17.0 TRAFFIC & TRANSPORTATION

17.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) describes the assessment undertaken of the potential traffic and transportation impact from the proposed Oweninny Wind Farm Phase 3 development on local residential amenity. The Proposed Development consists of 18 no. wind turbines with an overall top of foundation level to blade tip height of 200 m. A full description of the proposed development is provided in Chapter 3 – *Description of the Proposed Development.*

Traffic and transportation impact has been assessed for the construction phase, operational, decommissioning phases of the proposed development. To inform this assessment baseline traffic levels have been measured on the national road the proposed development access.

Existing operational, permitted, and proposed wind farm developments with the potential for cumulative impacts were identified and reviewed as part of this assessment, namely the Oweninny Wind Farm Phase 1 (existing) and Oweninny Wind Farm Phase 2 (permitted and currently under construction). In line with best practice guidance the cumulative impact of these other developments has been included in the traffic and transportation impact assessment. Further details on these other developments are provided in Chapter 2 of this EIAR.

17.1.1 Statement of Authority

This chapter of the EIAR has been prepared by the following staff of TOBIN Consulting Engineers:

Laura Gaffney (Senior Engineer Roads and Traffic) holds a BSc in Civil Engineering and MSc in Environmental Engineering from Queens University Belfast. She is a Chartered Member of Engineers Ireland and has over 10 years' experience in road and traffic design. She has extensive experience in preparation of EIAR and EIS for environmental projects including Wind Farms, Solar Farms, Mining Tailing Facility, AES Facilities, Drainage Scheme, and numerous Quarries. She is also a Transport Infrastructure Ireland (TII) approved Road Safety Auditor with qualification from Sligo Institute of Technology.

17.1.2 Relevant Standards

The following relevant standards have been used in the preparation of this chapter:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports Guidelines (EPA, 2022);
- Traffic and Transportation Assessment (TTA) Guidelines (TII PE-PAV-02045 May 2014);
- Mayo County Development Plan 2022-2028;
- Spatial Planning and National Roads Guidelines for Planning Authorities (2012);
- Renewable Energy Strategy for County Mayo 2011-2020; and
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (TII PE-PAG-02017).

17.1.3 EIAR Scoping

Scoping is a process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information Details of the scoping can be found in Chapter 1, including details of the EIAR Scoping Report and pre-planning meetings.

Scoping with Mayo County Council's Roads Departments was undertaken between the 23rd of August and 20th of September 2022. This on-going liaison with the planning authority has facilitated agreement as to the nature and scale of the development, including any required road network changes and/or enhancements. The main items identified during the scoping process included the following:

- A need to assess the traffic impact associated with the construction and decommissioning stage only, as these stages have the largest associated traffic volumes.
    - The location of the TTA is limited to the site access only.
    - TII Live traffic counters on the N59 to be used in the assessment.
    - All trips to the site will be via the N59 and return via the N59 and not on lower classification roads (i.e. regional or local roads)
- Suitable quarries in the vicinity of the site (i.e. currently / projected to be licensed at time of the construction stage).
- No Road Safety Audit was required as the site access is existing and is currently operating as an operational access.

17.1.4 Proposed Project

The Proposed Development comprises the construction of 18 no. wind turbines and ancillary works. The turbines will have a blade tip height of 200m above the top of the foundation level and will be accessible from internal access routes within the Bord na Móna site.

The proposed development will comprise:

An 18 no. wind turbines (including tower sections, nacelle, hub, and rotor blades) and all associated foundations and hard-standing areas in respect of each turbine. The turbines will have a tip height of 200m above the top of foundation level. The rotor diameter will be 158m with corresponding blade length of 77.5m. The delivery of turbine elements will be Abnormal Indivisible Load (AIL).

Decommissioning and removal of 21 no. existing Bellacorick Wind Farm wind turbines (including tower sections, nacelle, hub, and rotor blades). Due to the size of these turbines with smaller largest component of the blade length of 14-15m, the removal of these turbine elements will not be AILs.

New internal site access roads, approximately 29,000m in length (permanent and temporary), passing bays, car parking and associated drainage.

An amenity route through the site to the existing Visitors Centre with access from a local road off the N59 near Dooleeg.

