (DoT now DoTT&S) and "Guidance for the Control and Management of Traffic at Roadworks" (DoTT&S). Construction staff (flagman) will be present at this location during peak delivery times.
- **Implementation of Stop & Go traffic management, and/or implementation of temporary diversion routes (Precautionary Option) during the construction of the Proposed Grid Connection underground electrical cabling route –** As set out in Section 15.1.6.4.1 of this EIAR, in accordance with *"Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works"* (DoT now DoTT&S) and "Guidance for the Control and Management of Traffic at Roadworks" (DoTT&S).
- **Consultation with residents / business owners on Proposed Grid Connection underground electrical cabling route** – To ensure access maybe retained at all times.
- **Travel plan for construction workers –** While the assessment above has assumed the precautionary scenario in that construction workers will drive to the Project Site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Site and identification of area for parking on site.
- **Wheel washing / Road cleaning measures** – These additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network.
- **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.

15.1.8.6.2 Mitigation Measures During Operational Phase

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

As outlined in Section 15.1.6.5 and Table 15-2 above, and Section 3.2.6.1.1 of Chapter 3, the proposed 7 no. access junctions and associated site entrances for the Proposed Project have been assessed for functionality, and the most appropriate use for each entrance has been identified. Therefore, Site Entrances A, B, C, E, F, G, I, J, L and M will be used for operational phase maintenance and monitoring activities; and only Site Entrances B, G and I will be used for the purposes of amenity. Site Entrances D and H will only be used for the delivery of abnormally sized loads during the construction phase and will not be used during the operational phase. There is no site entrance K.

15.1.8.6.3 Mitigation Measures During Decommissioning Phase

In the event that the Proposed Project is decommissioned after the 35 years of operation, a decommissioning plan, will be prepared for agreement with the local authority, as described in Chapter 4 and Appendix 4-7 Decommissioning Plan. This plan will include preparation of a material recycling / disposal and traffic management plan for agreement with the local authority prior to decommissioning,

in accordance with Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013).

15.1.8.7 Residual Effects

15.1.8.7.1 Construction Phase

Following implementation of the mitigation as detailed in Section 15.1.8.5.1 above, during the 30-month delivery period within the 36 month construction phase of the Proposed Project, it is forecasted that the additional traffic that will travel on the public road network serving the Proposed Wind Farm and the Proposed Grid Connection, will have a ***short-term, slight, negative*** effect, which is Not Significant, on existing road users.

If road closures are required during the construction of the Proposed Grid Connection underground electrical cabling route, the severity of the impacts on these 131 days will increase to moderate.

There will be no significant impacts following the implementation of the either Stop & Go or Road Closures and Diversion traffic management measures.

15.1.8.7.2 Operational Phase

Following implementation of mitigation as detailed in Section 15.1.8.5.2 above, the traffic impact of the Proposed Project will be ***imperceptible, long term and negative*** during the operational phase. There will be no significant impacts.

15.1.8.7.3 Decommissioning Phase

As stated above, in the event that the Proposed Wind Farm is decommissioned, a decommissioning plan will be prepared and implemented in order to minimise the residual effects during this stage. The residual effect will be less than for the construction stage as set out above and will be an ***imperceptible, negative, temporary*** effect. There will be no significant impacts.

The Proposed Grid Connection will remain in-situ and continue to operate as part of the national electricity grid network.

15.1.9 Cumulative Effects

The extent of the traffic and transport cumulative impact assessment is based on the guidance set out in the Traffic and Transport Assessment Guidelines, PE-PDV-02045[7], April 2014, TII, which states that the assessment should include "*developments granted planning permission, but which are yet to become operational as well as any planning applications that have been submitted but have yet to be determined".*

The same guidelines are referenced to determine which of the developments that fit the above criteria have the potential for cumulative effects with the Proposed Project, which is a function of the level of increase on traffic volumes that may be experienced on a common road network.

An assessment of all existing, permitted and proposed wind farm projects was completed for the potential for cumulative traffic and transport effects with the Proposed Project based on the following criteria:

- Project status (existing, permitted, or proposed);

[7] *TII (2014) Traffic and Transport Assessment Guidelines* <https://www.tiipublications.ie/document/?id=3010>

- Degree of overlap with the Proposed Construction Haul Routes and Proposed Turbine Delivery Route (low to high);
- Traffic volumes (low (<5 turbines), medium (6 to 15 turbines) and high (>15 turbines).

As detailed in Section 2.10.1 of Chapter 2, a 25km buffer from the Proposed Turbines is deemed appropriate to capture other plans and projects including large infrastructural developments such as wind farms, energy and public transport developments, with the potential for cumulative effects with the Proposed Project.

A detailed list of all developments at varying stages in the development process (from pre-planning to operational), is set out in Appendix 2-3 of this EIAR. The developments included in the cumulative impact assessment are considered under the following groups:

- Other wind farms.
- Other applications in the Environmental Impact Assessment (EIA) process.
- Strategic Infrastructure Development (SID) applications made to An Coimisiún Pleanála (ACP), and,
- Other future significant developments.

15.1.9.1.1 *Other Wind Farms*

The other permitted and proposed wind farm developments within 25km of the Proposed Turbines that were considered to have potential traffic related cumulative impacts are set out below in Table 15-74. Developments consisting of single domestic turbines have not been considered further in the cumulative assessment as the scale of construction traffic associated with these would be considered insignificant and therefore would not have a cumulative impact when associated with the Proposed Project.

As set out in Table 15-74, there are 7 wind farms within the 25km of the Proposed Turbines that are proposed or permitted (i.e., permitted Clonarrow Wind Farm, permitted Dernacart Wind Farm, permitted Ballinla Wind Farm, proposed Derrynadarragh Wind Farm, permitted Ballivor Wind Farm, proposed Drehid Wind Farm, and proposed Cushina Wind Farm,) and therefore have a construction phase that could potentially overlap with the Proposed Project construction phase resulting in cumulative effects.

If the chosen port of entry for other permitted or proposed wind energy development is the same as the final chosen port of entry for the Proposed Project and delivery of abnormal loads for one or more of these developments be done simultaneously, there is the potential that there could be cumulative impacts at the port and on the abnormal load delivery routes in close proximity to the port, should the. It is, however, the case that if the port has the handling and storage capacity to provide for more than one of these developments at a time, the Garda would limit the delivery from the port to one convoy of 3 vehicles per night, so cumulative impacts would not occur at this location.

Of the 7 wind farm developments listed in Table 15-74, based on the criteria set out above (project status, overlap of Proposed Construction Haul Routes and Proposed Turbine Delivery Route) it is estimated that there is one wind farm, the proposed Derrynadarragh Wind Farm, for which there is a high potential for cumulative impacts with the Proposed Project. The Derrynadarragh Wind Farm is expected to have a 24 month construction phase with the indicative construction year proposed as 2027, as such, there is no anticipated overlap in the main construction programmes of the two developments and therefore limited potential for cumulative construction-phase effects associated with traffic and transport,

Under a precautionary scenario, if the construction of the Proposed Project coincides with the construction phase of the proposed Derrynadarragh Wind Farm, or any other of the 6 no. wind farms listed in Table 15-57, which are considered to have a medium potential for cumulative impacts with the

Proposed Project, the traffic related cumulative impacts would be ***negative, short-term and slight***, which is Not Significant. This is based on the potential overlap of turbine delivery routes and associated traffic generations. It is therefore proposed that the construction phase of the Proposed Project will be scheduled, where possible, to avoid the overlap of the construction phases of the aforementioned wind farm developments. This will ensure that the potential for cumulative effects is minimised.

Table 15-74 Summary of other wind farms considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

Project	Status	Degree of overlap of road network (low / medium / high)	Traffic volumes (low / medium / high)+	Potential cumulative traffic effects
1 – Clonarrow Wind Farm (4 turbines) – County Offaly, Planning Reference 25/60189	Permitted	High	Low	Medium
2 – Dernacart Wind Farm (8 turbines) County Laois - ACP Reference PA11.310312,2078	Permitted	Medium	Medium	Medium
3 – Ballinla Wind Farm (7 turbines) County Offaly - ACP Reference PAX19.323579	Permitted	Medium	Medium	Medium
4 – Derrynadarragh Wind Farm (9 turbines) County Offaly - ACP Reference PAX19.323579	Proposed	High	Medium	High
5 – Ballivor Wind Farm (26 turbines) Counties Westmeath and Meath - ACP Reference PA25M.316212	Permitted	Low	High	Medium
6 – Drehid Wind Farm (11 turbines) - ACP Reference PA25M.316212	Permitted	Medium	Medium	Medium
7 – Cushina Wind Farm (11 turbines) County Offaly – ACP Reference PC19.323296	Proposed	Medium	Medium	Medium

+Traffic volumes (low (<5 turbines), medium (6 to 15 turbines) and high (>15 turbines).

Other development applications in the Planning Process (with the local authorities and with ACP)

There are a total of 133 other developments currently within the 10 km of the Proposed Turbines progressing through the planning process, with 95 permitted or being considered by Local Authorities, and 38 permitted or being considered by An Coimisiún Pleanála (ACP)), as listed in Tables 15-75 and 15-76 respectively.

Of these developments there is one, ACP Case No 323980; The Water Supply Project for the Eastern and Midlands Region (WSP) which traverses Counties Clare, Limerick, Tipperary, Offaly, Kildare and Dublin, where it is considered that the potential for cumulative impacts is high. It is noted that construction of the WSP is proposed in 2028 which is before the proposed commencement year for the Proposed Project, however construction of the WSP is proposed to extend into 2032 resulting in an overlap with the Proposed Project construction phase. Therefore, there will be a negative, short term and slight to moderate cumulative effect during construction of the Proposed Project and the WSP, which is Not Significant. It is considered that there will be no significant impacts.

For all other developments listed in Tables 15-75 and 15-76, as a precautionary scenario and they are constructed at the same time as the Proposed Project, it is forecast that the cumulative impacts will be negative, short term and slight, which is Not Significant.

Table 15-75 Summary of other developments with Local Authorities considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

Planning Authority	Planning Reference No	Development Description
Offaly County Council	25/60087	Proposed upgrade of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation the existing Portlaoise 110 kV substation.
Kildare County Council	25/60302	Upgrade of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation existing Portlaoise 110 kV substation.
Offaly County Council	19/606	Wind farm (9) turbine wind farm.
Offaly County Council	21/598	Proposed solar farm.
Offaly County Council	22/494	Development associated with new permitted Cushling Wind Farm.
Kildare County Council	23/285	Detached domestic garage of c.36m2 and associated site works.
Offaly County Council	21/291	Development at Edenderry Power Plant.
Kildare County Council	21/586	Development of 28 housing units.
Kildare County Council	23/837	The construction of a PV solar farm.
Kildare County Council	23/317292	Proposed further Development of the Drehid Waste Management Facility.
Offaly County Council	21/52	A modular Battery Energy Storage System (BESS) facility.
Offaly County Council	25/60550	Development of 92 no. Dwellings.

Kildare County Council	22/327	Planning permission for a period of 10 years to construct and complete a Solar PV Energy Development.
Kildare County Council	23/60229	Residential development of 66 no. dwellings.
Kildare County Council	24/61183	For residential development of 25 no dwellings.
Offaly County Council	21/290	Extension of Biomass at Edenderry Power Plant.
Offaly County Council	21/297	22 no residential units.
Kildare County Council	25/97	110 dwelling residential development.
Offaly County Council	21/38	Road junction to facilitate wind farm delivery and associated development.
Kildare County Council	22/1203	Permission, for the construction and operation of a renewable energy development within a site boundary of c. 114 ha.
Kildare County Council	23/60073	PV energy development and battery storage compound at Coolcarrigan, Timahoe West, Co. Kildare.
Kildare County Council	20/1529	Extension of duration of Planning Ref. No 151172. solar PV panel array.
Kildare County Council	25/61155	Works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL).
Kildare County Council	20/1325	PV farm on a site area of 49.74 hectares within the site of the Dunmurry Springs Golf Club.
Meath County Council	25/61103	EirGrid PLC, with the consent and approval of the Electricity Supply Board (ESB), intends to apply for permission for works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL).
Kildare County Council	23/60353	Construction of 22 no. dwellings.
Kildare County Council	21/1079	The upgrade of the Robertstown Wastewater Treatment Plant.
Offaly County Council	25/60500	Permission for works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL).
Kildare County Council	20/1409	Extraction of sand and gravel with processing that includes crushing, washing and screening, using the newly installed plant over an area of 9.2 hectares.
Kildare County Council	22/1473	Change of use of a commercial premises from retail use to a takeaway/restaurant, retaining an extraction and ventilation apparatus to the rear of premises, signage to the front, and all associated ancillary site-works.
Laois County Council	25/60147	The proposed uprate of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation.
Meath County Council	TA16/0820	The development will consist of permission for retention of existing quarry works and permission to extract sand and gravel deposits from the quarry with retention of existing haul road.
Meath County Council	22/1590	Extension of duration of planning permission (TA160820) for the extraction of sand and gravel deposits from the quarry with retention of existing haul road.
Kildare County Council	25/60291	A solar PV energy development with a total site area of 45.9 hectares.

Offaly County Council	22/379	A 2MW pilot scale Hydrogen Electrolyis Plant.
Kildare County Council	23/60266	Quarry development and associated processing previously permitted under P. Reg. Ref. No. 99/2042 and ABP Ref. PL09.123207.
Offaly County Council	23/60183	The construction of Phase 1 of the Modern Methods of Construction (MMC) Demonstration Park.
Kildare County Council	20/159	The construction of 74 No. dwellings.
Kildare County Council	25/21	For a residential development comprising 192 houses, 16 maisonettes and a childcare facility.
Kildare County Council	25/60740	For the construction of 11 no. houses at Oak Church, Kildare, Co. Kildare.
Meath County Council	TA18/1225	A ten-year planning permission for a solar farm.
Kildare County Council	24/60568	For a period of 10 years to construct and complete a solar PV energy development.
Offaly County Council	21/123	The development of a solar farm on a site area of 86.7 hectares.

Table 15-76 Summary of other developments with An Coimisiún Pleanála considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

ACP Case No	Development Description	Planning Authority	Address
501003	Retention of log chalet to be used for habitable accommodation for a temporary period of 3 years	Kildare County Council	3 The Willows, Allenwood, Co. Kildare.
500767	Solar farm and all associated site works. NIS submitted with application	Kildare County Council	Townland of Kilglass, Co. Kildare
323980	Proposed Water Supply Project for the Eastern and Midlands Region	Tipperary County Council	Counties of Clare, Limerick, Tipperary, Offaly, Kildare, and Dublin.
500258	Construct and complete a solar PV Energy Development with a total site area of 173.3 hectares comprising of transformer stations and GRP enclosures. A Natura Impact Statement (NIS) was submitted with this application.	Kildare County Council	Townlands of Cadamstown, Ballina, Clonuff and Garrisker, Co Kildare
500151	Proposed uprate of the existing 110 kV Overhead Line (OHL) and the replacement ("restringing") of the existing overhead line circuit conductor with a new higher capacity conductor and all associated site works. NIS has been submitted with this application,	Laois County Council	Inchacooly, Ullard (Controversyland), Clonanny, Kilmullen, Derrynafunshion, Ballycarroll, Closeland or Cloneen, Ballybrittas, Emo Park, Cappakeel, Morett, Killone, Garryduff, Killenny.
323579	Proposed Windfarm development of 7 Turbines, 110kV substation and associated works.	Offaly County Council	Within the townlands of Leitrim, Lumville, Ballinla, Clarkeville, Ballyfore Big, Ballyfore Little, Ballyeakin and Ballykilleen, in Co. Offaly.