Two no. borrow pits and 5 no. peat deposition areas within the site. 4 no. temporary construction compounds, including material storage, site welfare facilities, and site offices.

A permanent Meteorological Mast 120m high, and the decommissioning and removal of an existing 100m Meteorological Mast on site.

A 110kV electrical substation compound with 2 No. control buildings, a 36m high telecommunications tower, associated electrical plant and equipment and a wastewater holding tank. For transport of the transformer this will be an AIL delivery.

All associated underground electrical and communications cabling connecting the wind turbines to the proposed substation.

All works associated with the connection of the proposed wind farm to the national electricity grid, including a 110kV underground electrical cable from the proposed on-site electrical sub-station to the existing sub-station at Bellacorick across peat lands with 1 no. road crossing of the L52925.

All related site works and ancillary development including (but not limited to) the following earthworks; peat management works; site security; groundwater and surface water management; overburden (soils/peat) storage and management; and site reinstatement, landscaping and erosion control.

A 10-year planning permission and 30-year operational life from the date of commissioning of the entire wind farm.

In addition, there will be a requirement for temporary modifications to public road infrastructure to facilitate the delivery of AILs.

All elements of the proposed project as listed above, including grid connection and have been considered and are addressed as part of this EIAR.

17.2 METHODOLOGY

17.2.1 Background and Objectives

This chapter presents the Traffic and Transport assessment of the potential for impacts arising from the proposed project (during construction, operation and decommission) on the existing road network. The assessment envisages the potential impacts and proposes the mitigation measures to be put in place to reduce these impacts. The assessment criteria were scoped with the Local Authority. These impacts and mitigation measures have been presented and are discussed below.

For developments of this nature, the construction phase is the critical impact period, with impacts experienced on the surrounding road network. These impacts are both the short-term additional traffic volumes and the geometric requirements of the abnormally large loads associated with the turbine components. To minimise the impact of the proposed development during the construction stage a Traffic Management Plan (TMP), has been prepared and is included in the Construction and Environmental Management Plan (CEMP), Appendix 3-1 of this EIAR.

The assessment methodology undertaken for this assessment is summarised as follows:

- Review of appropriate guidance to identify appropriate assessment pathways for both the construction, operational and decommissioning phases.
- Characterise the receiving environment through baseline traffic count survey at locations scoped with the Local Authority.
- Undertake predictive calculations to develop the traffic volumes to quantify and assess the potential impacts associated with the construction phase, operational phase and decommissioning phase of the proposed development.
- Third party specialised haul route assessments, for the Abnormal Indivisible Loads (AILs), were undertaken.
- Specify mitigation measures to reduce, where necessary, the identified potential outward impacts relating to traffic and transportation from the proposed development.
- Describe the significance of the residual traffic and transport effects associated with the proposed development.

17.2.2 EPA Description of Effects

The significance of effects of the proposed development shall be described in accordance with the EPA guidance document Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), (2022). Details of the methodology for describing the significance of the effects are provided in Chapter 1 – Introduction.

The effects associated with the proposed development are described in the relevant sections of this chapter in accordance with the TII guidance refer to Section 17.1.2.

17.2.3 Assessment Criteria

The following sections review best practice guidance that is commonly adopted in relation to developments such as the one under consideration here.

This EIAR chapter follows the guidelines set out by TII in the document TII PE-PAV-02045 "*Traffic and Transportation Assessment Guidelines, May 2014"*. The Traffic and Transportation Assessment is set out as follows:

- A review of the existing and future transport infrastructure in the vicinity of the Proposed Development, including an assessment of 2022 background traffic flows and traffic forecasts during an assumed construction completion year of 2027;

- A description of the nature of the Proposed Development and the traffic volumes that it will generate during the construction phase and when it is operational;
- A description of the AILs and vehicles that will require access to the site and a review of the traffic impacts on the proposed delivery routes;
- A review of the potential impacts of the proposed development – Section 17.4 Potential Effects;
- An identification of mitigation measures – Section 17.5 Mitigation Measures;
- An assessment of cumulative impacts – Section 17.6 Cumulative Effects, and
- An assessment of residual impacts – Section 17.7 – Residual Effects.

The geometric design elements of the Wind Farm include the following and have been assessed in accordance with the best practice guidelines and standards as outlined below:

- The proposed geometry of the site access has been assessed using swept path analysis using Autodesk AutoCAD Vehicle Tracking for all associated construction vehicles.
- The existing geometry of the road network for the Abnormal Indivisible Loads[1] (AILs) haul route (or referred to as the Turbine Delivery Route (TDR) in other chapters) for the longest AIL, the turbine blade components have been assessed using swept path analysis using Autodesk AutoCAD Vehicle Tracking.

A Traffic Management Plan (TMP) has been developed as part of the mitigation measures to address the potential impact of the proposed Oweninny Wind Farm Phase 3. Refer to Appendix 3.1 of this EIAR.

17.2.4 Assessment Methodology

17.2.4.1 Background Traffic Survey

Background traffic survey data was used to determine typical background traffic levels on the N59, which provides access to the development site via an existing priority T-Junction. The use of the TII Live Traffic Counter Data (https://trafficdata.tii.ie/publicmultinodemap.asp) was agreed with MCC during the scoping process. The traffic counter on the N59 with the Station ID: TMU N59 070.0 S and description *N59 Between Crossmolina and Bangor-Erris, Moylaw, Co. Mayo* was selected due to its proximity to the site access and presence on the N59, see Figure 17-1. The background traffic data is typically selected during the neutral period in accordance

[1] Abnormal Indivisible Load - a load which cannot be divided or broken down e.g. containers, large equipment etc. and exceeds the weight, height, width or length limit(s) set out in the above road traffic regulation. (www.rsa.ie)

with the TII *Project Appraisal Guidelines for National Roads Unit 5.2 – Data Collection (TII PE-PAG-02016, October 2016).* However, review of the TII Live Traffic Counter Data indicated the month of August as having the highest average daily traffic volumes. The monthly daily average from August 2022 was selected as the baseline for the assessment.

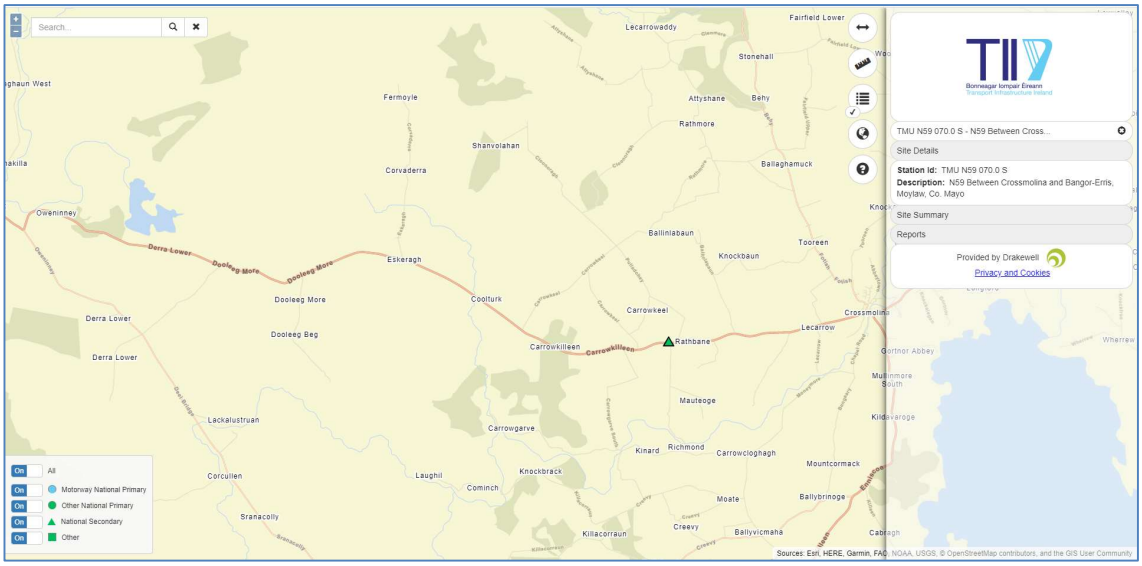

Figure 17-1: Traffic Count Locations (Source: https://trafficdata.tii.ie/)

17.2.4.2 Haul Routes

For wind farm projects there are two types of haul routes required for the transport of the materials to the site during the construction stage. These haul routes are the:

- Construction Haul Route for standards axle loaded vehicles and
- Construction Haul Route for Abnormal Indivisible Loads (AILs)[2];

  The turbine component delivery and transformer delivery are a specialist operation due to the size of the loads transported. The AIL vehicles will accommodate transport of the tower, nacelle, blades, and substation transformers.