322845	Proposed development of 11 wind turbines and ancillary development	Kildare County Council	Within the townlands of Ballynamullagh, Kilmurry, Coolree, Killyon, Mulgeeth and Drehid, County Kildare.
322843	Proposed development of a 110kV substation and associated works	Kildare County Council	In the townlands of Ballynamullagh, Kilmurry, Coolree, Killyon and Drehid, County Kildare (
322722	Development of land pursuant to Section 37L of the Planning and Development Act 2000 (as amended). restoration of lands through the import of soil and stone to infill disused historical quarry. An EIAR accompanies the application.	Kildare County Council	Coolsickin or Quinsborough, County Kildare
322503	10 year permission for construction of a 110kV substation and grid connection including ancillary works	Kildare County Council	In the townland of Oldcourt, Edenderry, County Kildare.
322432	Application for substitute consent under Section 177E for quarry. A remedial EIAR accompanies the application.	Kildare County Council	Coolsickin or Quinsborough, Monasterevin, Co. Kildare.
322184	Sand & gravel extraction over 20 years with ancillary buildings and activities. Subsequent restoration of lands over 14 years. An Environmental Impact Assessment Report (EIAR) accompanies the application.	Kildare County Council	In townlands Coolaght, Kilmeague, Co. Kildare
321991	10 year permission for the construction of a solar farm and all ancillary infrastructure and associated works. A Natura Impact Statement (NIS) has been prepared in respect of this application.	Kildare County Council	In townlands of Mulgeeth and Mucklon, Enfield, Co. Kildare
319344	The continued operation of the existing 80 metre meteorological mast and all ancillary infrastructure for a period of up to five years.	Offaly County Council	Raheenakeeran, Walsh Island, Geashill, Co. Offaly.
319224	Development of quarry and associated works. The proposed operational period is for 10 years plus 2 years to complete restoration. Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) submitted with application.	Kildare County Council	Kilrainy and Kilrathmurry Townlands, Clonard, Co. Kildare
319002	38kV electricity circuit between Kildare substation and Newbridge substation. Natura Impact Statement (NIS) submitted with application.	Kildare County Council	Townlands of Crockanure Glebe, Southgreen, Kildare, Bishopsland, Cloghgarrett Glebe, Crockanure, Blackmillers Hill, Dunmurry West, Curragh, Rathbride, Friarstown, Newtown,

			Milltown, Scarletstown and Roseberry in Co. Kildare
317245	Whether the increase in megawatt (MW) output form 49.5MW to 59.4MW at a permitted wind farm development, using a new (6.6MS) machine at Ballykileen, Shean, Kilcumber, Cloncant and Cushaling, Edenderry, Co. Offaly is or is not development and is or is not exempted development.	Offaly County Council	Ballykilleen, Shean, Kilcumber, Cloncant and Cushaling, Edenderry, Co. Offaly.
317239	Whether the increase in the Megawatt (MW) output at a permitted wind farm development, without increasing the size and scale of any of the works, layout or plans at Ticknevin, Carbury, Co. Kildare is or is not development and is or is not exempted development.	Kildare County Council	Ticknevin, Carbury, Co. Kildare and also Co. Offaly (Ballykilleen, Shean, Kilcumber, Cloncant, Cushaling and Rathmore, Edenderry, Co. Offaly and Ballina, Geashill, Co. Offaly).
312256	28 houses and all associated site development works.	Kildare County Council	Newtown, Rathangan, Co. Kildare
311677	Upgrading of entrance, installation of site facilities for extraction and processing of sand and gravel. An Environmental Impact Assessment Report (EIAR) has been prepared in respect of this planning application. Revised by Significant Further Information which consists of updates to the EIAR and revised plans.	Kildare County Council	Brackagh Townland,Carbury,Co. Kildare.
310367	Solar Farm Development for a period of 10 years with an operational period of 40 years. A Natura Impact Statement (NIS) is submitted with the Planning Application.	Offaly County Council	Trascan and Clondoolusk, Co. Offaly.
310107	Whether the increase in the Megawatt (MW) output at a permitted wind farm development, without increasing the size and scale of any of the works, layout or plans at Ticknevin, Carbury, Co. Kildare is or is not development and is or is not exempted development.	Kildare County Council	Ticknevin, Carbury, Co. Kildare and also Co. Offaly (Ballykilleen, Shean, Kilcumber, Cloncant, Cushaling and Rathmore, Edenderry, Co. Offaly and Ballina, Gaeshill, Co Offaly).
309940	Whether the increase in megawatt (MW) output form 49.5MW to 59.4MW at a permitted wind farm development, using a new (6.6MS) machine at Ballykileen, Shean, Kilcumber, Cloncant and Cushaling, Edenderry, Co. Offaly is or is not development and is or is not exempted development.	Offaly County Council	Ballykilleen, Shean, Kilcumber, Cloncant and Cushaling, Edenderry, Co. Offaly.

309686	Application for a ten year permission for a 110kV Air Insulated Switchgear (AIS) Loop Substation with 400m long overhead line grid connection and all associated site works	Offaly County Council	In the townlands of Ballykilleen, Cloncreen and Ballinowlart North, Co. Offaly
309319	Permission for a ground mounted solar photovoltaic (PV) farm, construction of maintenance shed and all associated works, permission is also sought for a period of 10 yrs with an operational period of up to 30 yrs.	Kildare County Council	At a site area of 49.74 hectares within the site of the Dunmurry Springs Golf Club in the townlands of Rahilla Glebe, Dunmurry West, and Guidenstown South, Co. Kildare.
307136	110kV substation with associated electrical plant, control buildings, welfare facilities, security fencing, additional internal access traces, 110kV overhead line grid connection to existing transmission line on site, which will consist of a 10 year permission.	Meath County Council	Lands at Harristown, Castlejordan and Clongall, Co, Meath.
306924	10-year planning permission with a 30-year operational life. The development will consist of up to 8 (eight) wind turbines. An Environmental Impact Assessment Report (EIAR) and A Natura Impact Statement (NIS) has been prepared in respect of the application	Offaly County Council	Ballykilleen Shean Kilcumber Cloncant & Cushaling , Edenderry, Co Offaly.
306748	1 wind turbine generator and associated infrastructure. This application is accompanied by an Environmental Impact Assessment Report and a Natura Impact Statement.	Kildare County Council	Ticknevin,Carbury,Co. Kildare.
306500	Development of a wind farm. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) accompany this planning application. Revised by significant further information consisting of; changes in regard to the EIAR and NIS submitted	Kildare County Council	Within the townlands of Ballynamullagh , Coolree Drehid Dunfierth , Killyon Kilmurry and Mulgeeth, Co. Kildare
306247	Application for leave to apply for substitute consent under section 177C of the Planning and Development Act 2000, (as amended) to regularise the planning status of Bord na Mona historic peat extraction (and ancillary works) on the milled peat production bogs.	Kildare County Council	Kilberry bog group located in county Kildare.
306241	Application for leave to apply for substitute consent under section 177C of the Planning and Development Act 2000, (as amended) to regularise the planning status of Bord na Mona historic peat extraction (and ancillary works) on the milled peat production bogs. Allen Bog Group located in counties Offaly, Westmeath, Laois and Kildare.	Offaly County Council	Allen bog group located in counties Offaly, Westmeath, Laois and Kildare.

305953	A ten year planning permission to develop a renewable energy development. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) has been prepared. Revised by significant further information consisting of; Further Information Response Report; Updated Environmental Impact Assessment Report and Appendices; Updated Natura Impact Statement; Amended Planning Application Drawings, showing; amended access/amenity track (relocated to accommodate Marsh Fritillary habitat), updated amenity signage, clarification of road sectional drawings, additional substation cross section drawing. Updated photomontage booklet.	Kildare County Council	Townlands of Drehid Mulgeeth, Ballynamullagh Mucklon Kilmurray (Carbury By), Killyon and Timahoe East
303249	110kV onsite electrical substation with associated electrical plant, electrical equipment, welfare facilities and waste water holding tank and security fencing. 110kV overhead line grid connection cabling, upgrade of existing tracks and provision of new site access roads with all associated site development and ancillary works.	Kildare County Council	Timahoe East, Co. Kildare.
302145	Modifications to Development permitted under ABP ref. 299110 - Construction of 2-storey Residential Scheme comprising 191 no. Dwelling Units and associated Works	Kildare County Council	Green Road and Southgreen Road and Old Road and Dunmanway Road
248013	Restoration of existing excavated gravel pit.	Kildare County Council	Boherhill, Rathangan, Co. Kildare.
PA0047	Proposed Cloncreen Wind Farm comprising up to 21 no. Wind Turbines and all associated works	Offaly County Council	Co. Offaly
PM0008	Request to alter condition no. 1 of previously permitted landfill at the existing Drehid Waste Management Facility (Ref. PA0004), Drehid, Killinagh Upper, Carbury,	Kildare County Council	Co. Kildare
245295	Extension of the continued use and operation until the end of 2030 of previously permitted peat and biomass co-fired power plant currently existing.	Offaly County Council	Ballykilleen, Edenderry, Co. Offaly.

15.1.9.1.2 *Substitute Consent Application for Extraction on Ballydermot and Surrounding Bogs (Case Ref: SU09.324604)*

As identified in Section 2.10.2.3 in Chapter 2 and above in Section 12.4.6, an application for substitute consent was submitted to An Coimisiún Pleanála (Case Ref: SU09.324604) on 20th August 2026, for peat extraction and ancillary works from July 1988 to the present day that have been carried out within Ballydermot and surrounding bogs. A Remedial Natura Impact Statement (rNIS) and Remedial Environmental Impact Assessment Report (rEIAR) was submitted with this application.

Traffic impacts within the substitute consent application were determined to be negative, imperceptible, and long term, which is Not Significant. The effect of the construction, operational and decommissioning phases of the Proposed Project in combination with the substitute consent project is not considered to be significant, given the nature of the ongoing works (i.e., decommissioning works, site management and environmental monitoring). As such the potential cumulative effect of the substitute consent project with the Proposed Project is considered to be a potential slight, negative, short term, effect on traffic volumes, roads and road users.

15.1.9.1 EPA Licenced Activities

The Draft Rehabilitation Plans will be implemented following completion of the wind farm construction phase and are therefore expected to overlap with the operational phase of the Proposed Project. The implementation of the targeted rehabilitation of the Draft Rehabilitation Plans will occur irrespective of the Proposed Project and have therefore been considered within the future environmental trends (Section 15.1.8.1) for the Proposed Wind Farm site.

There is a potential for increased traffic movements associated with IPC Licence ongoing site management, decommissioning works and environmental monitoring and implementation of targeted rehabilitation. Therefore, there are no significant negative cumulative traffic and transport effects when considering the future works associated with EPA Licence activities and the Proposed Project.

It is not anticipated that IPC Licence ongoing site management, decommissioning works and environmental monitoring or implementation of targeted rehabilitation will give rise to significant cumulative traffic effects during the operation or decommissioning phases of the Proposed Project. As it is the intention of BnM to carry out targeted rehabilitation works under the IPC Licence, following agreement with the EPA, after the construction phase of the Proposed Project is completed, there is no potential for cumulative traffic effects to occur.

15.1.9.2 Peatland Climate Action Scheme

In 2022, PCAS selected Lodge Bog, i.e., the bog in which the Proposed Onsite Substation is located. PCAS works are completed within Lodge Bog and include hydrological management, extensive re-wetting and drain blocking, modifying outfalls, creation of berms etc.

It is anticipated that the maintenance and monitoring of PCAS in Lodge Bog will be minor. As such, cumulative traffic effects are not expected to occur during the construction, operational, or decommissioning phases of the Proposed Project.

When considered cumulatively, the Proposed Wind Farm and completed PCAS within Lodge Bog will not result in any negative cumulative effects on traffic and transport.

15.1.9.3 Gas to Bord na Móna Edenderry

A Planning application has been submitted ACP for the construction of a gas pipeline connecting the Edenderry Power Station to the Dublin to Galway pipeline. [8] From Edenderry Power Station the proposed route heads north crossing the R401 followed by the R402 west of Edenderry, both of which are Proposed Construction Haul Routes for the Proposed Project. The proposed gas pipeline project is currently anticipated to be constructed over a 22-month period commencing in Q1 2028, whereas the Proposed Project assumes an indicative construction start date of Q1 2030. As such, there is no anticipated overlap in the main construction programmes of the two developments and therefore limited potential for cumulative construction-phase effects associated with other material assets. If the construction of the gas pipeline take place at the same time as the Proposed Project careful scheduling of the relevant construction phases will be required in order to minimise the potential for cumulative impacts.

15.2 Telecommunications

15.2.1 Introduction

This section of the Material Assets chapter assesses the likely significant effects of the Proposed Project on telecommunications during the construction, operational and decommissioning phases of the Proposed Project. This section should be read in conjunction with Appendix 15-8 Telecommunications Impact Assessment Report.

Section 15.2.4 describes the way in which wind turbines can potentially interfere with telecommunications signals. Section 15.2.1.3 details the scoping process, identifying how any potential impacts will be avoided, Section 15.2.5 outlines the telecommunications impact assessment carried out for the Proposed Project, Section 15.2.8 describes the Likely future baseline, while the likely significant effects are assessed (and mitigation measures proposed) in Section 15.2.7.

15.2.1.1 Statement of Authority

This section, which includes a summary of the Telecommunications Impact Assessment (TIA) conducted by Kevin Hayes of Ai Bridges, was completed by Ciarán Fitzgerald and Catherine Johnson and reviewed by Ellen Costello and Seán Creedon, of MKO.

Ciarán Fitzgerald is an Environmental Scientist who has been working with MKO since June 2024. Ciarán holds a B.Sc. (Honours) in Marine Science from the National University of Ireland Galway and a First-Class Honours PG. Dip in Geographic Information Systems from University College Cork. Ciarán works as part of the Environmental Renewables team as well as a larger multidisciplinary team. Ciarán's role involves undertaking tasks such as report writing, EIAR chapter writing, and QGIS mapping. Prior to joining MKO, Ciarán spent time aboard the research vessel "Celtic Explorer," working as part of a team undertaking chemical water data, pelagic species abundance and sorting, bathymetric GIS mapping, data collection, and report writing. Ciarán's key strengths lie in GIS mapping and communication. Since joining the company, Ciarán has been involved in a range of projects, including onshore wind, offshore wind, and solar, contributing by reviewing EIAR chapters and assisting with project development. Ciarán holds a membership from the Institute of Sustainability and Environmental Professionals (ISEP).

Catherine is a Project Environmental Scientist at MKO with over 4 years of consultancy experience in sustainability and renewable energy. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise in

[8] https://www.edenderrygaspipeline.ie/planning-sites/edenderry-gas-pipeline

international climate law and policy, renewable energy, earth science, and sustainability/ESG processes. Catherine has a BSc in Earth and Ocean Science and an LLM in Global Environment and Climate Change Law.

Ellen is a Senior Environmental Scientist with over 6 years of consultancy experience with MKO and has been involved in a number of wind energy EIAR applications involving the compilation of numerous chapters including chapters on Material Assets. Ellen holds a BSc. in Earth Science and a MSc. in Climate Change: Integrated Environmental and Social Science Aspects.

Sean is an Associate Director in the Environment Team at MKO. He oversees a team of highly skilled environmental professionals working on EIAR for large-and medium scale Renewable Energy infrastructure. Sean has directed and overseen multiple renewable energy projects across wind, solar, battery and hydrogen as well as a range of thermal and other energy related developments. He is a member of the MKO senior management team responsible for developing the business, mentoring team members, fostering a positive culture and promoting continuous employee professional development. Sean has over 23 years' experience in program and project development, holds an MSc from NUI Galway and a Diploma in Project Management from Institute of Project Management Ireland.

Kevin Hayes is a senior radio planner / engineer with Ai Bridges and holds a B.Eng, M.Eng. in Communications & Electronic Engineering with over 30 years of experience in telecommunications network design, software modelling services and project implementation and roll-out of turnkey solutions for clients. Kevin Hayes takes overall responsibility for the approval of all Telecommunications, Aviation and Television Impact Statements provided by Ai Bridges.

15.2.1.2 Study Area

In order to assess the potential effects arising from the Proposed Project on telecommunications, a "**Telecoms Study Area**" is defined. Wind turbines can cause electromagnetic interference with telecommunications signals through obstruction, reflection, scattering, and re-radiation[9]. The Telecoms Study Area therefore identifies all telecommunications infrastructure in close proximity to the Proposed Turbines

The Telecoms Study Area is defined as the area encompassing the Proposed Wind Farm, in which the Proposed Turbines are located. Infrastructure is identified via a constrained-led approach in which telecommunication operators and available datasets are used to identify infrastructure that interacts with or that is in close proximity to the Telecoms Study Area, allowing telecommunications constraints to inform the iterative design process of the Proposed Project.

The Telecoms Study Area is limited to the Proposed Wind Farm itself as electromagnetic interference risk is highest in proximity to turbine locations. All other aspects of the Proposed Project, i.e., Proposed Grid Connection, Proposed Enhancement Areas, Proposed Construction Haul Routes and Proposed Turbine Delivery Route, are not included within the Telecoms Study Area as the temporary or localised nature of these works present no identified risks to Telecommunications.

The Telecommunications impact assessment presented in Sections 15.2.5 below for the construction, operational and decommissioning phase respectively, integrates the findings of the assessment presented below with those undertaken by Ai bridges in Appendix 15-8 Telecommunications Impact Assessment Report (hereafter the TIA) to identify and evaluate potential effects on telecommunications arising from the Proposed Project.

Figure 15-13 below identifies the Telecoms Study Area for the Proposed Project.

[9] *International Finance Corporation (IFC), 2015. Environmental, Health, and Safety Guidelines: Wind Energy. Available at: https://www.ifc.org/content/dam/ifc/doc/2010/2015-wind-energy-ehs-guidelines-en.pdf*

666000

675000

729000

720000

N

Edenderry

Parsonstown (Carbury By)

Timahoe East

Ballyhagan

Derrinturn

Dreenan

Ticknevin

Killinagh Lower

Allenwood South

Clonbullogue

Ballyteige South

Feighcullen

Newtown (ed Killinthomas)

Rathangan

R402

R441

R401

R414

R415

R442

R419

0 1.25 2.5 5 7.5 10 Kilometers

Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Legend

Telecoms Study Area

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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N

SITE LOCATION - NOT TO SCALE

Drawing Title

Telecoms Study Area

Project Title

Ballydermot Wind Farm
Co. Kildare & Co.Offaly

Project No.	Drawing No.	Scale
250708	15-13	1:90,000
Drawn By	Checked By	Date
CF	EC	04/08/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

15.2.1.3 Scoping and Consultation

As part of the EIAR scoping and consultation exercise, MKO and Ai Bridges contacted the relevant national and regional broadcasters, fixed and mobile telephone operators, and other relevant consultees. Consultation was also carried out with ComReg (Commission for Communications Regulation) in order to identify any other additional licensed operators in the vicinity of the Telecoms Study Area to be contacted.