17.2.4.2.1 Construction Haul Route

Based on the nature of the development, various construction materials will be delivered to the site over the construction programme. The materials will be delivered by standard heavy good vehicles (HGVs) including rigid lorries and articulated lorries. Other vehicles that will attend the site include standard construction machinery, i.e. crane, excavator, stone crusher, concrete trucks, tipper trucks.

[2] A load which exceeds the weight, height, width or length limit(s) outlined in S.I. No. 5 of 2003 of Road Traffic Construction Equipment and Use of Vehicles Regulations 2003. (www.rsa.ie)

The construction traffic with the largest daily impact (i.e. peak) is the combined construction activities during months from September to November in the year 2025 as outlined in the Construction Programme. This traffic is associated with the importation of the aggregate for the site compound, internal haul routes, turbine hardstanding areas and the steel and blinding for the turbine foundations. The second largest impact is associated with the concrete pours for the turbine foundations. Due to the process of a continuous single concrete pour per turbine foundation at each of the 18 no. turbine foundation locations, this relates to 18 days of the construction programme.

The other materials required onsite will include met mast, building materials, fencing, drainage, culverts, water treatment, substation materials, welfare facilities etc., are assumed to be sourced locally and arrive to site via the N59 from the direction of Crossmolina or the Bangor Erris direction.

During the scoping with Mayo County Council (MCC), the haul route for these materials by heavy goods vehicles (HGVs) was identified as via the N59. At scoping with MCC a potential source for the concrete for the turbine foundation pours was discussed. The delivery of other non-concrete materials was also assumed to predominantly arrive to site from the direction of Crossmolina.

Note, as this development may not be constructed in the immediate 5 years, there is the potential that alternative sources for material may be available at the time of construction. At the construction stage the appointed contractor will liaise with MCC.

The worst-case scenario for the traffic distribution with all (i.e. 100%) of all materials arriving to site from either the west or the east has been assessed.

The traffic volumes, both peak and average on the construction haul route are assessed in this environmental impact assessment.

GENERAL LEGEND

APPLICATION BOUNDARY

LANDOWNERS BOUNDARY

WEST DISTRIBUTION

EAST DISTRIBUTION

Co. Mayo

OSI 1:50,000 Sheet No's: 0830, 0832, 1030, 1032.

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1km 0 1km 2km 3km

Rev	Date	Description	By	Chkd.
A	28.03.23	Draft Issue	EB	LG

Client: Bord na Móna

Project: OWENINNY WIND FARM PHASE 3

Title: CONSTRUCTION HAUL ROUTE

Scale @ A1:	1:55,000	
Prepared by: E. Beggs	Checked: L. Gaffney	Date: March 23
Project Director:	B. Gallagher	
Drawing Status:	Draft	

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Drawing No.: Figure 17.2

Revision: A

17.2.4.2.2 Abnormal Indivisible Load (AIL) Haul Route

For Oweninny Wind Farm a number of AIL delivery haul route have been assessed based on several considerations including but not limited to the following:

- Wind Turbine Specification.
- Ports suitable to receive the turbine components.
- Desk study and site visit of alternative AIL haul routes.
- Swept path analysis of pinch points / junctions on the AIL Haul Route.

The exact rating and design of the proposed turbine will be subject to a competitive procurement process that will only commence if the project receives consent. The proposed turbine will be detailed by the turbine manufacturer on award of the contract.

The haul route assessment for the AILs has been undertaken for a wind turbine with a 200m tip height, a hub height of 121 m, and a rotor diameter of 158 m, which corresponds toa maximum component length of 77.5m. The use of either blade lifter technology and or segmented blades informs the assessment.

It is clear that either the utilisation of segmented blades or blade lifters (or a mixture of both approaches) will be required to deliver the proposed blades to the site. It is expected that the 77.5m blade will be delivered to site in 2 no. segments over 2 no. vehicles, with the longer segment being up to 57.5m and the shorter segment a minimum of 20m. Refer to Chapter 3 Description of Proposed Development Section 3.4.1.4 Turbine Blade for details of available blade technology and existing specifications.

For the purpose of this assessment various ports has been assessed as having sufficient capacity and infrastructure to accommodate the proposed turbine components and transformer. It is noted that the selection of the turbine specification will impact on the port for delivery of the turbine components and transformer. The following ports and associated routes have been considered in the assessment:

- Port of Galway, Galway City – Route A
    - Route A

      commences at Galway port, and utilising both motorway and national roads to the site via Rathmorrissey Interchange to Tuam and onwards to Claremorris, Charlestown, Foxford and Crossmolina to the site access.
- Shannon Foynes Port, Co. Limerick – Route A1

- Route A1

  commences in Foynes, towards Limerick City and north to the Rathmorrissey Interchange and continuing along Route A.

- Killybegs Port, Co. Donegal – Route B and Route C
  - Route B

    commence at Killybegs port, through Bundoran and onto Crossmolina. This route continues south of Sligo to Collooney and west to Ballina via Tobercurry via the R294. From Ballina, it follows the same route to Crossmolina and onward to the site access as per Route A.
  - Route C

    commence at Killybegs port, though Bundoran and onto Crossmolina. This route continues west, south of Sligo at Ballysadare via the N59 onto Ballina. From Ballina, it follows the same route to Crossmolina and onward to the site access as per Route A.

Note Route C is the route utilised in 2019 and 2021 for Oweninny Wind Farm Phase 1 and 2 for the transport of the turbine blades of 57.5m in length.

The route options for the AIL delivery are shown in Figure 17-3.

The AIL haul routes identified utilises primarily the national road network with limited regional road network and avoids the local road network where feasible. The national and regional road networks have a greater capacity for accommodating the movements of the AILs due to their character.