Telecommunication operators were contacted by MKO in July 2020 (referred to below as the 'Telecoms Scoping Round 1 – 2020') and again by Ai Bridges in May 2025 (referred to below as the 'Telecoms Scoping Round 2 – 2025') in order to determine the presence of telecommunications links traversing or located in close proximity to the Telecoms Study Area. The responses received by MKO and Ai Bridges from the telecommunications consultees are detailed in Appendix 2–1 Scoping Responses and summarised below in Table 15-77. Where no response was received "N/A" is noted in the column 'Potential for Interference Following Consultation Exercise'. Please refer to Section 2.8 in Chapter 2 for further information on scoping and consultation for the Proposed Project.

A full description of the scoping and consultation exercise is provided in Section 2.8 of Chapter 2 of this EIAR.

As detailed in Section 15.2.2, a TIA was undertaken by Ai Bridges, which included for continued telecommunication consultation with relevant operators, which is clarified in Section 15.2.1.3.1, Table 15-77 below and further detailed in Section 15.2.7 and Appendix 15-8.

Table 15-77 Telecommunications Scoping Responses

Consultee	Scoping Response from Telecoms Scoping Round 1 – 2020	Potential for Interference Following Consultation Exercise	Scoping Response following Telecoms Scoping Round 2 – 2025	Potential for Interference Following Final Consultation Exercise	Action Required
2RN	Not included in Telecoms Scoping Round 1 – 2020		06.05.2025	Yes Please see Section 15.2.1.3.1 below for details of protocol agreement.	See Section 12.2.1.3.1 for further details
AirNav Ireland	Not included in Telecoms Scoping Round 1 – 2020		No Response		
Airwave	Not included in Telecoms Scoping Round 1 – 2020		06.05.2025	No identified impact	N/A
An Garda Síochána	Not included in Telecoms Scoping Round 1 -2020		No response		
Córas Impair Éireann (CIE)/ Irish Rail	Not included in Telecoms Scoping Round 1 – 2020		02.05.2025	Identifies that the Proposed Project lies within the GSM-R (mobile Network for Railways) coordination zone	The closest rail infrastructure is located over 10km from the Telecoms Study Area (approximately 10.04km to the closest turbine (T02)) therefore no impacts are anticipated and no actions are required
Coimisiún na Meán	Not included in Telecoms Scoping Round 1 – 2020		02.06.2025	No identified impact	N/A

Consultee	Scoping Response from Telecoms Scoping Round 1 – 2020	Potential for Interference Following Consultation Exercise	Scoping Response following Telecoms Scoping Round 2 – 2025	Potential for Interference Following Final Consultation Exercise	Action Required
Department of Defence (DoD)	Wasn't contacted with regards to telecoms as part of Telecoms Scoping Round 1 – 2020. The Department of Defence (DoD were contacted in relation to Aviation, please see Chapter 16 Aviation, Section 16.4.1)		19.05.2025	No identified impact in relation to Telecommunications. Please see Chapter 16 Aviation, Section 16.4.1 which details the response received in relation to Aviation.	Conditions requested, see Section 12.2.1.3.1 for further details
Eir	Received 14.07.2020 and 17.07.2020	Identified 1 no. link with potential to be affected and required 100m buffer.	02.05.2025	Identified 5 no. links with potential to be affected.	N/A – No interaction with Proposed Turbines – See Appendix 15.8 for further details
EMR Solutions	18.02.2021	No identified impact	Not included in Telecoms Scoping Round 2 -2025		
Enet	14.07.2020	Identified 1 no. link with potential to be affected and required 100m buffer. Enet also noted they intend to build more links in this area later this year and to contact them again	02.05.2025	Identified 1 no. link with potential to be affected and required 50m buffer	N/A – No interaction with Proposed Turbines – See Appendix 15.8 for further details
ESB	20.11.2020 05.01.2021	Identified 3 no. links with potential to be affected and	28.08.2025	Identified an exclusion zone in which if any turbines site within will require further detailed coordination	No interaction with Proposed Turbines – See Section 15.2.1.3.1 and

Consultee	Scoping Response from Telecoms Scoping Round 1 – 2020	Potential for Interference Following Consultation Exercise	Scoping Response following Telecoms Scoping Round 2 – 2025	Potential for Interference Following Final Consultation Exercise	Action Required
		noted separate required buffers from each link In 2021, ESB identified 3 no. point to point links, and 1 no. point to multipoint links with potential to be affected			Appendix 15.8 for further details
Imagine Broadband	14.07.2020	No identified impact	02.05.2025	No identified impact	N/A
Openeir	30.10.2020	Identified 3 no. link with potential to be affected and required 100m buffer.	Openeir links are now managed directly through Eir. See the Section on Eir above.		N/A
Ripplecom	15.07.2020 and 31.07.2020	Identified 1 no. link with potential to be affected and required 20m buffer.	Ripplecom were not contacted as part of the Telecoms Scoping Round 2 - 2025 as they have been acquired by Viatel. See Section on Viatel below.		N/A
Offaly County Council	Wasn't contacted with regards to telecoms as part of Telecoms Scoping Round 1 – 2020		No response		
Tetra Ireland	Not included in Telecoms Scoping Round 1 – 2020		02.05.2025	No identified impact	N/A

Consultee	Scoping Response from Telecoms Scoping Round 1 – 2020	Potential for Interference Following Consultation Exercise	Scoping Response following Telecoms Scoping Round 2 – 2025	Potential for Interference Following Final Consultation Exercise	Action Required
Three Ireland	16/07/2020	Identified 3 no. links with potential to be affected and required 100m buffer.	06.05.2025	Identified 4 no. links with potential to be affected and required 100m buffer.	N/A – No interaction with Proposed Turbines – See Appendix 15-8 for further details
Uisce Éireann	Wasn't contacted with regards to telecoms as part of Telecoms Scoping Round 1 – 2020		07.05.2025	No identified impact	N/A
Viatel	16/07/2020	No identified impact	02.05.2025	No identified impact	N/A
Virgin Media	06/08/2020	No identified impact	13.05.2025	Identified 8 no. links with potential to be affected	Yes, further consideration required. Please refer Section 15.2..1.3.1 below, which details the TIA undertaken by Ai Bridges (included as Appendix 15-8).
Vodafone	14/07/2021	Identified 2 no. links with potential to be affected and required buffer that ensures a minimum exclusion zone of +30m from the 1st Fresnel zone.	02/05/2025	Identified 6 no. links with potential to be affected	Yes, further consideration required. Please refer Section 15-8 below, which details the TIA undertaken by Ai Bridges (included as Appendix 15-8).

The scoping responses from the telecommunications consultees are described below. The full scoping responses received are provided in Appendix 2-1. In addition to the links with potential impacts identified in Table 15- 77, all operator links and setbacks with potential impacts were further considered and are illustrated in the TIA provided as Appendix 15-8.

15.2.1.3.1 Telecommunications Operators with Potential for Impacts

Of the scoping responses received from telephone, broadband and other telecommunications operators, those who highlighted an initial potential interference risk with infrastructure within the Telecoms Study Area are summarised below. Figure 15-14 shows all links from the Telecoms Scoping Round 2 -2025 (due to the time elapsed and the updates given from consultees in the Telecoms Scoping Round 2 -2025, links from the Telecoms Scoping Round 1 -2020 are not shown on the figure).

RTÉ Transmission Network (operating as 2RN):

A response to the Telecoms Scoping Round 2 - 2025 was received from 2RN on the 6th of May 2025. 2RN has noted their network has not changed in the area highlighted (the Telecoms Study Area). They note that they are concerned about the impact to broadcast services from Kippure and would ask that a protocol agreement be signed.

A standard Protocol Document has been prepared by 2RN for the Proposed Project. It is standard practice of 2RN to produce a Protocol Document for wind farm developments, which will be signed by the developer prior to construction. The Protocol Document ensures that in the event of any interference occurring to television or radio reception due to operation of the Proposed Wind Farm, the required measures, as set out in the Protocol Document, will be carried out by the developer to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of unanticipated broadcast interference arising to television or radio reception as a result of the Proposed Wind Farm.

Córas Impair Éireann (CIE)

The CIE were not contacted as part of Telecoms Scoping Round 1 - 2020.

Córas Iompair Éireann responded on the 2nd of May 2025 to the Telecoms Scoping Round 2 -2025, noting that the Proposed Wind Farm lies within the GSM-R (Mobile Network for Railways) coordination zone.

CIE note that from a study carried out by the ANFR (Agence Nationale des Frequences in France), the output calls for 2 no. main recommendations by defining 2 no. main zones as follows:

1. *Exclusion zone: wind farm not less than 5 Km from antenna*
2. *Coordination zone: : 5Km<wind farm <30Km: this area, coordination between operators is required to fix any issue and impact on the signal propagation*

The closest rail infrastructure is located over 10km from the Telecoms Study Area (approximately 10.4km at its closest Proposed Turbine (T02)) and at this distance there will be no impact to the GSM-R network, however the Applicant is cognisant of the recommendations outlined above.

Department of Defence (DoD)

The DoD wasn't contacted with regards to telecoms as part of Telecoms Scoping Round 1 – 2020 however the DoD were contacted by MKO through general scoping on the 2nd of February 2021. A response was received on the 1st of March 2021. This response relates to aviation and is further detailed in Chapter 16. Aviation of the EIAR.

The DoD responded on the 19th of May 2025 to the Telecoms Scoping Round 2 -2025. The DoD didn't note any issues regarding transmission links however the DoD made a number of observations regarding aviation lighting which are summarised below and further detailed in Chapter 16 Aviation:

> *"All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light".*

In response to the lighting requirements requested by the DoD, the Proposed Turbines will be included on mapping, fitted with obstruction lighting and entered into aircraft navigation databases to ensure they will be avoided during flight.

A dedicated meeting was held with the DoD on 19th May 2026 with the Applicant, members of the Project Team, the DoD, and a representative from the Irish Air Corp in attendance. This meeting focused on potential impacts to aviation and is detailed further in Section 16.4.2 of Chapter 16 Aviation.

Eir and Openeir

Eir and Openeir are separate divisions of the same telecommunications group in Ireland. Both divisions were contacted separately as part of the Telecoms Scoping Round 1 - 2020. Eir replied on the 17th of July 2020 noting one transmission link. Table 15-78 outlines Eir Links identified by the operator during Telecom Scoping Round 1 -2020.

Table 15-78 Eir Links (Telecoms Scoping Round 1 - 2020)

Link	Description	Co-ordinates	
		Site A	Site B
1	Link 1	53°17'41.80"N 7° 4'55.84"W	53°21'21.15"N 6°58'14.85"W

Openeir replied on the 2nd of November 2020 to the Telecoms Scoping Round 1 - 2020. Openeir identified 3 links. Table 15-79 outlines Openeir Links identified by the operator during Telecom Scoping Round 1 -2020.

15-79 Openeir Links (Telecoms Scoping Round 1 - 2020)

Link	Description	Co-ordinates	
		Site A	Site B
L9462/1	Dunmurray Hill to Castlejordan	53 11 54.14N 6 55'57.48W	53 23'48.86N 7 7'3.40W
PP20392/1	Dunmurray Hill to Edenderry	53 11 54.14 6 55 57.48 W	53 20 10.71N 7 3 35.11W

LPP18261	Dunmurray Hill to Clonbullogue	53 11 54.14 6 55 57.48 W	53 15 42.78N 7 5 6.46W

As part of the Telecoms Scoping Round 2 -2025, Openeir and Eir were contacted through one contact under Eir. A reply was received on 2nd of May 2025 identifying 3 fixed network links and 2 mobile network links. Table 15-80 and Table 15-81 outlines Eir Links identified by the operator during Telecom Scoping Round 2 -2025.

Table 15-80 Eir fixed network links (Telecoms Scoping Round 2 - 2025)

Link	Description	Link Type	Co-ordinates		Antenna Heights		Link Distance	Freq used in Calculations for Fresnel Zone
			Site A	Site B	Site A	Site B		
Eir_L1	Dunmurry Hill - Castlejordan	PTP	53 11 55.12 N 06 56 00.84 W	53 23 49.63 N 07 07 06.54 W	37.5m	7m	25.3 km	11 GHz
Eir_l2	Dunmurry Hill - Edenderry Garda Stn	PTP	53 11 55.12 N 06 56 00.84 W	53 20 11.42 N 07 03 38.24 W	37.5m	24m	17.5 km	11 GHz
Eir_L3	Dunmurry Hill - Clonbullouge	PTP	53 11 55.12 N 06 56 00.84 W	53 15 43.41 N 07 05 09.36 W	37.5m	10m	12.4 km	11 GHz

Table 15-81 Eir Mobile network Links (Telecoms Scoping Round 2 - 2025)

Link	Description	Link Type	Co-ordinates		Antenna Heights		Link Distance	Freq used in Calculations for Fresnel Zone
			Site A	Site B	Site A	Site B		
Eir_L4	Edenderry P.S. - Carbury	PTP	53 17 41.82 N 07 04 56.17 W	53 21 21.15 N 06 58 14.85 W	26.5m	12m	10.0 km	13 GHz
Eir_L5	Edenderry P.S. - Togher	PTP	53 17 41.82 N 07 04 56.17 W	53 20 11.03 N 07 15 26.92 W	26m	23m	12.55 km	11 GHz

These links were further considered in the TIA conducted by Ai Bridges (Appendix 15-8), The TIA identifies that T06 would be relatively near to two of the Eir microwave radio links (Eir_L1 (124m from T06) and Eir_L2 (153m from T06)) no potential impacts were identified as further detailed in Section 0 below.

Enet

Enet replied to the Telecoms Scoping Round 1 -2020 on the 14th of July 2020, Enet identified one link that passes through the Telecoms Study Area. Table 15-82 outlines Enet Links identified by the operator during Telecom Scoping Round 1 -2020.

Table 15-82 Enet Links (Telecoms Scoping Round 1 - 2020)

A-End Coordinates	A-End Antenna Height	B-End Coordinates	B-End Antenna Height	Frequency
53°10'40.98"N 6°19'53.64"W	15m	53°16'14.66"N 6°56'59.81"W	12m	7GHz

As part of the Telecoms Scoping Round 2 -2025 Enet replied on the 2nd of May 2025 and identified only one link, which differs from the link above. Table 15-83 outlines Enet Links identified by the operator during Telecom Scoping Round 2 -2025.

Table 15-83 Enet Links (Telecoms Scoping Round 2 - 2025)

Link Name	A-End Coordinates	A-End Antenna Height	B-End Coordinates	B-End Antenna Height	Frequency	Buffer
RTE Kippure - SCP0087 - Lullymore Heritage Park	53.178050 -6.331566	20m	53.270739 -6.949947	12m	7GHz	50m

These links were further considered in the Telecommunications Impact Assessment conducted by Ai Bridges (Appendix 15-8). The closest turbine to the Enet Link is T01 and is located approximately 1.5km away from any Enet telecommunications infrastructure. No potential impacts were identified as further detailed in Section 0 below

ESB

A response to the Telecoms Scoping Round 1 - 2020 was received from ESB on the 23rd of November 2020 identifying 3 point to point radio links and 1 point to multipoint radio link as identified below. ESB requested a clearance zone from the 2nd Fresnel zone plus 150m.

PtP Link 1: Carbury to Kilcumber 110kV

- Site A: Carbury Hillsite / 8m AGL / 117m ASL / 53.355842 -6.970762 / TX 11465MHz
- Site B: Kilcumber 110kV / 36m AGL / 72m ASL/ 53.289091 -7.092573 / TX 10975MHz

PtP Link 2: Carbury to Ballyoskill

- Site A: Carbury Hill site / 8m AGL / 117m ASL / 53.355842 -6.970762 / TX 7526MHz
- Site B: Ballyoskill Hillsite 110kV / 36m AGL / 72m ASL/ 52.835216 -7.295671 / TX 7624MHz

PtP Link 3: Carbury to Turlough Hill

- Site A: Carbury Hill site / 8m AGL / 117m ASL / 53.355842 -6.970762 / TX 7470MHz

- Site B: Kilcumber 110kV / 36m AGL / 72m ASL/ 53.029880 -6.411684 / TX 7624MHz

PtMP Link 1: Carbury to Cushaling 110kV

- Site A: Carbury Hillsite / 10m AGL / 117m ASL / 53.355842 -6.970762 / TX 458MHz
- Site B: Kilcumber 110kV / 8m AGL / 67m ASL/ 53.289372, -7.084755/ TX 458MHz

With regards to the Telecoms Scoping Round 2 - 2025, ESB responded on the 28th of August 2025. ESB didn't identify any links, but did identify an exclusion zone in which to be avoided by proposed infrastructure to avoid any interference with their links. The exclusion zone can be seen in Section 3.1.10 of Appendix 15-8.

The exclusion zone and links were further considered in the TIA conducted by Ai Bridges (Appendix 15-8) and is considered further below in Section 15.2.7. T27 is the closet turbine to any ESB radio links however T27 will not obstruct the Fresnel Zone of any ESB link and no potential impacts were identified as further detailed in Section 15.2.7 below

Ripplecom

Ripplecom replied on the 15th of July 2020 as part of the Telecoms Scoping Round 1 - 2020. Ripplecom identified one link from Grangecommon to Rossderra Meats in Edenderry GPS Grange 53.206688 - 6.913814. at a height of 2 metres above ground level. Rossderra Meats GPS 53.349769 -7.049729 at a height of 10 metres above ground level. Ripplecom identified that this was a 17GHz PTP link and requested a 20m buffer plus the radius of the turbine blades.