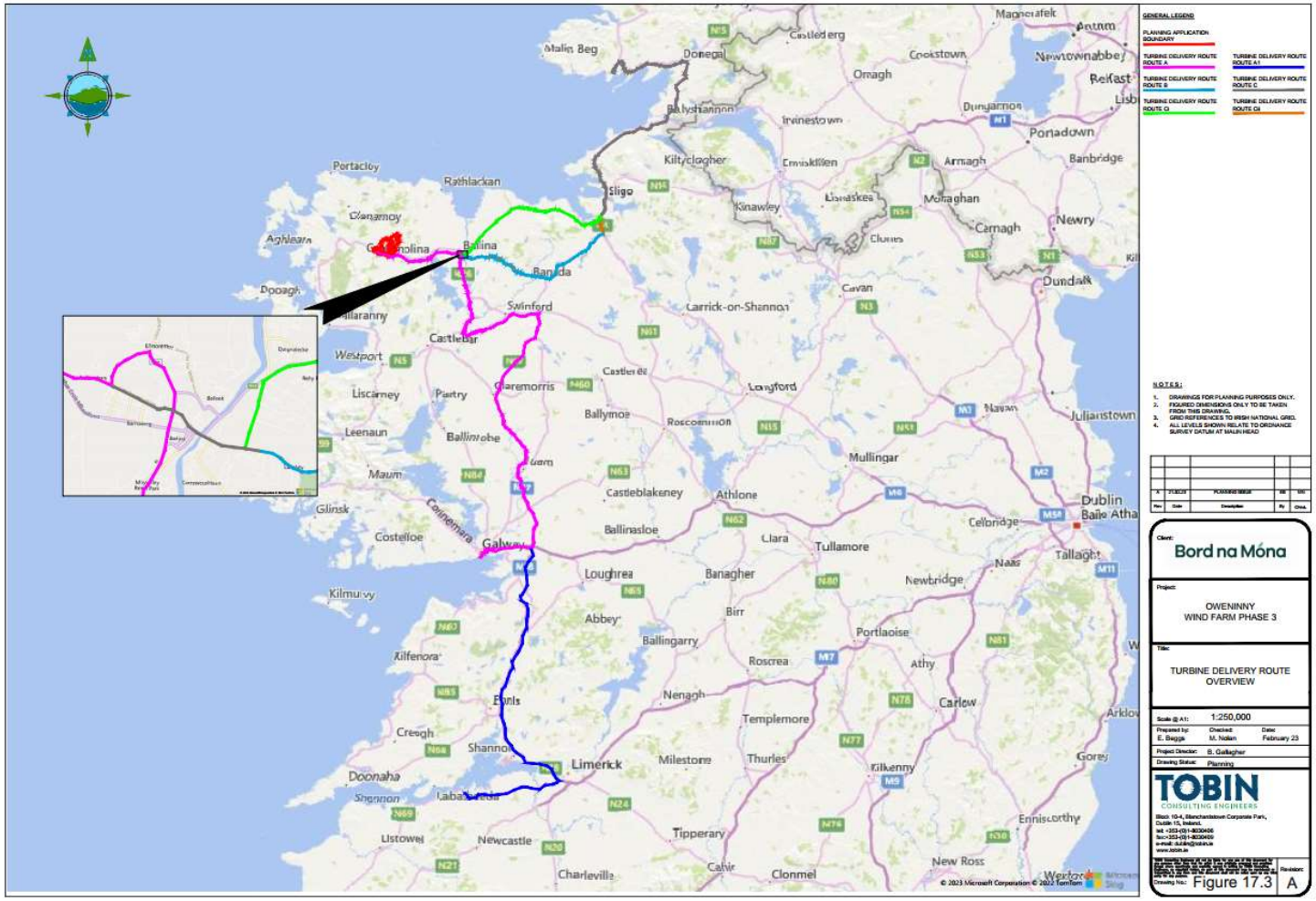


Figure 17-3: Abnormal Indivisible Load (AIL) Delivery Routes / Turbine Delivery Route (TDR)

17.2.4.3 AIL Haul Route Assessment

Methodology

The methodology for the AIL Haul Route Assessment is based on swept paths of the transport vehicle for the largest component to be delivered to the site. As outlined in Section 17.2.4.5.1, two options are being assessed:

- segmented blades with 2 segments, with maximum blade length of 57.5m and
- non-segmented blades via a blade lift adaptor with total vehicle and load lengths as follows:
    - zero elevation with total length of 89m and
    - 60-degree elevation with total length of 50m.

The swept paths of the non-segmented blades are included in Appendix 17.1

17.2.4.4 Traffic Calculations

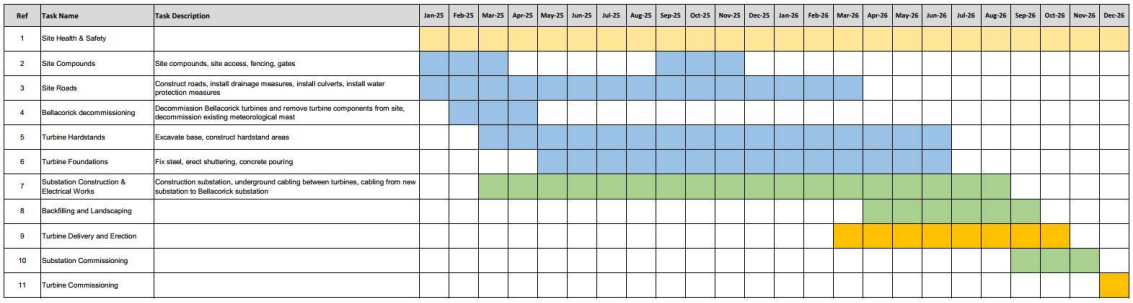
17.2.4.4.1 Construction Traffic Calculations - Construction Traffic Haul Route

Methodology

The construction traffic has been developed based on the site layout, the construction materials required, the associate construction vehicle capacities, the construction programme and construction hours for the Proposed Development. Due to the nature of construction activities, it is difficult to accurately calculate the forecasted development traffic on to the local environment in the absence of a detailed construction programme prepared by the Contractor. However, the traffic calculations used in this assessment, are a robust calculation based on site specific parameters with a construction programme developed by an experienced Client, Bord na Móna, in wind farm projects.

Construction Programme

The construction programme for Oweninny Wind Farm is outlined in Chapter 3, Section 3.7.2 and is shown in Figure 17-4. The phasing and scheduling of the main construction task items are detailed.