Ripplecom were not contacted as part of the Telecoms Scoping Round 2 - 2025 as Ripplecom have since been acquired by Viatel. Viatel noted no anticipated impacts to any of their links in their reply to the Telecoms Scoping Round 2 - 2025 on the 2nd of May 2025. It is therefore assumed that the above Ripplecom link has been decommissioned.

Three Ireland

Three Ireland replied to the Telecoms Scoping Round 1 - 2020 on the 16th of July 2020 identifying 3 no. links and traversing the Telecoms Study Area. The operator requested a setback of 100m for all links. These links are detailed in the table below; Table 15-84 outlines Three Links identified by the operator during Telecom Scoping Round 1 -2020.

Table 15-84 Three Links (Telecoms Scoping Round 1 - 2020)

Link no.	Link Ref	Site A	X	Y	Site B	X	Y
1	ML016076	OF0003	261743	232851	KD0157	274628	227022
2	ML020274	OF0003	261743	232851	OF0076	261077	223562
3	ML020331	OF0076	261077	223562	KD0213	266770	220331

A response to the Telecoms Scoping Round 2 - 2025 on the 6th of May 2025 identified that link 1 is still active while link 2 and link 3 have been decommissioned. The response also identified 3 new links. The operator requested a 20m buffer from the blade tip. Table 15-85 outlines Three Links identified by the operator during Telecom Scoping Round 2 -2025.

Table 15-85 Three Links (Telecoms Scoping Round 2 - 2025)

Link no.	Link Ref	Freq.	Site A	X	Y	Dish Height	Site B	X	Y	Dish Height
1	ML016076	18GHz	OF0003	261743	232851	30m	KD0157	274628	227022	29m
2	ML020859	26GHz	OF0003	261743	232851	30m	OF0108	261317	224051	26m

3	ML020331	26GHz	OF0108	261317	224051	26m	KD0213	266770	220331	29m
4	ML020522	18GHz	OF003	261743	232851	30m	OF0105	261243	227548	30m

These links were further considered in the TIA conducted by Ai Bridges (Appendix 15-8). T30 is the nearest link to any Three radio links (249m from T30), T30 will not obstruct the Fresnel Zone of any Three links, therefore no potential impacts were identified as further detailed in Section 0 below.

Virgin Media

Virgin Media replied on 6th of the August 2020 to the initial scoping request sent by MKO during the Telecoms Scoping Round 1 - 2020, noting that they had no radio links running through the Telecoms Study Area.

A further response was received to the Telecoms Scoping Round 2 - 2025 on the 13th of May 2025, now noting that Virgin Media have 8 links within or in close proximity to the Telecoms Study Area.

- VM_L1 – PTP Microwave Radio Link from Rochfortbridge Convent to VM Dunmurry
- VM_L2 – PTP Microwave Radio Link from Gaelscoil Eadan Doire to VM Dunmurry
- VM_L3 – PTP Microwave Radio Link from Oaklans Community College to VM Dunmurry
- VM_L4 – PTP Microwave Radio Link from Saint Marys Secondary School to VM Dunmurry
- VM_L5 – PTP Microwave Radio Link from St. Etchens N.S to VM Dunmurry
- VM_L6 – PTP Microwave Radio Link from Cloch Rinnce N.S to VM Dunmurry
- VM_L7 – PTP Microwave Radio Link from Johnstown Est Hotel to VM Dunmurry
- VM_L8 – PTP Microwave Radio Link from Irish Explosives to VM Dunmurry

Links VM_L2, VM_L5 and VM_L6 were identified within Appendix 15-8 to have direct impacts with Proposed Turbines and are assessed further in Section 15.2.7.

Vodafone Ireland

Vodafone Ireland replied to the Telecoms Scoping Round 1 - 2020 on the 14th of July 2020, noting two links running through the Telecoms Study Area. Vodafone requested a minimum exclusion zone of +30m from the 1st Fresnel zone be maintained. Table 15-86 outlines Vodafone Links identified by the operator during Telecom Scoping Round 1 -2020.

Table 15-86 Vodafone Links (Telecoms Scoping Round 1 - 2020)

LinkID	Radio Config Status	BW + Ref Mod	FreqBand	LowerModulation	UpperModulation	Max Ethernet Capacity (Mbps)	B-End IDU
KEDMHINOY020_S0	radio 1+0	bw14MHz-4QAM	15GHz	4QAM	256QAM	85	INOY02070
KE013KE012_S0	radio XPIC single pipe	bw56MHz-16QAM	18GHz	4QAM	256QAM	682	KE012700

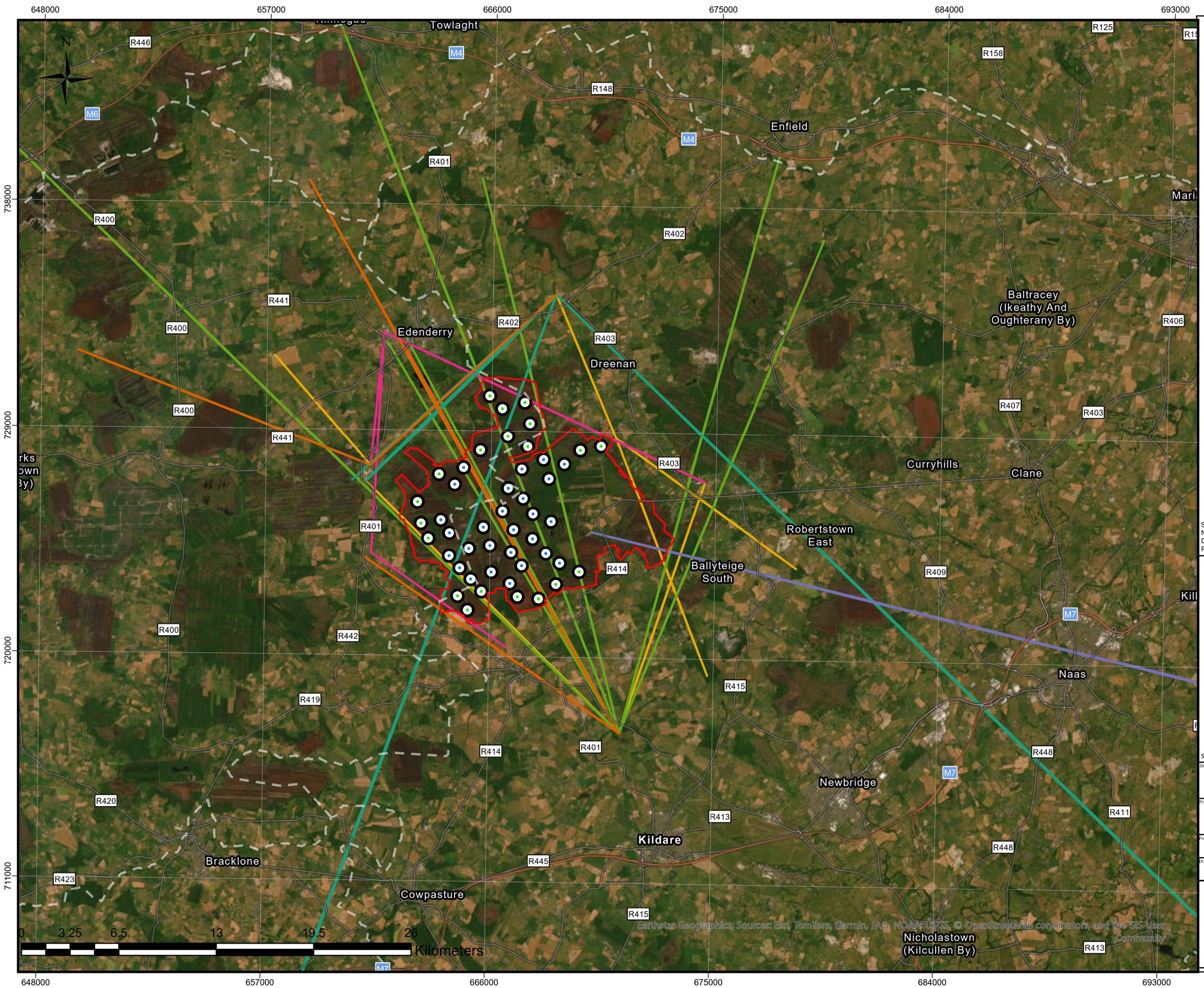
A response to Telecoms Scoping Round 2 - 2025 was received from Vodafone Ireland on the 2nd of May 2025. This response identified six links within or in close proximity to the Telecoms Study Area and did not request any associated buffer. One link (KEDMHINOY020_S0) is still live from when the

Telecoms Scoping Round 1 - 2020 was complete and the second link wasn't included, so it's assumed that the second link is now decommissioned. Table 15-87 outlines Vodafone Links identified by the operator during Telecom Scoping Round 2 -2025.

Table 15-87 Vodafone Links (Telecoms Scoping Round 2 - 2025)

Link Name/ ID	Band GHz	Link Length (km)	Site A			Site B		
			Northing (Irish Grid)	Easting (Irish Grid)	Ant Height (m)	Northing (Irish Grid)	Easting (Irish Grid)	Ant Height (m)
KE012-KE013	18.000	8.894	228736.00	271054.00	15.00	223632.00	278338.00	15.00
KEDMH-OY020	15.000	14.604	216953.00	271317.00	30.00	227267.52	260978.39	30.00
KE120-KEDMH	18.000	10.603	227025.00	274631.00	25.00	216953.00	271317.00	35.00
KE089-KE012	18.000	10.169	219294.00	274833.00	24.00	228736.00	271054.00	20.00
KE012-KE114	26.000	6.200	228736.00	271054.00	22.00	234421.00	268578.00	7.00
OY030-OY042	26.000	5.839	231903.00	257364.00	31.00	227541.00	261246.00	52.87

These links were further considered in the Telecommunications Impact Assessment conducted by Ai Bridges (Appendix 15-8). The nearest turbine to any Vodafone radio links is T12 (205m from T12), however T12 does not obstruct the Fresnel Zone of any Vodafone links, therefore no potential impacts were identified as further detailed in Section 15.2.5 below.

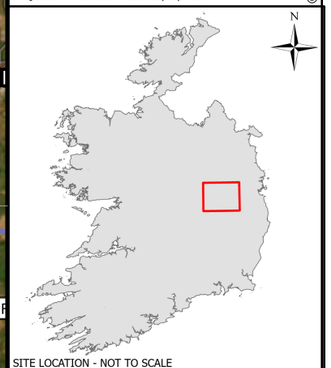


Legend

- Telecoms Study Area
- 220
- 200
- ESB
- Eir
- Enet
- Three
- Virgin Media
- Vodafone

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere



SITE LOCATION - NOT TO SCALE

Drawing Title
Telecoms Network at the Telecoms Study Area

Project Title
Ballydermot Wind Farm
Co. Kildare & Co.Offaly

Project No.	Drawing No.	Scale
250708	15-14	1:230,000
Drawn By	Checked By	Date
CF	EC	05/08/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

15.2.2 Methodology

This section of the assessment focuses particularly on the scoping and consultation exercise conducted with telecommunications operators. Telecommunications operators were contacted between 2020 and 2025 in order to determine the presence of telecommunications links within the Telecoms Study Area. Scoping was carried out in line with the EPA Guidelines (EPA, 2022)[10], and the "*Best Practice Guidelines for the Irish Wind Energy Industry*" (Irish Wind Energy Association, 2012)[11] which provides a list of telecommunications operators for consultation. In addition to this, consultation was also carried out with Commission for Communications Regulation (ComReg) in order to identify any other additional licensed operators in the vicinity of the Project Site to be contacted, who may not have been on the list of main operators.

A full description of the scoping and consultation exercise is provided in Section 2.8 of Chapter 2 of this EIAR. Consultation with the telecommunications operators informed the constraints mapping process, which in turn informed the layout of the Proposed Wind Farm, as described in Chapter 3, Section 3.2.5.3.2 of the EIAR.

Following the scoping and consultation exercise undertaken, Ai Bridges was engaged to carry out a Telecommunications Impact Assessment for the Proposed Project, which is included as Appendix 15-8. The Telecommunications Impact Assessment undertaken by Ai Bridges included detailed technical desktop analysis as well further consultation with the telecommunications operators engaged with during the scoping exercise. Using the technical information obtained during the desktop survey assessments and consultation process, a telecommunications impact analysis was carried out utilising radio planning/modelling software. Further detail on the methodology for the Telecommunications Impact Assessment is included in Appendix 15-8.

The assessment of likely significant effects on telecommunications uses the standard methodology and classification of impacts as presented in Section 1.8.3 of Chapter 1 of this EIAR.

15.2.3 Legislation, Policy and Guidance

This section has been carried out in accordance with the 'EIA Directive' as mended by Directive 2014/52/EU and having regard, where relevant, to guidance and policy documents listed below:

- Offaly County Development Plan 2021-2027 (Offaly County Council, 2021)[12],
- Kildare County Development Plan 2023-2029 (Kildare County Council, 2023)[13]
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022),
- Best Practice Guidelines for the Irish Wind Energy Industry (Irish Wind Energy Association, 2012),
- Wind Energy Development Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, 2006), hereafter referred to as the WEDG 2006[14],

[10] *EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf*
[11] *Irish Wind Energy Association, 2012. Best Practice Guidelines for the Irish Wind Energy Industry. Available at: https://windenergyireland.com/images/files/9660bdfb5a4f1d276f41ae9ab54e991bb600b7.pdf*
[12] https://www.offaly.ie/stage-4-final-plan/
[13] https://kildarecoco.ie/AllServices/Planning/DevelopmentPlans/KildareCountyDevelopmentPlan2023-2029/
[14] *DEHLG, 2006. Wind Energy Development Guidelines (https://assets.gov.ie/static/documents/wind-energy-development-guidelines-2006.pdf)*

- Draft Revised Wind Energy Development Guidelines for Planning Authorities (Department of Housing, Planning and Local Government, 2019), hereafter referred to as the Draft WEDG 2019[15],
- Code of Practice for Avoiding Danger from Overhead Electricity Lines (ESB Networks, 2019)[16],
- EMF & You: Information about Electric & Magnetic Fields and the Electricity Network in Ireland (ESB, 2017)[17],

15.2.4 Baseline Environment

15.2.4.1 Broadcast Communications

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path.

15.2.4.2 Domestic Receivers

Depending on local topography, a domestic receiver may receive broadcast signals from more than one location. The strength of the signals varies with distance from the transmitter, and the receiver's antenna is generally always directed towards the most local, and usually strongest, broadcasting station.

There are two types of potential electromagnetic interference to domestic receivers, depending on the location of the receiver in relation to a wind farm. 'Shadowed' houses are located directly behind a wind farm, relative to the location from where the signal is being received. In this case, the main signal passes through the wind farm and the rotating blades can create a degree of signal scattering. In the case of viewers located beside the wind farm (relative to the broadcast signal direction), the effects are likely to be due to periodic reflections from the rotating blades, giving rise to a delayed signal.

In both cases, i.e., shadowed houses located behind the wind farm and those located to the side of it, the effects of electromagnetic interference may depend to some degree on the wind direction, since the plane of rotation of the rotor will affect both the line-of-sight blockage to viewers located behind the wind farm and the degree of reflection to receivers located to the side.

15.2.4.3 Other Signal Types

Wind turbines have the potential to affect other signal types used for communication and navigational systems, for example telecommunication tower-to-tower microwave communication links, and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. These effects can be avoided through design or dealt with by detailed micro-siting of turbines in order to avoid alignment with signal paths or by the use of repeater relay links out of line with the wind farm. Any impacts on Aviation Assets or Radar are assessed in Chapter 16 Aviation

[15] *DHPLG, 2019. Draft Revised Wind Energy Guidelines (https://assets.gov.ie/static/documents/draft-revised-wind-energy-development-guidelines-december-2019-385c92c2-16f9-4511-80bf.pdf)*
[16] *ESB Networks, 2019. ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines (https://www.esbnetworks.ie/docs/default-source/publications/code-of-practice-for-avoiding-danger-from-overhead-electricity-lines.pdf)*
[17] *ESB Networks, 2017. EMF & You, Information about Electric & Magnetic Fields and the electricity network in Ireland (https://esbnetworksprdsastd01.blob.core.windows.net/media/docs/default-source/publications/esb-networks-electrical-and-magnetic-fields-.pdf?sfvrsn=43304888_0)*

15.2.4.4 Electromagnetic Interference

15.2.4.4.1 *National Guidelines*

Both the WEDG 2006 and the Draft WEDG 2019 state that interference with broadcast communications can be overcome by the installation of deflectors or repeaters where required.

Developers are advised to contact individual local and national broadcasters and mobile phone operators to inform them of proposals to develop wind farms. Section 15.2.1.3 details the consultation that has been carried out by MKO in July 2020 (with further consultation carried out by Ai Bridges in May 2025 in the context of previous consultation by MKO) as part of the assessment of the Proposed Project as summarised below in Section 15.2.5 and Section 15.2.7. The layout and design of the Proposed Project have taken into account nearby telecommunications links.

15.2.4.4.2 *ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland'*

All electricity, both natural and man-made, produces two types of fields: electric fields and magnetic fields which are referred to as EMF. Magnetic-field strength is expressed in microtesla (μT), a unit of magnetic flux density. Two types of technology can be used to transmit electricity, alternating current (AC) and direct current (DC). Both AC and DC power lines produce electric and magnetic fields. AC lines produce AC electric and magnetic fields and DC lines produce static electric and magnetic fields. ESB Networks transmission and distribution networks are AC systems. Please see Figure 15-15 reproduced from the 2017 ESB information booklet which demonstrates the alternating magnetic field of AC overhead lines and underground cables. As can be seen in Figure 15-16 below, EMF from 220kV overhead lines and underground cables diminishes quickly with distance from the potential impacted receptor, with EMF from overhead 220kV cables, diminishing from 7μT to 5μT at 10 m away from the cable and 2μT at 20 m away from the cable; EMF reduces to almost 0μT at 30 m. Similarly, EMF from underground 220kV cables, diminishing from. 8μT to 1μT at 10m away from the cable and >1μT at 20 m away from the cable; EMF reduces to almost 0μT at 30 m. At sufficiently high levels, extremely low-frequency magnetic fields can induce electrical currents within the body, potentially resulting in nerve or muscle stimulation or minor sensory effects. However, the magnetic-field strengths associated with the electricity infrastructure shown in Figure 15-15 are well below the EU public-exposure reference level of 100 μT. Accordingly, no known adverse health effects are expected at nearby sensitive receptors[18]

[18] https://www.epa.ie/environment-and-you/radiation/emf/emf-monitoring-programme/static-and-elf-emf-monitoring-programme/

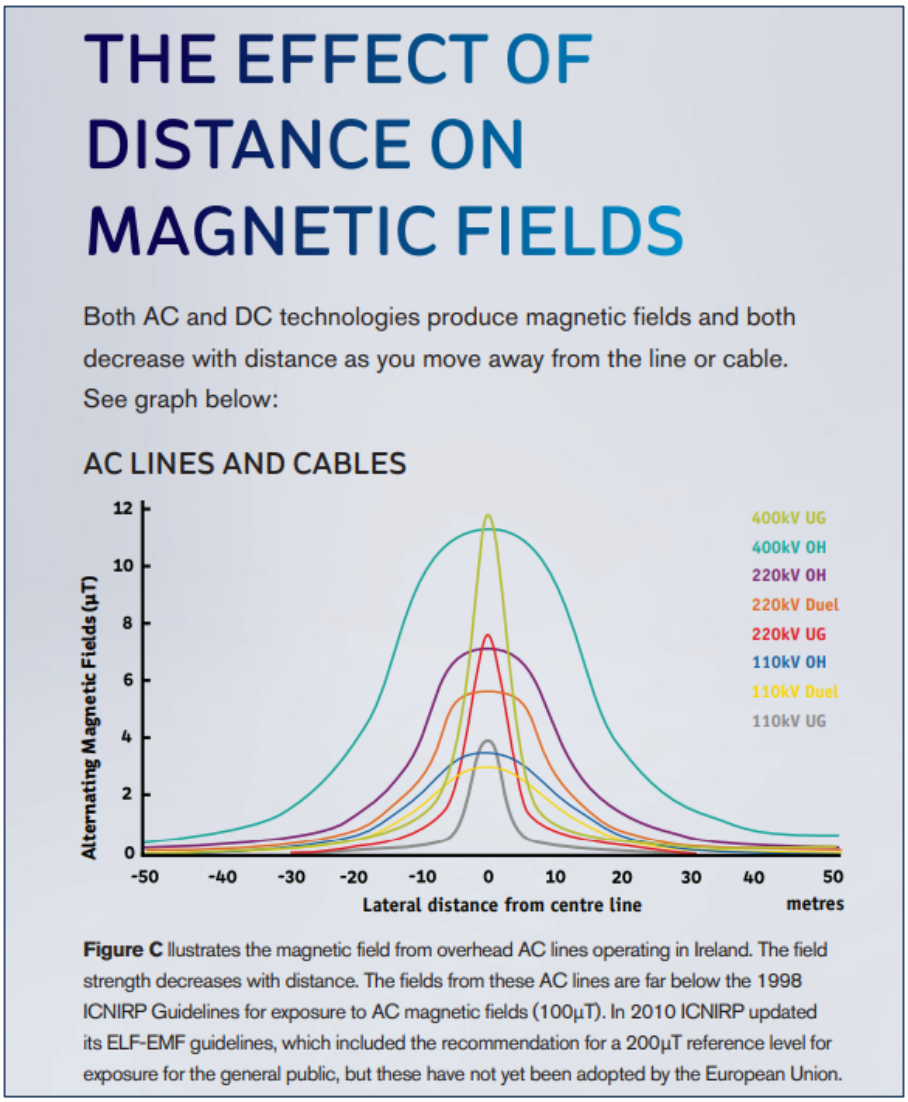


Figure 15-15 The magnetic field from overhead AC lines operating in Ireland

15.2.5 Telecommunications Impact Assessment

Following the scoping and consultation exercises undertaken in 2020 and 2025 by MKO and Ai Bridges, Ai Bridges was engaged to carry out a Telecommunications Impact Assessment for the Proposed Project, which is included as Appendix 15-8. Appendix 15-8 details the field and desktop surveys undertaken to determine if telecommunications network infrastructure, notably those highlighted in the MKO and Ai Bridges telecoms scoping exercise, would be impacted by the Proposed Turbines.

The Telecommunications Impact Assessment identified 28 radio links that cross over/through or are in close proximity to the Telecoms Study Area. Only 3 no. of these links was identified as being likely to be impacted by the Proposed Turbines. These links are detailed in Section 15.2.1.3.1 above and summarised below;

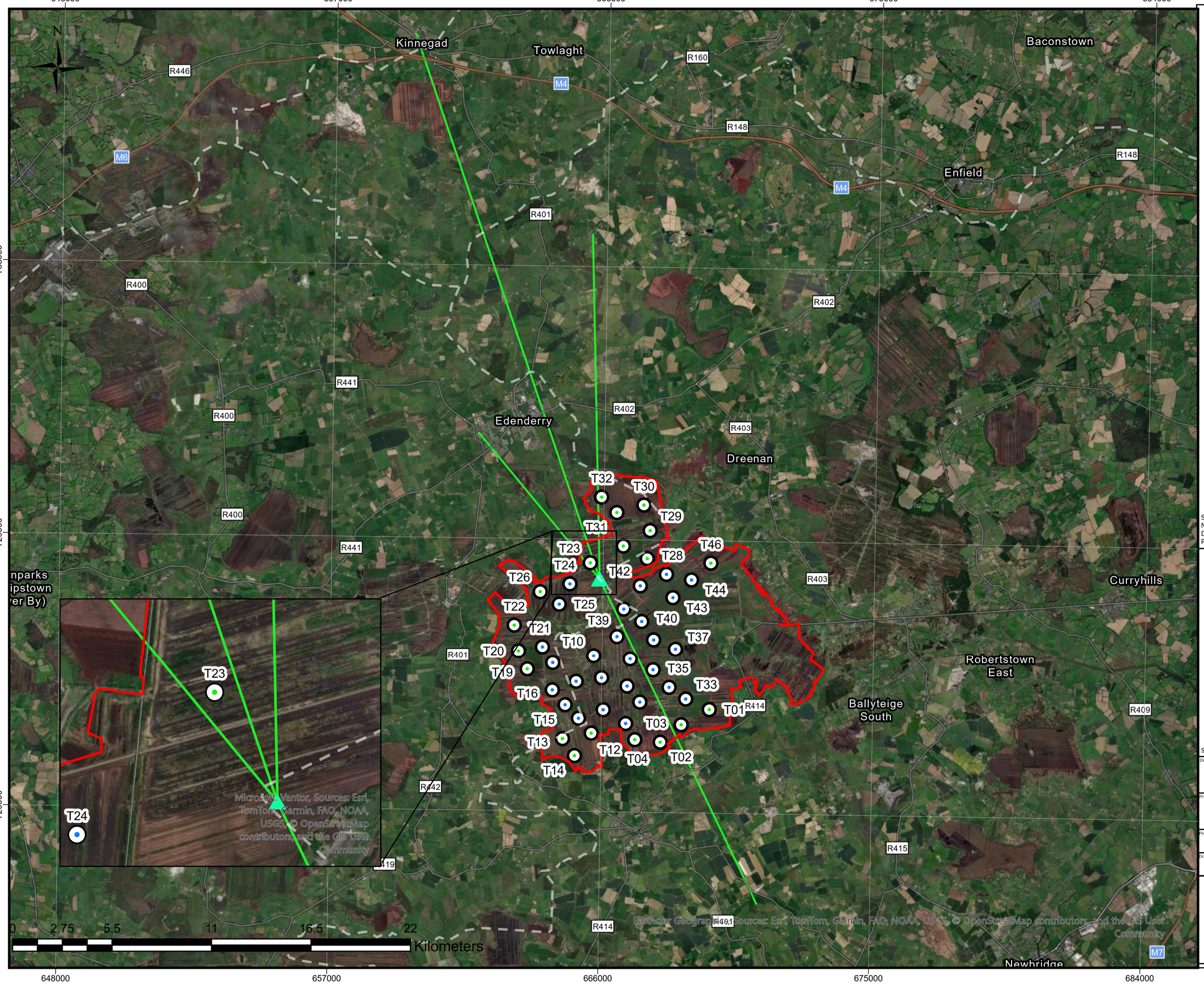
- Virgin Media – VM_L2 – Gaelscoil Eadan Doire to VM Dunmurry
- Virgin Media – VM_L5 – St. Etchens NS to VM Dunmurry
- Virgin Media – VM_L6 – Cloch Rinnce NS to VM Dunmurry

To offset any potential impacts due to the Proposed Turbines on the Virgin Madia radio network the TIA identifies three different mitigation options as detailed below:

- Re-route the impacted radio links via an alternative Virgin Media Point of Presence (POP) site.
- Relay the impacted radio links via a relay-mast located within the Proposed Wind Farm site.
- Replace the impacted radio links with fibre broadband connections.

The TIA provides an assessment of these mitigation solutions. Following detailed review the provision of a relay mast was deemed the preferred option and progressed for assessment. The location of the relay mast was carefully selected to consider topography, turbine density and existing wind farm developments. A figure outlining how the Virgin Media Links will be relayed can been seen within the TIA in Figure 15-16.

Figure 15-16 shows the direction of the Virgin Media Links following relay mitigation.

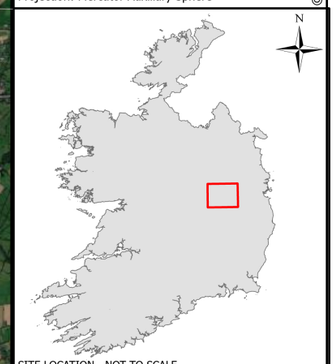


Legend

- Telecoms Study Area
- Proposed Relay Mast
- 220
- 200
- Mitigated Virgin Media Network

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
Proposed Mitigation for the Virgin Media Network

Project Title
Ballydermot Wind Farm
Co. Kildare & Co.Offaly

Project No.	Drawing No.	Scale
250708	15-16	1:192,000
Drawn By	Checked By	Date
CF	EC	30/09/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

15.2.6 Likely Future Receiving Environment

This section considers the future receiving environment relating to telecommunications likely to exist at the Proposed Wind Farm site at the commencement of the construction phase. In accordance with the approach set out in Section 1.8.4 in Chapter 1, the assessment utilises the information presented in the baseline environment, Section 15.2.4 above, and uses any observed change over the survey period to inform, the likely future receiving environment.

The Project Site is located predominantly on former industrial peat extraction lands within the Allen Bog Group. Industrial peat extraction ceased in June 2020. Since then, environmental conditions across these lands have continued to develop through natural revegetation, alongside ongoing site management, decommissioning works, environmental monitoring undertaken in accordance with IPC Licence P0503-01.

These changes relate primarily to ground-level conditions and would not alter the location, function or operational characteristics of the telecommunications asset present within the Telecoms Study Area and associated activities established in Section 15.2.4 above. The continued natural revegetation, and the continuation of existing site management and environmental monitoring, would not introduce structures at height or other physical features capable of affecting the telecommunications network present within the Telecoms Study Area.

Accordingly, the likely future receiving environment at commencement of the construction phase will remain materially comparable to the existing baseline environment with respect to telecommunications.

The assessment of likely significant effects presented in Section 15.2.7 has therefore been undertaken against this likely future receiving environment. As the conditions predicted at commencement of construction are materially comparable to those described in the existing telecommunications baseline environment, the information presented in Section 15.2.7 remains representative of the telecommunications receiving environment against which the Proposed Project is assessed

15.2.6.1 Future Environmental Trends

This section identifies the future environment trends relating telecommunications likely to exist within the Telecoms Study Area following implementation of targeted rehabilitation works within the Draft Rehabilitation Plans throughout the operational phase.

Continued natural revegetation, ongoing site management and environmental monitoring, and implementation of the Draft Rehabilitation Plans are not anticipated impact the telecommunications network identified within the Telecoms Study Area. There is therefore no pathway through which these processes could materially alter future environmental trends relating to telecommunications.

Accordingly, notwithstanding the continued natural revegetation, and implementation of the Draft Rehabilitation Plans, the future environmental trends of the receiving environment for telecommunications will remain materially comparable to the telecommunications conditions described above and do not require separate consideration elsewhere in the telecommunications impact assessment.

The continuation of the aforementioned activities in the absence of the Proposed Project is considered in the Do-Nothing Scenario in Section 15.2.7.1 and in the cumulative assessment in Section 15.2.7.5.

15.2.7 Likely Significant Effects and Associated Mitigation Measures

The below assessment evaluates the impact (where there is the potential for an impact to occur) on telecommunications during the construction, operation and decommissioning phases of the Proposed Project.

15.2.7.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, there would be no change to existing telecommunications operations in the area and no potential to impact on the identified Virgin Media telecommunication links.

If the Proposed Project were not to proceed, the Proposed Wind Farm site would continue to be managed under the requirements of the IPC licence (P0503-01) and therefore the ongoing decommissioning works, site management and environmental monitoring would continue. The lands required for the Proposed Project not located within lands under IPC License, would continue to function as it does at present, with no changes to the current land-use and or telecommunication network.

Therefore, under a 'Do-Nothing' scenario, the Proposed Wind Farm site would continue to be managed as per the requirements of the IPC licence as detailed in Chapter 4 section 4.6.7. These rehabilitation works are mandatory and will proceed irrespective of whether the Proposed Project is permitted, in order to ensure compliance with the IPC Licence.

If the Proposed Project were not to proceed, the opportunity to capture a significant part of County Offaly's, County Kildare's, and Ireland's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

15.2.7.2 Construction Phase

The potential for electromagnetic interference from the Proposed Turbines occurs during the operational phase of the Proposed Project. There are no electromagnetic interference impacts for telecommunications or operations associated with the construction phase of the Proposed Project, and therefore no mitigation required. A turbine can potentially affect telecommunications as soon as its structure enters a radio path, even before it is commissioned or the blades begin rotating. Potential impacts during turbine erection and commissioning are assessed in the operational phase impact assessment as the impacts are considered to be the same.

15.2.7.3 Operational Phase

15.2.7.3.1 *Telecommunications*

Pre-Mitigation Impact

Proposed Project

Consultation regarding the potential for electromagnetic interference from the Proposed Wind Farm was carried out with the relevant national and regional broadcasters, fixed line and mobile telephone

operators and other operators. All identified links are detailed above in Section 15.2.1.3 including operator request (e.g 2rn protocol agreement request).

Virgin Media

Without mitigation, impacts are anticipated to 3 no. existing Virgin Media telecommunications links (VM_L2, VM-L5, and VM_L6). This would have a long-term, moderate negative impact on the Virgin Media telecommunications links, which is Not Significant, in the absence of mitigation.

ESB Network

As part of Telecoms Scoping Round 2 -2025, ESB Networks identified an exclusion zone associated with its radio communications network but did not provide details of the individual radio links within this zone.

During Telecoms Scoping Round 1 - 2021, ESB Networks provided details of its existing radio links. The assessment of these links confirmed that no impacts on the ESB Networks radio communications network were anticipated as a result of the Proposed Project.

In the event that a new radio links have been established within the exclusion zone, under a theoretical precautionary scenario, there is potential for a long-term, moderate, negative impact on the ESB Networks radio communications network

Mitigation Measures

Virgin Media

A Telecommunications Relay Mast is proposed as part of the Proposed Project. A relay mast is a specialised radio tower used to re-route blocked line-of-sight signals, transmit operational data, and maintain critical site connectivity. As noted in Appendix 15-8, and Section 15.2.5, the relay mast is carefully positioned to account for existing topography, Proposed Turbines and cumulative developments, i.e., the existing Cushaling Wind Farm, to mitigate any impacts to the existing Virgin Media Network. Please see Appendix 15-8 for further details.

The Applicant will engage with Virgin Media prior to the commencement of construction to confirm the mitigation strategy.

ESB Network

The Applicant will engage with ESB Networks prior to the commencement of construction to confirm whether any additional radio links have been established within the identified exclusion zone.