Ref	Task Name	Task Description	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
1	Site Health & Safety																									
2	Site Compounds	Site compounds, site access, fencing, gates																								
3	Site Roads	Construct roads, install drainage measures, install culverts, install water protection measures																								
4	Bellacorick decommissioning	Decommission Bellacorick turbines and remove turbine components from site, decommission existing meteorological mast																								
5	Turbine Hardstands	Excavate base, construct hardstand areas																								
6	Turbine Foundations	Fix steel, erect shuttering, concrete pouring																								
7	Substation Construction & Electrical Works	Construction substation, underground cabling between turbines, cabling from new substation to Bellacorick substation																								
8	Backfilling and Landscaping																									
9	Turbine Delivery and Erection																									
10	Substation Commissioning																									
11	Turbine Commissioning																									

Figure 17-4 Overall Oweninny Wind Farm Construction Programme Phase 3

The construction programme is 2 years (i.e. 24 months or 550days), with an arbitrary start date for construction activities selected as in January 2025 and with a construction completion date in 2027.

The first phase of the civil works will include site preparation/clearance, development of the temporary construction compounds and associated fencing. The next phase will include widening existing internal access tracks and building new internal access tracks to facilitate the construction of the substation base, opening of borrow pits and access for the operation of peat deposition areas.

During the site clearance, the existing Bellacorrick Wind Farm turbines will be decommissioned and removed off-site. The blades are the longest elements of the Bellacorrick Wind Farm at 14 - 15 m in length. The blades will be transported offsite by standard articulated vehicle or if broken up by a standard truck, as per the other turbine components. During these works, the existing meteorological mast will be decommissioned and removed off-site. Refer to chapter 3.8.5 and Appendix 3.2 Decommissioning of Bellacorrick Wind Farm for further details.

The delivery of the materials for the hardstanding areas (i.e. parking, substation, lay down areas for turbine components), blinding and arrival to site of the cranes will occur next in the programme. The concrete pours for foundation at the substations and turbine locations are sequenced next. The substation construction and associated electrical works including cable laying will overlap with the hardstanding and foundation works.

Prior to the final stage of commissioning the substation and turbines, the turbine components will be delivered to site and erected by cranes. In parallel with these activities, the backfilling and landscaping works will be undertaken.

As the construction activities progress inward from the site access various phases will become active and will overlap with each other with different areas within the site at different phases of the construction programme. The grid connection cabling works are envisaged occur later in the construction programme.

Construction Hours

Construction activities will be carried out during normal daytime working hours (i.e., weekdays 0800 – 2000hrs and Saturday 0800 – 1300 hrs). However, to ensure that optimal use is made of good weather period or at critical periods within the programme (e.g., concrete pours) or to accommodate delivery of large turbine component along public routes it could be necessary on occasion to work outside of these hours. Any such out of hours working will be agreed in advance with the Local Authority.

Site Layout, Construction Materials & HGV Traffic Volumes

From the site layout for the Proposed Development, the associated materials for each construction activity are calculated. Based on the associated vehicle type for the delivery of these materials the number of HGV movements are calculated considering the duration of the construction activities in the construction programme Refer to Table 17-1 for the details of the Construction Traffic Haul Route traffic volumes.

Table 17-1 Construction Materials, Vehicle Types and HGV Traffic Volumes – Total Wind Farm

Material	Units	Truck Type	Elements	Total Truck Loads	Working Days	1-Way movements per day
Site Clearance Bellacorrick Wind Farm - External movements						
Turbine – Nacelle	21 No.	Flat bed truck	1	21	4	5
Turbine – Blades	63 No.	Articulated trailer unit / standard rigid truck	3	63	13	5
Turbine - Tower	84 No.	Flat bed truck	4	84	17	5
Meteorological Mast – decommissioning existing	3	Flat bed truck, 13t excavator & tipper truck	-	3	2	3
Material	**Total Volume (m3)**	**Truck Type**	**Truck capacity (m3)**	**Total Truck Loads**	**Working Days**	**1-Way movements per day**
Groundworks - External movements						
Concrete	10,800	Concrete truck	8	1,350	18	75
Concrete blinding	1,800	Concrete truck	8	225	18	13
Reinforcing steel		Flat bed truck		18	18	1
Site setup / fencing		Flat bed truck		50	25	2
Meteorological Mast – proposed new	2	Flat bed truck & crane		2	2	2
Crushed rock and sand - Access Roads	144,783	Articulated trailer unit	18	8,044	330	24
Crushed rock and sand - Turbines & Hardstands	157,606	Articulated trailer unit	18	8,756	352	25
Crushed rock and sand - Other	79,582	Articulated trailer unit	18	4,421	264	17
Ducting/cabling		Flat bed truck		500	66	8
Cranes				10	2	5
Substation		Flat bed truck		90	45	2
Refuelling/maintenance		Articulated trailer unit		40	40	1
Total				**23,677**		
Groundworks - Internal movements						
Peat transport	435,159	Tipper truck	12	36,263	413	88