Where additional radio links are identified that may be affected by the Proposed Project, the Applicant will liaise with ESB Networks to identify and agree appropriate mitigation measures to avoid or minimise potential interference with its telecommunications network. Any mitigation measures will be agreed with ESB Networks and implemented prior to the erection of the relevant turbines.

2RN

A standard Protocol Document will be prepared by 2RN for the Proposed Project. It is standard practice of 2RN to produce a protocol document for wind farm developments, which will be signed by the developer prior to construction. The Protocol Document is further detailed in Section 15.2.1.3.1 above.

Residual Effects

The Proposed Project will have a long-term, not significant, neutral effect on the telecommunications signals due to the achieved setbacks from links and mitigation identified above.

Significance of Effects

The effect on telecommunications from the Proposed Project during the operational phase is Not Significant.

15.2.7.4 Decommissioning Phase

As stated in Section 15.2.4.4 above, the potential for electromagnetic interference from wind turbines occurs only during the operational phase of the Proposed Project. There are no electromagnetic interference impacts associated with the construction or decommissioning phases of the Proposed Project, and therefore no mitigation required.

15.2.7.5 Cumulative Effects

There is no potential for impacts on telecommunications during the construction phase or the decommissioning phase of the Proposed Project therefore cumulative effects are not considered for these phases.

Chapter 2, Section 2.10 of this EIAR describes the methodology used in compiling the list of permitted or proposed projects and plans in the area, (wind energy or otherwise) considered in the assessment of cumulative effects, and provides a description of each project, including current status, and is set out in Section 2.10 in Chapter 2 of this EIAR. During the development of any large project that holds the potential to affect telecoms, the developer is responsible for engaging with all relevant telecom operators to ensure that the proposal will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the developer for each individual project is responsible for ensuring that the necessary mitigatory measures are in place. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise.

Existing Cushaling Wind Farm

The existing Cushaling Wind Farm is the only other existing, proposed or permitted wind farm that sits within the Telecoms Study Area. Potential cumulative effects on telecommunications arising from the Proposed Project in combination with the existing Cushaling Wind Farm have been considered as part of the TIA. Both the ESB Network and the Virgin Media network were considered further in relation to cumulative impacts due to their proximity to both the Proposed Project and the existing Cushaling Wind Farm.

Virgin Media Network: As outlined in Section 15.2.7.3.1 above, in the absence of mitigation, impacts are anticipated to 3 no. existing Virgin Media telecommunications links (VM_L2, VM-L5, and VM_L6) as a result of the Proposed Project. None of the identified links are in proximity to the Cushaling Wind Farm. Futhermore, the existing Cushaling Wind Farm was considered when identifying the proposed location for the relay mast within the Project Site, to ensure to ensure that the proposed mitigation measures would not give rise to additional interference with the telecommunications network as outlined in Appendix 15-8.

On this basis, no cumulative effects on the Virgin Media telecommunications network are anticipated as a result of the Proposed Project in combination with the existing Cushaling Wind Farm

ESB Network: Both Proposed Turbine T27 and the existing turbines at the existing Cushaling Wind Farm sit in proximity to ESB_L3 (PTP microwave radio link from Carbury to Turlough Hill). As such,

the potential for cumulative effects on this telecommunications link has been assessed as part of the TIA, Appendix 15-8.

A three-dimensional (3D) cumulative analysis was undertaken to determine whether the Proposed Project, in combination with the existing Cushaling Wind Farm, would result in interference with the ESB_L3 radio link. The assessment confirmed that neither Proposed Turbine (T27) nor the existing turbines at Cushaling Wind Farm would obstruct the Fresnel Zone associated with ESB_L3.

Therefore, no cumulative effects on the ESB Networks telecommunications network are anticipated as a result of the Proposed Project in combination with the existing Cushaling Wind Farm

Substitute Consent

As identified in Table 2-2 in Chapter 2, an application for substitute consent was submitted to An Coimisiún Pleanála (Case Ref: SU09.324604) in August 2026, for peat extraction and ancillary works from July 1988 to the present day that have been carried out within parts of Allen Bog. A Remedial Natura Impact Statement (rNIS) and Remedial Environmental Impact Assessment Report (rEIAR) was submitted with this application. No impacts are identified on telecommunications within the substitute consent application. Therefore, there is no potential for cumulative effect to occur as a result of the Proposed Project and the substitute consent application.

EPA Licensed Activities

The cumulative assessment has also considered the Draft Rehabilitation Plans for the Proposed Wind Farm site together with the Proposed Project and the other proposed, permitted and operational developments identified in Appendix 2-3 of this EIAR. Continued natural revegetation, ongoing site management and environmental monitoring, and implementation of the Draft Rehabilitation Plans included in Appendix 2-4, as required under Condition 10 of IPC Licence Reg. No. P0503-01, would not introduce structures at height or otherwise alter the telecommunications network identified within the Telecoms Study Area. There is therefore no pathway through which these processes could have a potential for cumulative effect to occur as a result of the Proposed Project and the Draft Rehabilitation Plans.

Peatland Climate Action Scheme

PCAS is completed within Lodge Bog located within the Project Site where the Proposed Onsite Substation is located. There is no overlap between the PCAS works and the Proposed Project permanent infrastructure footprint. PCAS works include hydrological management, extensive re-wetting and drain blocking, modifying outfalls, creation of berms etc. These works will optimise hydrological conditions and will have benefits for water quality and storage attenuation as well as increased carbon storage and reduced emissions.

There is therefore no potential for significant cumulative effects to occur between the Proposed Project and PCAS at Lodge Bog during construction, operation or decommissioning.

15.3 Other Material Assets

15.3.1 Introduction

This section of the Material Assets chapter considers other utilities or built services in the area such as electricity supply and transmission, water, and gas, waterways, railways and underground telecommunication. This section also considers waste management during the construction, operational and decommissioning phases of the Proposed Project.

15.3.1.1 Statement of Authority

This section was completed by Ciarán Fitzgerald and Catherine Johnson and reviewed by Ellen Costello and Seán Creedon. Please refer to Section 15.2.1.1 above for details.

15.3.1.2 Study Area

In order to assess the potential effects arising from the Proposed Project on other material assets, a "**Other Material Assets Study Area**" is defined. The Other Material Assets Study Area excludes Material Assets such as Traffic and Transport and Telecommunications that have been considered above in Section 15.1 and 15.2.Aviation and aviation assets are assessed in Chapter 16 Aviation of this EIAR.

There is no specific guidance to define a material assets study area therefore under a precautionary scenario of the Proposed Wind Farm, Proposed Grid Connection, and Proposed Enhancement Areas, which have the potential to interact with electricity supply and transmission, water, and gas, railways and underground telecommunications are considered within the Other Material Assets Study Area. Figure 15-17 below identifies the Other Material Assets Study Area for the Proposed Project which comprises of the Proposed Wind Farm, Proposed Grid Connection and Proposed Enhancement Areas.

-820000 -815000 -810000 -805000 -800000 -795000 -790000 -785000 -780000 -775000 -770000 -765000 -760000 -755000 -750000

7060000 7055000 7050000 7045000 7040000 7035000 7030000 7025000 7020000 7015000 7010000 7005000

N

M6 R446 R400 R401 R148 Enfield M4 R148 R402 R400 R402 R403 Dreenan R400 R441 R403 Curryhills R401 Robertstown East R414 Ballyteige South R409 R400 R442 R415 R401 M7 Newbridge R413 R416 Kildare R445 M7 M9 Bracklone R424 Cowpasture R419 R415 N80 R422 R445 M7 Old Kilcullen Nicholastown (Kilcullen By)

Ballinagar R402 (Timpstown Lower By)

Geashill R420

0 2.5 5 10 15 20 Kilometers

Legend

Other Material Assets Study Area

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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N

SITE LOCATION - NOT TO SCALE

Drawing Title
Other Material Assets Study Area

Project Title
Ballydermot Wind Farm
Co. Kildare & Co. Offaly

Project No.	Drawing No.	Scale
250708	15-17	1:220,000
Drawn By	Checked By	Date
CF	EC	07/10/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

15.3.1.3 Scoping and Consultation

In order to assess the potential for significant effects on existing built services and waste management in the vicinity of the Proposed Project, scoping requests were made to EirGrid, Uisce Éireann, Irish Rail, Fáilte Ireland, Offaly County Council and Kildare County Council, including the Roads Department and Environment Department. Please refer to Section 2.8 of Chapter 2 of this EIAR for details in relation to the EIA scoping exercise.

Scoping was initially conducted in May 2021. An EIAR scoping document, providing details of the Proposed Wind Farm, was prepared by MKO and circulated to statutory consultees. The scoping document provided details of the Proposed Project and set out the scope of work for the EIAR. Consultees were invited to contribute to the EIAR by suggesting baseline data, survey techniques and potential impacts that should be considered as part of the assessment process and in the preparation of the EIAR.

An updated EIAR scoping document was issued to consultees in December 2025 due to time elapsed from when previous scoping was carried out, updates in local and national policy and legislation, updates in relevant EIAR guidance, changes in the environmental baseline and refinement of the Proposed Project layout and design. These update and changes were reflected in the updated scoping document, and consultees were invited to contribute again to the EIAR.

Table 15-88 Other Material Assets Scoping Responses

Consultee	Date of Response -Scoping Round 1 -2021	Date of Response – Scoping Round 2 -2025
Uisce Éireann (Formerly Irish Water)	No Response Received	Response received 21.04.2026 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail
Waterways Ireland	Response received on 02/02/2021 noting they had no commentary	Acknowledgement email received on the 4th.12.2025 no response was received Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail
Department of the Environment, Climate and Communications	Response received on the 10.02.2021	Response received on the 16.12.2025 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail
Eirgrid	No response received	Response received on the 4.12.2025 and 5.12.2025 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail
Gas Network Ireland	Response received on the 28.07.2021 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail	Response received via MKO quarterly data request in July 2026 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail

Consultee	Date of Response -Scoping Round 1 -2021	Date of Response – Scoping Round 2 -2025
Fáilte Ireland	Response received on the 4.02.2021 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail	Response received on the 5.12.2025 Please see Section 15.3.1.3 below and 2.8.2 of Chapter 2 for further detail

Uisce Éireann (Formerly Irish Water)

An initial scoping request was sent to Uisce Éireann on the 2nd of February 2021. No response was received.

A further scoping request was issued to Uisce Éireann on 18th of March 2026, with a follow-up issued on 14th of April 2026. A response was received from Uisce Éireann's data requests service identifying water mains within the area as well as fire hydrant, water fittings and sewage network infrastructure in close proximity to the Proposed Project.

Waterways Ireland

A scoping request was sent to Waterways Ireland on the 2nd of February 2021. Waterways Ireland responded on the 12th of February 2021 noting that they had no comments,

A further scoping request was issued to Waterways Ireland on 4th of December 2025. An acknowledgement email was received on the 4th of December 2025. No further correspondence was received by Waterways Ireland at the time of writing.

Considering no comments were received, no potential for impacts are identified through the scoping assessment. Therefore, no actions were required in response to the scoping exercise. Further desk-based assessments with consideration of impacts to water and waterways has been provided in the Section 15.3.5 below, as well as in Chapter 9 Water.

Department of the Environment, Climate and Communications

A scoping request was sent to the Department of the Environment, Climate and Communications (DECC) on the 2nd of February 2021. A response was received from DECC via Geological Survey Ireland (GSI) on the 10th of February 2021. The response comprised a list of relevant data sources and websites relating to geoheritage, geological mapping, geohazards, groundwater, natural resources and geochemistry for the country. This data was reviewed and considered in Chapter 8 Land, Soils and Geology and Chapter 9 Water.

A further scoping request was sent to DECC on the 4th of December 2025. A response was received again via GSI on the 16th of December 2025. The response comprised of an updated list of relevant data sources and websites relating to geoheritage, geological mapping, geohazards, groundwater, natural resources and geochemistry for the country. This data was reviewed and considered in Chapter 8 Land, Soils and Geology and Chapter 9 Water.

EirGrid

A scoping request was sent to EirGrid on the 2nd of February 2021. No response was received.

A further scoping request was sent to EirGrid on the 4th of December 2025. A response was received on the same day noting that EirGrid has agreed an Engagement Protocol for underground grid connection (UGC) cables in public roads. . EirGrid provided a link within their response highlighting

further information.[19] EirGrid noted that the Engagement Protocol will remain in place for the time being but it could be superseded by the Accelerated Infrastructure Report (Action 21). EirGrid noted that further information available was not available at the time of consultation.

EirGrid provided a second response email on the 5th of December 2025 and noted that wished to engage in a meeting with the Project Team to discuss potential interactions with the nearby Kildare-Meath Grid Upgrade project[20]. EirGrid noted that while there are no direct interactions, it would be useful to discuss cumulative effects on disruption due to construction and the dedicated consultations EirGrid had held with Kildare County Council regarding in-road UGC.

A meeting was held between EirGrid, ESB, the Applicant and MKO on the 16th of December to discuss the Proposed Project and the Kildare-Meath Grid Upgrade project. The meeting identified that there was no overlap in the proposed construction phases for the two projects however both project teams committed to engage further if any updates to the proposed construction phases were identified. The meeting noted that the likelihood for cumulative effects is low.

EirGrid gave feedback on the Proposed Project noting that abnormal loads must be carefully considered and recommended adhering to EirGrid and TII Guidance.

Gas Networks Ireland

A data request was sent to Gas Networks Ireland (GNI) in March 2026. GNI returned the latest dataset on the 28th of July 2026 which demonstrated that there are no gas pipelines within the Other Material Assets Study Area.

In addition, GNI supply MKO with their latest infrastructure data on a quarterly basis. The latest data share illustrating all GNI infrastructure was provided to MKO in July 2026.

The Applicant engaged directly GNI and were informed that GNI are proposing a gas pipeline to Edenderry Power Plant ('Gas to Bord na Móna, Edenderry'). The development will consist of a connection between existing Dublin to Galway high pressure gas pipeline and an existing peaking plant generation station at Edenderry Power Station.

Fáilte Ireland

A scoping request was sent to Fáilte Ireland on the 5th of February 2021. Fáilte Ireland responded on the 16th of February and shared Fáilte Irelands guidance on EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects.

A further scoping request was issued to Fáilte Ireland was issued on the 4th of December 2025. A response was received on the 23rd of December 2025. The response included an updated document outlining Fáilte Irelands guidance on EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects. The previous version of the document sent in 2021 therefore wasn't considered further.

In relation to material assets the report states the following

> *"Material assets outside of the material assets already referenced that should be considered are built services (utilities) and infrastructure. Tourism development should include impact assessment on built services (utilities) and infrastructure*

[19] https://cms.eirgrid.ie/sites/default/files/publications/Electricity-Transmission-Infrastructure-Development-Roads-Sector-Engagement-Framework.pdf

[20] https://www.eirgridkildaremeath.ie/

while non tourism related development should consider the effect on tourism, which should be considered"

Tourism is fully assessed within Chapter 5 of the EIAR. Please see Section 5.3.9 and Section 5.7 of the Chapter 5 for further detail

15.3.2 Methodology

The methodology for this assessment includes:

- Scoping exercise with stakeholders;
- Desk study, including review of available maps and published information followed by mapping of constraints;
- Likely Significant Effects and Mitigation Measures.

Consultation with all statutory consultees, bodies with environmental responsibility and other interested parties is detailed in Chapter 2 of the EIAR and further detailed above in Section 15.3.1.3. Scoping was undertaken in line with Section 3.3 'Scoping' of the EPA Guidelines (EPA, 2022)[21] on the information to be contained in EIARs.

15.3.3 Baseline Environment

15.3.3.1 Existing Built Services and Utilities

The Proposed Project has been designed to avoid identified services and utilities insofar as possible. Prior to commencement of construction, detailed site investigations will be carried out to confirm design assumptions and undertake additional surveys to identify any new services and utilities and ensure they will not be impacted by the Proposed Project.

Construction of underground 33kV cabling connecting the Proposed Turbines to the Proposed Onsite Substation and underground 220kV cabling connecting the Proposed Onsite Substation to the Proposed Offsite Substation will require cable trenching across the R414 Regional Road and the L6002, for both the 33kV cabling between the Proposed Turbines and the Proposed Onsite Substation and for the 220kV cabling between the Proposed Onsite Substation and the Proposed Offsite Substation. The cable trenching within the public road network will therefore be subject to a Road Opening License (ROL). The timing of these works would therefore be controlled by the ROL process with the relevant Local Authority.

15.3.3.1.1 *Electricity*

A section of the Maynooth-Dunstown 220kV Overhead Line (OHL) is located within the Other Material Assets Study Area, running approximately 0.05km southeast/east of the Proposed Offsite Substation. The proposed design for the Proposed Grid Connection will require two new steel mast structures which will be constructed under the existing Maynooth-Dunstown 220kV OHL. The existing transmission line will be broken between two existing towers (Tower 46 and Tower 47) into 2 no. new steel masts which will connect to the 2 no. new gantry structures located within the Proposed Offsite Substation. Please see Section 4.4.2 of Chapter 4: Description of the Proposed Project, for further details.

[21] *EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: https://www.epa.ie/publications/monitoring–assessment/assessment/EIAR_Guidelines_2022_Web.pdf*

The are 6 no. OHLs that cross through the Other Material Assets Study Area, all of which run through the Other Material Assets Study Area in a north-south direction. A list of the OHLs have been provided below;

- Cushaling- Newbridge 110kV OHL
- Cushaling – Portlaoise 110kV OHL
- Blake –Portarlington 38kV OHL
- Blake – Newbridge 38kV OHL
- Blake – Newbridge 110kV OHL
- Blake – Maynooth 110kV OHL

There are no existing substations within the Other Material Assets Study Area. The nearest substation along the Maynooth-Dunstown 220kV OHL is at Maynooth 220kV Substation, c. 25km northeast of the Other Material Assets Study Area. The nearest substation to the Other Material Assets Study Area is the Blake 110kV Substation, located approximately 536m north of the Proposed Grid Connection underground electrical cabling

15.3.3.1.2 Gas

A data request was sent to Gas Networks Ireland (GNI) in March 2026. GNI returned the latest dataset on the 28th of July 2026 demonstrated that there is 1.no gas pipelines (medium pressure) within the Other Material Assets Study Area.

There is 1 no. gas pipeline is located in the town of Prosperous. The Proposed Grid Connection underground electrical cabling route will run parallel to the gas pipeline for approximately 1.1km before the gas pipeline turns right onto Buttermilk Lane while the Proposed Grid Connection underground electrical cabling route will continue straight on the L6002 (Hatters Cross road) towards the Proposed Offsite Substation.

15.3.3.1.3 Water

A data request was sent to Uisce Éireann on the 2nd of February 2026. Uisce Éireann responded on the 14th of April with data relating to underground water and sewage networks within or in close proximity to the Project Site.

There is 1 no. underground water main located within the Other Material Assets Study Area that travels within the R414. The watermain crosses through the Other Material Assets Study Area between Lullybeg and Lodge bog when it will traverse perpendicular to the internal 33kV electrical cabling from the Proposed Turbines to the Proposed Onsite Substation. The watermain then travels alongside the Proposed Grid Connection underground electrical cabling route in the R414 from the Proposed Onsite Substation to the Proposed Offsite Substation. The Proposed Grid Connection underground electrical cabling will run parallel to the water main for approximately 10.8km before turning right onto the L6002 (Hatters Cross Road).

Uisce Éireann also identified 1 no. Sewer Network with the Other Material Assets Study Area, which will travel alongside the Proposed Grid Connection underground electrical cabling from the Proposed Onsite Substation to the Proposed Offsite Substation in the towns of Allenwood and Prosperous.

15.3.3.1.4 Waterways

There is one waterway within the Other Material Assets Study Area, the Grand Canal. It is proposed for the Proposed Grid Connection underground electrical cabling to cross beneath the Grand Canal as part of the Proposed Project via Horizontal Directional Drilling (HDD) west of the Shee Bridge before the Proposed Grid Connection underground electrical cabling continues along the R403 towards the Proposed Offsite Substation.

15.3.3.1.5 Waste Management

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the Other Material Assets Study Area. The Edenderry Recycling Centre is the closest waste facility to the Other Material Assets Study Area and is approximately 3.5km north of the Proposed Turbines (i.e., T32).

A Resource and Waste Management Plan (RWMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-4 of the EIAR.

The RWMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Project. Disposal of waste will be a last resort.

Current activities onsite include decommissioning, site management and environmental monitoring as required under Integrated Pollution Control (IPC) Licence P0503-01 from the EPA. Condition 7 of the licence compels Bord na Móna (BnM) to correctly dispose of waste to licenced facilities. As part of the licence compliance, BnM must dispose of waste appropriately to licenced waste facilities. Since active peat extraction under IPC Licence No. 503-01 ceased in June 2020, onsite activities have reduced considerably. However, waste materials will continue to be removed off site if recycling is not possible and disposed by licenced waste contractors. Waste currently produced at the Allen Bog Group, part of which forms part of the Project Site, is divided into hazardous and non-hazardous materials, weighed and reported in Annual Environmental Reports (AERs) which are submitted to the EPA each year. AERs from 2008 to 2025[22] are publicly available for viewing on the EPA licence permit portal.

15.3.4 Likely Future Receiving Environment

This section considers the future receiving environment relating to other material assets likely to exist at the Proposed Wind Farm site at the commencement of the construction phase. In accordance with the approach set out in Section 1.8.4 in Chapter 1, the assessment utilises the information presented in the baseline environment, Section 15.3.3 above, and uses any observed change over the survey period to inform, the likely future receiving environment.

The Project Site is located predominantly on former industrial peat extraction lands within the Allen Bog Group. Industrial peat extraction ceased in June 2020. Since then, environmental conditions across these lands have continued to develop through natural revegetation, alongside ongoing site management, decommissioning works, environmental monitoring undertaken in accordance with IPC Licence P0503-01.

These changes relate primarily to ground-level conditions and would not alter the location, function or operational characteristics of the other material assets (i.e., electricity, gas, water, waterways, or waste management) present within the Other Material Assets Study Area and associated activities established in Section 15.3.3 above.

Accordingly, the likely future receiving environment at commencement of the construction phase will remain materially comparable to the existing baseline environment with respect to other material assets.

The assessment of likely significant effects presented in Section 15.3.5 has therefore been undertaken against this likely future receiving environment. As the conditions predicted at commencement of construction are materially comparable to those described in the existing baseline environment pertaining to other material assets, the information presented in Section 15.3.5 remains representative of the other material assets receiving environment against which the Proposed Project is assessed.

Integrated Pollution Control License PO-503-01 issued by the EPA for the Allen Bog Group. Available at: https://leap.epa.ie/

15.3.4.1 Future Environmental Trends

This section identifies the future environment trends relating to other material assets likely to exist within the Other Material Assets Study Area following implementation of targeted rehabilitation within the Draft Rehabilitation Plans throughout the operational phase.

Continued natural revegetation, ongoing site management, decommissioning works, environmental monitoring, and implementation of the Draft Rehabilitation Plans are not anticipated to impact the other material assets (i.e., electricity, gas, water, waterways, or waste management) present within the Other Material Assets Study Area. There is therefore no pathway through which these processes could materially alter future trends relating to other material assets.

Accordingly, notwithstanding the continued natural revegetation, and implementation of the Draft Rehabilitation Plans, the future environmental trends of the receiving environment for other material assets will remain materially comparable to the baseline conditions described in Section 15.3.3 above and do not require separate consideration elsewhere in the other material assets impact assessment.

The continuation of the aforementioned activities in the absence of the Proposed Project is considered in the Do-Nothing Scenario in Section 15.3.5.1 and in the cumulative assessment in Section 15.3.6.

15.3.5 Likely Significant Effects and Associated Mitigation Measures

The below assessment evaluates the impact (where there is the potential for an impact to occur) on existing built services and utilities, and waste management during the construction, operation and decommissioning phases of the Proposed Project.

15.3.5.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, there would be no potential to impact on existing built services and utilities .

If the Proposed Project were not to proceed, the Proposed Wind Farm site would continue to be managed under the requirements of the IPC licence (P0503-01) and therefore the ongoing decommissioning works, site management and environmental monitoring would continue.. The lands required for the Proposed Project not located within lands under IPC License would continue to function as it does at present, with no changes to the current land-use.

Therefore, under a 'Do-Nothing' scenario, the Proposed Wind Farm site would continue to be managed as per the requirements of the IPC licence as detailed in Chapter 4 section 4.6.7. These rehabilitation works are mandatory and will proceed irrespective of whether the Proposed Project is permitted, in order to ensure compliance with the IPC Licence.

If the Proposed Project were not to proceed, the opportunity to capture a significant part of County Offaly's, County Kildare's and Ireland's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions if the Proposed Project was not to proceed. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

15.3.5.2 Construction Phase

The construction of the Proposed Project will be unlikely to have an impact on above ground or underground built services or waste management. The Proposed Project infrastructure has been

designed to avoid existing underground electricity cables and other services and can be described as mitigation by design, therefore there is no potential to give rise to effects on underground electrical infrastructure and other services.

15.3.5.2.1 *Electricity*

Proposed Project

A section of the Maynooth-Dunstown 220kV OHL is located within the Other Material Assets Study Area, running approximately 0.05km southeast/east of the Proposed Offsite Substation. The proposed design for the Proposed Grid Connection will require 2 no. new gantry structures and 2 no. new steel mast structures, which will be constructed under the existing Maynooth-Dunstown 220kV OHL.

The existing OHL will be impacted through breakage during the construction phase. As part of construction of the Proposed Grid Connection infrastructure under the existing OHL, the associated electricity supply will be shut off intermittently. This would have a temporary, moderate negative impact on electricity supply, which is Not Significant, in the absence of mitigation.

The are 6 no. OHLs that cross through the Other Material Assets Study Area, all of which run through the Other Material Assets Study Area in a north-south direction. A list of the OHLs have been provided below;

- Cushaling- Newbridge 110kV OHL
- Cushaling – Portlaoise 110kV OHL
- Blake –Portarlington 38kV OHL
- Blake – Newbridge 38kV OHL
- Blake – Newbridge 110kV OHL
- Blake – Maynooth 110kV OHL

In the absence of mitigation, the impact to existing OHL's is negative, slight, and temporary, which is Not Significant.

As noted above in Section 15.3.3.1, there is one proposed EirGrid 440kV underground cable in close proximity to the Proposed Grid Connection underground electrical cabling. The proposed EirGrid 440kV underground cable is located 2.7km east at its closest point. The proposed EirGrid 440kV underground is proposed to be constructed prior to the proposed construction of the Proposed Project. Due to the distance from the Other Material Assets Study Area no impacts are anticipated.

The overall impact to electricity in the absence of mitigation is temporary, moderate, negative.

Mitigation Measures

- Goal posts will be established under the overhead line for the entirety of the construction phase. They will not exceed a height of 4.2 metres, unless specifically agreed with ESB Networks
    - Prior to construction, the Applicant will engage with ESB via the 'Dial Before You Dig' procedure online. ESB will be contacted via dig@esb.ie **before** excavating near any overhead lines.
- The suitability of machinery and equipment for use near power lines will be risk assessed.
- All staff will be trained on operating voltages of overhead electricity lines running the site. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the sites will be made aware of the location of lines before they come on to site.

- Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire.
- When activities must be carried out beneath overhead lines, e.g. component delivery or substation construction, a site-specific risk assessment will be undertaken prior to any works. The risk assessment will take into account the maximum potential height that can be reached by the plant or equipment that will be used prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required.
- Information on safe clearances will be provided to all staff and visitors.
- Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on site.
- All staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.
- All health and safety measures as detailed in the Construction Environment Management Plan and Chapter 5 Population and Human Health will be adhered to during the construction, operation and decommissioning phases.

Residual Effects

With the implementation of the above measures, the residual effect is negative, temporary, not significant effect on local electricity supply during the construction phase, which is Not Significant.

Significance of Effects

The effect on local electricity supply due to the construction of the Proposed Project is Not Significant.

15.3.5.2.2 *Water*

Pre-Mitigation Impacts

There is 1 no. underground water main located within the Other Material Assets Study Area, located within the R414. The watermain crosses through the Other Material Assets Study Area between Lullybeg and Lodge bog when it will traverse perpendicular to the Proposed Grid Connection underground electrical cabling from the Proposed Turbines to the Proposed Onsite Substation. The watermain then travels alongside the Proposed 220kV electrical cabling in the R414 from the Proposed Onsite Substation to the Proposed Offsite Substation. The Proposed Grid Connection underground electrical cabling will run parallel to the water main for approximately 10.8km before turning right onto Hatters Cross Road. In the absence of mitigation, impacts to existing Uisce Éireann water mains are negative, moderate, temporary impact, which is Not Significant.

There are no mapped Public Water Supplies (PWS) or Group Water Schemes (GWS) within the Other Material Assets Study Area. Several GWSs and PWSs are mapped by the GSI in the lands surrounding the Other Material Assets Study Area. These GWSs and PWSs are further detailed in Section 9.3.15.1 of Chapter 9 Water.

In the absence of mitigation, impacts to water supply (i.e., PWS and GWS) are negative, slight, long-term impact, which is Not Significant.

Mitigation Measures

Prior to construction, the Applicant will engage with Uisce Éireann in advance of finalising the detailed design in the vicinity of the identified watermain. The Applicant will identify the presence and likely alignment of the watermain through desk-based review of available Uisce Éireann network mapping, supplemented by site investigation. Where the watermain is confirmed to be located within or adjacent to the Proposed Grid Connection underground electrical cabling route, a 'Building Over or Near an Uisce Éireann Asset' application will be submitted to Uisce Éireann in advance of works. All proposed works along the Proposed Grid Connection underground electrical cabling route in the vicinity of the watermain will be undertaken in accordance with Uisce Éireann's Standard Details and Codes of Practice[23], and the Health and Safety Authority's *'Code of Practice for Avoiding Danger from Underground Services'*[24].

Section 9.5.2.16 and Section 9.5.2.17 of Chapter 9 Water assesses the potential for impact on public water supply and private wells during the construction phase. While no significant effects are identified, best practice mitigation measures have been prescribed to in Chapter 9 to minimise impacts on groundwater during the construction stage from the potential release of hydrocarbons, wastewater and cement-based products.

Residual Effects

With the implementation of the proposed mitigation measures outlined above and mitigation outlined in Section 9.5.2.16 and Section 9.5.2.17 of Chapter 9 combined with the separation distances from potential groundwater well supplied, and prevailing geology, topography and groundwater flow directions, the residual effects are negative, imperceptible, long-term effect, which is Not Significant in terms of quality or quantity on water.

Significance of Effects

The effect on quality or quantity of water due to the construction of the Proposed Project is Not Significant.

15.3.5.2.3 Waterways

Pre-Mitigation Impacts

There is one waterway within the Other Material Assets Study Area, i.e., the Grand Canal. It is proposed for the Proposed Grid Connection underground electrical cabling to cross beneath the Grand Canal as part of the Proposed Project via HDD approximately 0.4km from the Shee Bridge. The launch and reception pits will be approximately 2m wide, 2m long and 1.5m deep, and will be located on either side of the Grand Canal. The drill head will then be secured to the first drill rod, and the operator will commence to drill into the launch pit to a suitable angle which will enable them to obtain the depths and pitch required to the line and level of the required profile to avoid interaction with the Grand Canal and pass underneath the waterway. A full construction methodology for HDD is outlined in Section 4.9.2.7.4 of Chapter 4 Description.

In the absence of mitigation, impacts to waterways is negative, slight, short-term impact, which is Not Significant.

[23] https://www.water.ie/connections/developer-services/technical-guidance-connect
[24] https://www.hsa.ie/publications_and_forms/publications/construction/code_of_practice_for_avoiding_danger_from_underground_services_/

Mitigation Measures

Please see Section 9.5.2.10 of Chapter 9: Water which identifies the mitigation measures identified to protect surface water quality at the HDD crossing of the Grand Canal.

Please see Section 12.7.1 of Chapter 12: Noise and Vibration which identifies the noise and vibration construction phase mitigation measures.

Residual Effects

With the implementation of the proposed mitigation measures outlined in Chapter 9 and Chapter 12 and mitigation outlined in Appendix 4-4 CEMP, the residual effects are negative, imperceptible, temporary, which is Not Significant in terms of impacts to the waterways.

Significance of Effects

The effect on waterways due to the construction of the Proposed Project is Not Significant.

15.3.5.2.4 *Waste Management*

Pre-Mitigation Impacts

Proposed Project

Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste. Full details of wastes expected to be generated are detailed with the RWMP of the CEMP (Appendix 4-4 of this EIAR). In the absence of mitigation measures outlined in the RWMP, impacts to the waste management services during the construction phase is negative, moderate, short-term impact, which is Not Significant.

Mitigation Measures

All waste generated on site during the construction phase will be contained in waste skip's located at each temporary construction compound within the Project Site. This waste storage area at each temporary construction compound will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. The expected waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Project Site. Therefore, all waste streams generated on site will be deposited into a single waste skip. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

Site personnel will be instructed at induction that under no circumstances can personal waste be brought onsite for disposal in the onsite waste skip. It will also be made clear that the burning of waste material onsite is forbidden.

Further details on waste management are presented in the CEMP which is included as Appendix 4-4.

Residual Effects

With the implementation of the above measures, the residual effect is negative, short-term, slight effect on waste management services during the construction phase, which is Not Significant.

Significance of Effects

The effect on waste management services during the construction of the Proposed Project is Not Significant.

15.3.5.2.5 *Gas*

Pre-Mitigation Impacts

Proposed Project

There is 1 no. existing gas pipeline (medium pressure) located within the Other Material Assets Study Area.

There is 1 no. gas pipeline is located in the town of Prosperous. The Proposed Grid Connection underground electrical cabling will run parallel to the gas pipeline for approximately 1.9km before the gas pipeline turns right onto Buttermilk Lane while the Proposed Grid Connection underground electrical cabling will continue straight on L-6002 (Hatters Cross road) towards the Proposed Offsite Substation.

In the absence of mitigation, impacts to gas networks is negative, slight, short-term impact, which is Not Significant.

Mitigation Measures

Prior to construction, the Applicant will engage with GNI via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 **before** excavating near the identified medium-pressure pipeline. Furthermore, the '*Safety advice for working in the vicinity of natural gas pipelines'* guidance document and the GNI '*Code of Practice*' standards will be adhered to during all proposed works along the Proposed Grid Connection in vicinity of the medium-pressure pipeline and the telecommunication lines.

Residual Effects

With the implementation of the above measures, the residual effect is negative, short-term, imperceptible effect on gas services during the construction phase, which is Not Significant.

Significance of Effects

The effect on gas services during the construction of the Proposed Project is Not Significant.

15.3.5.3 Operational Phase

15.3.5.3.1 *Electricity*

Pre-Mitigation Impacts

Proposed Project

In the unlikely event that a replacement of turbines components is required during this phase, the impacts described in Section 15.3.5.2.1 will be the same.

The Maynooth-Dunstown 220kV OHL is partially located within the Other Material Assets Study Area, running approximately 0.05km southeast/east of the Proposed Offsite Substation. The proposed design for the Proposed Grid Connection will require 2 no. new gantry structures and 2 no. new steel mast structures which will be constructed under the existing Maynooth-Dunstown 220kV OHL.

The Proposed Project will supply approximately 322 MW of electricity to the national grid during the operational phase, offsetting the use of fossil fuels within the electricity generating sector. The Proposed Project has the potential supply approximately 257,390Irish households with clean electricity per year. Therefore, the Proposed Project will have a significant, positive long-term impact on electricity.

Mitigation Measures

The measures listed in Section 15.3.5.2.1, which relate to the delivery of turbine components through the Project Site will be implemented in the unlikely event that a replacement of turbine components is required.

Residual Effects

The Proposed Project will have a significant positive, long-term residual effect on national electricity supply during the operational phase.

Significance of Effects

Based on the assessment above, there will be a Significant positive effect on electricity supply during the operational phase of the Proposed Project.

15.3.5.3.2 *Water*

Pre-Mitigation Impacts

Proposed Project

There is 1 no. underground water main located within the Other Material Assets Study Area that travels within the R414. The watermain crosses through the Other Material Assets Study Area between Lullybeg and Lodge bog when it will traverse perpendicular to the Proposed Grid Connection underground electrical cabling from the Proposed Turbines to the Proposed Onsite Substation. The watermain then travels alongside the Proposed Grid Connection underground electrical cabling in the R414 from the Proposed Onsite Substation to the Proposed Offsite Substation. The Proposed Grid Connection underground electrical cabling will run parallel to the water main for approximately 10.8km before turning right onto L-6002 (Hatters Cross Road). No impacts to the existing water mains are anticipated to occur during the operational phase.

Potential health effects are associated with negative impacts (i.e. contamination) on public and private water supplies and potential flooding. There are no mapped PWS or GWS within the Other Material Assets Study Area. Several GWSs and PWSs are mapped by the GSI in the lands surrounding the Other Material Assets Study Area. These GWSs and PWSs are further detailed in Section 9.3.15.1 of Chapter 9 Water. In the absence of mitigation, impacts to water supply is slight negative long-term impact on water, which is Not Significant

Mitigation Measures

Section 9.5.3 of Chapter 9 Water assess the potential for impact on public water supply and private wells during the operational phase. The chapter includes mitigation measures to minimise impacts on

groundwater during the operational phase from the potential release of hydrocarbons, wastewater and cement-based products.

Residual Effects

With the implementation of the proposed mitigation measures outlined in Chapter 9 combined with the separation distances from wells, and prevailing geology, topography and groundwater flow directions, the residual effect is negative, imperceptible, and long term in terms of quality or quantity on water.

Significance of Effects

The effect on quality or quantity of water due to the operation of the Proposed Project is Not Significant.

15.3.5.3.3 *Waste Management*

Pre-Mitigation Impacts

Proposed Project

It is not anticipated that any significant volume of waste will be generated within the Other Material Assets Study Area during the operational phase of the Proposed Project as only a small volume of operational and maintenance personnel and users of the Other Material Assets Study Area for amenity will be present within the Proposed Wind Farm infrastructure for amenity.

Members of the public accessing the Proposed Wind Farm internal roads and dedicated amenity track will generate low levels of municipal waste. The Proposed Onsite Substation and the Proposed Offsite Substation will include welfare facilities for use by EirGrid operational and maintenance staff. The wastewater holding tank will be emptied when required by a licenced contractor. In the absence of mitigation, impacts to waste management services is negative, slight, long-term impact, which is Not Significant.

Mitigation Measures

During the operational phase, the Other Material Assets Study Area will include appropriate signage encouraging amenity users to leave the Proposed Wind Farm site waste free and bring waste materials home for proper disposal.

Any waste generated due to the operational phase of the Proposed Project will be disposed of in a bin, located within the Proposed Onsite Substation compound. There will also be bins located at the proposed car parks for public use. The waste material will be transferred to a MRF by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

The wastewater holding tank will be emptied when required by a licenced contractor.

Residual Effects

With the implementation of the above measures, the residual effect is negative, imperceptible and long-term effect on waste management services during the operational phase, which is Not Significant.

Significance of Effects

The effect on waste management services during the operation of the Proposed Project is Not Significant.

15.3.5.3.4 *Gas*

Pre-Mitigation Impacts

Proposed Project

There is 1 no. existing gas pipeline (medium pressure) located within the Other Material Assets Study Area. The Proposed Grid Connection underground electrical cabling will run parallel to the gas pipeline for approximately 1.1km before the gas pipeline turns right onto Buttermilk Lane while the Proposed Grid Connection underground electrical cabling will continue straight on L-6002 (Hatters Cross road) towards the Proposed Offsite Substation. No groundworks are proposed as part of the operational phase of the Proposed Project, therefore, under a precautionary scenario, the effect is negative, long-term, imperceptible, which is Not Significant.

Mitigation Measures

N/A

Residual Effects

The residual effect is negative, long-term, imperceptible effect on gas services during the construction phase, which is Not Significant.

Significance of Effects

The effect on gas services during the construction of the Proposed Project is Not Significant.

15.3.5.4 Decommissioning Phase

The wind turbines proposed as part of the Proposed Project are expected to have a lifespan of approximately 35 years. Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the Proposed Wind Farm will be decommissioned fully as described in Chapter 4 and the accompanying decommissioning plan in Appendix 4-7.

The works required during the decommissioning phase are described in Section 4.12 in Chapter 4 of this EIAR. Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, albeit to a lesser extent. Based on the assessment outlined above in Section 15.3.5, there will be no significant effects on existing and built services, or waste management as part of the decommissioning phase

15.3.6 Cumulative Effects

Potential cumulative effects on material assets between the Proposed Project and other permitted or proposed plans in the area, (wind energy or otherwise), as set out in Section 2.10 in Chapter 2 of this EIAR, were also considered as part of this assessment. The developments considered as part of the cumulative effect assessment are described in Section 2.10 of this EIAR, with relevant developments presented in Appendix 2-3; please see Table 2.10 of Chapter 2 for the relevant cumulative assessment

boundary justification. Projects considered as part of the Cumulative impacts assessment for Other Material Assets include PCAS – Lodge Bog, EPA Licenced Activities (Draft Rehabilitation Plans), Ballydermot Substitute Consent, Gas to Bord na Móna, Edenderry, Water Supply Project Eastern and Midlands Region, and EPL2040

Gas to Bord na Móna, Edenderry

The proposed Gas to Bord na Móna, Edenderry project, located to the east of the Proposed Wind Farm, lies within the Other Material Assets Study Area and intersects sections of the Proposed Project where internal site access road is proposed.

Eastern and Midlands Region Water Supply Project

The proposed Uisce Éireann Eastern and Midlands Region Water Supply Project (Case Ref: PA92.323980) includes a proposed water pipeline from a new water treatment plant near Birdhill, Co. Tipperary to a termination point reservoir at Peamount, Co. Dublin, traverses the Project Site in an east-west direction across Codd Bogs 1 & 2, Glashabaun North and South Bogs, and Derrybrennan Bog. .

110kV OHL Between Cushaling 110kV and Portlaoise 110kV Substation

A planning application (Ref. 2560087) has been submitted for the proposed uprating of the existing 110 kV OHL between the existing Cushaling 110 kV Substation in the townland of Ballykilleen, Co. Offaly, and the existing Portlaoise 110 kV Substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The proposed development has been considered as part of the cumulative assessment for the Proposed Project. Based on discussions held during the EirGrid scoping meeting on 16th December 2025, there is currently no anticipated overlap between the construction programme of the Proposed Project and that of the proposed OHL uprating project, with the final phase of the EirGrid project currently expected to extend to 2029 and therefore is not considered any further below.

EPA Licenced Activities

As part of the IPC licence rehabilitation requirements, BnM is required to produce cutaway bog decommissioning and rehabilitation plans, please see Appendix 2-4 to view the Draft Rehabilitation Plans for the Proposed Wind Farm site. These plans have considered the Proposed Project footprint and demonstrate that both peatland rehabilitation and renewable energy can coexist harmoniously onsite. Irrespective of any further development on the site, BnM's statutory duties to discharge the conditions of its IPC Licence will remain ongoing.

Peatland Climate Action Scheme

PCAS comprises enhanced peatland rehabilitation (above and beyond IPC licence requirements). As identified in Section 2.10.2.4 of Chapter 2, PCAS has been completed in Lodge Bog. No other PCAS is proposed with the Other Material Assets Study Area however PCAS is proposed in bogs in the vicinity and adjacent to the Other Material Assets Study Area; PCAS does not form part of the Proposed Project application, therefore all PCAS activities within the Other Material Assets Study Area and in the vicinity / adjacent to the Other Material Assets Study Area have been cumulatively assessed.

15.3.6.1 Construction Phase

15.3.6.1.1 *Electricity*

As demonstrated in Section 15.3.5.2.1 above, there are no potential impacts and no cumulative significant effects on electricity supply and infrastructure during the construction phase of the Proposed Project. Therefore, during the construction phase, there will be no significant cumulative effects on electricity infrastructure or supply with other proposed or consented plans, projects and peatland

rehabilitation measures within the surrounding landscape should they be constructed in parallel with the Proposed Project.

15.3.6.1.2 Water

As demonstrated in Section 15.3.5.2.2 above, there are no significant effects on water infrastructure such as Uisce Éireann watermain which is located within the Other Material Assets Study Area that travels within the R414. With the implementation of mitigation outlined in Section 15.3.5.2.2 above, no significant cumulative effects on water supply with other proposed or consented plans, projects and peatland rehabilitation measures within the surrounding landscape should they be constructed in parallel with the Proposed Project.

As detailed in Section 15.3.3.1, a proposed Uisce Éireann project was identified through consultation between the Applicant and Uisce Éireann. The proposed Uisce Éireann project is a water supply pipeline through the Eastern and Midlands. The proposed Uisce Éireann pipeline was considered during the constraints and design process and is further detailed in Chapter 3: Site Selection and Reasonable Alternatives. The proposed Uisce Éireann project runs through the Other Material Assets Study Area travelling in a northeast-southwest direction. The proposed road between T45 and T43 as well as the proposed road between T41 and T40 cross over the proposed Uisce Éireann project. No significant cumulative effects are anticipated as roads between T45 and T43 as well as proposed roads between T41 and T40 are proposed to be floated. Please see Appendix 4-3 Peat and Spoil Management Plan and Section 4.4.1.2.1 of Chapter 4 for further detail on floated road construction methodology.

Given the nature of the Water Supply Project as linear utility infrastructure, and given that it is subject to its own design, consenting, construction management and operational controls, no credible pathway has been identified whereby the Water Supply Project would interact with the Proposed Project to give rise to significant cumulative effects on other material assets

15.3.6.1.3 Waste Management

As demonstrated in Section 15.3.5.2.3 above, there are no significant effects on waste management services during the construction phase of the Proposed Project. Therefore, during the construction phase, there will be no significant cumulative effects on waste management services with other proposed or consented plans, projects and peatland rehabilitation measures within the surrounding landscape should they be constructed in parallel with the Proposed Project.

15.3.6.1.4 Gas

There is 1 no. existing gas pipeline (medium pressure) located within the Other Material Assets Study Area.

There is 1 no. proposed GNI project within the Other Material Assets Study Area. The “Gas to Bord na Móna, Edenderry” will comprise of a new underground gas pipeline connection between existing Dublin to Galway high pressure gas pipeline and an existing peaking plant generation station at Edenderry Power Station. The Proposed GNI project crosses through the Other Material Assets Study Area and interacts with proposed existing track -floated road and proposed amenity boardwalk near Access Junction 1. The proposed Gas to Bord na Móna, Edenderry project is currently anticipated to be constructed over a 22-month period commencing in Q1 2028, whereas the Proposed Project assumes an indicative construction start date of Q1 2030. As such, there is no anticipated overlap in the main construction programmes of the two developments and therefore limited potential for cumulative construction-phase effects associated with other material assets..

Prior to construction, the Applicant will engage with GNI via the ‘Dial Before You Dig’ procedure online. GNI will be contacted on 1800 42 77 47 **before** excavating near the identified medium-pressure pipeline. Furthermore, the ‘*Safety advice for working in the vicinity of natural gas pipelines’* guidance document and the GNI ‘*Code of Practice*’ standards will be adhered to during all proposed works

along the Proposed Grid Connection underground electrical cabling route in vicinity of the medium-pressure pipeline and the telecommunication lines, therefore no cumulative effects are anticipated. Please see Section 15.3.3.2.1 above for further detail on mitigation measures associated with the interactions with the GNI network

15.3.6.2 Operational Phase

15.3.6.2.1 *Electricity*

As demonstrated in Section 15.3.5.3.1, there is a long-term significant positive effect on electricity supply during the operational phase. The Proposed Project will supply approximately 322MW of electricity to the national grid during the operational phase. The Proposed Project has the potential supply approximately 257,390 Irish households with clean electricity per year. There will be a positive, long-term, significant cumulative effect on electricity supply if planning permission is granted alongside existing and proposed wind energy developments in County Offaly and County Kildare. There is no cumulative effect with other non-energy producing developments within the surrounding landscape during the operational phase.

15.3.6.2.2 *Water*

As demonstrated in Section 15.3.5.3.2 above, there are no significant effects on water infrastructure or supply during the operational phase of the Proposed Project. Therefore, during the operational phase, there will be no significant cumulative effects on water infrastructure or supply with other proposed or consented plans, projects and peatland rehabilitation measures within the surrounding landscape should they operate in parallel with the Proposed Project.

These rehabilitation works are mandatory and will proceed irrespective of whether the Proposed Project is permitted, in order to ensure compliance with the IPC Licence. Implementation will occur during the operational phase, with targeted rehabilitation, integrated with the Proposed Project. Therefore, there are no significant negative cumulative effects on water when considering the future works associated with the Allen Bog Group (i.e., the Draft Rehabilitation Plans for the 14 no bogs comprising part of the Allen Bog Group (appendix 2-4)) and the Proposed Project.

15.3.6.2.3 *Waste Management*

As demonstrated in Section 15.3.5.3.3 above, it is not anticipated that any significant volume of waste will be generated within the Project Site during the operational phase of the Proposed Project as only a small volume of operational and maintenance personnel and users of the Project Site for amenity will be present within the Proposed Wind Farm infrastructure for amenity. Therefore, during the operational phase, there will be no significant cumulative effects on waste management with other proposed or consented plans, projects and peatland rehabilitation measures within the surrounding landscape should they operate in parallel with the Proposed Project.

15.3.6.3 Substitute Consent

As identified in Section 2.10.2.3 in Chapter 2 and Section 15.3.4 above, an application for substitute consent was submitted to ACP (Case Ref: SU09.324604) on 20th August 2026, for peat extraction and ancillary works from July 1988 to the present day that have been carried out within the Allen Bog Group.

No impacts are identified on other material assets within the remedial phase of the substitute consent application. Therefore, there is no potential for cumulative effect to occur as a result of the Proposed Project and the substitute consent application.

15.3.6.4 EPA Licensed Activities

The targeted rehabilitation measures identified within the Draft Rehabilitation Plans are not anticipated to be implemented concurrently with the construction phase of the Proposed Project. Currently, the cutaway peatlands are undergoing natural revegetation, and no active rehabilitation works are presently planned within the Project Site

The proposals contained within the Draft Rehabilitation Plan have been designed with consideration of the Proposed Project infrastructure footprint. The permanent infrastructure footprint of the Proposed Project represents approximately 2.97% of the Proposed Wind Farm site and therefore does not impact or change the overall goals and outcomes of the Draft Rehabilitation Plans.

15.3.6.5 Cumulative Summary

The below table provides a summary of the primary projects considered for the cumulative impact assessment. Please see Section 2.8 of Chapter 2 for the full list of Cumulative projects.

Table 15-89 Summary of projects considered cumulatively

Project	Status	Within the Other Material Assets Study Area	Potential for Cumulative Impact	Effect
PCAS – Lodge Bog	Complete	Yes	No	Not Significant
EPA Licenced Activities (Draft Rehabilitation Plans)	Ongoing	Yes	No	Not Significant
Ballydermot Substitute Consent	Proposed	Yes	No	Not Significant
Gas to Bord na Móna, Edenderry	Proposed	No	No	Not Significant
Water Supply Project Eastern and Midlands Region	Proposed	Yes	No	Not Significant

15.3.6.6 Decommissioning Phase

As demonstrated in Section 15.3.5.4 above, there are no significant effects on utilities and waste management during the decommissioning phase of the Proposed Project. Therefore, during the decommissioning phase, there will be no significant cumulative effects on utilities and waste management with other proposed or consented plans, projects and peatland rehabilitation measures within the surrounding landscape should they be constructed in parallel with the Proposed Project.