Total				**13,015**		

Notes:

(1) All construction deliveries (excl. concrete pours) have been averaged over the Monday-Friday and half day Saturday working week.
(2) Total construction weeks in each year is assumed to be 50 weeks.
(3) The above does not assume any materials are obtained from the Borrow Pits onsite.
(4) A bulking factor and 25% stone contingency are incorporated into the construction volumes.
(5) Site Clearance movements for Bellacorrick Wind Farm are based on the turbine components only, all other infrastructure is assumed to be retained onsite.
(6) Concrete pours for each foundation will occur on 1 day as required by the construction methodology.
(7) Meteorological mast refers to the existing mast on Bellacorrick Wind Farm to be decommissioned and disposal offsite. A new mast to be transported to site and erected.
(8) The temporary construction compounds will be retained onsite after the construction phase.
(9) This construction traffic table is a simplified traffic volume table against programme and a more detailed delivery schedule will be developed by the appointed contractor.

In the development of the traffic generations, there are a number of assumptions outlined in the notes under Table 17-1. This includes the assumption that the subbase material and concrete are to be sourced locally. Borrow pits have been identified on the site, however for worst case scenario assessment it has been assumed they do not provide any suitable material and all materials are sourced from offsite.

Traffic Generations

The traffic generations are developed based on the materials / deliveries / disposals required at the site as outlined in Table 17-1 and attributing these deliveries to the associated construction activity in the construction programme as outlined in Figure 17-4.

The following Table 17-2 and Figure 17-5 shows all the construction HGVs assigned to their corresponding activity and duration in the construction programme. The below indicates a peak HGV movement in September 2025 to November 2025 (i.e. 3 months), when the following activities are occurring simultaneously: site compounds, site roads, turbine hardstands, turbine foundations and substation construction with electrical works. The resulting peak HGV volume is 143 HGVs one-way. This includes for the concrete pours which account for 75 of these one-way HGV movements.

The construction methodology for the concrete turbine foundations requires them to be poured on a single day, resulting in all 75HGVs required to arrive to site over one day, on 18 occasions for the turbine foundations.

Table 17-2 Construction Programme 1-way HGV Construction Volumes per day including Concrete Pours

		Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ref	Task Name	Task Description	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
1	Site Health & Safety																									
2	Site Compounds	Site compounds, site access, fencing, gates	19	19	19						17	17	17													
3	Site Roads	Construct roads, install drainage measures, install culverts, install water protection measures	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24									
4	Bellacorick decommissioning	Decommission Bellacorick turbines and remove turbine components from site, decommission existing meteorological mast		8	8	8																				
5	Turbine Hardstands	Excavate base, construct hardstand areas			25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25						
6	Turbine Foundations	Fix steel, erect shuttering, concrete pouring					75	75	75	75	75	75	75	75	75	75	75	75	75	75						
7	Substation Construction & Electrical Works	Construction substation, underground cabling between turbines, cabling from new substation to Bellacorick substation			2	2	2	2	2	2	2	2	2	2	2	2	8	2	8	2	8	2				
8	Backfilling and Landscaping																	17	17	17	17	17	17			
9	Turbine Delivery and Erection																5	5						10		
10	Substation Commissioning																						2	0	2	
11	Turbine Commissioning																									0
	Total 1-way / day		43	51	78	59	126	126	126	126	143	143	143	126	126	126	137	124	124	119	24	19	19	10	2	0
	Total 2-way / day		86	102	156	118	252	252	252	252	286	286	286	252	252	252	269	242	248	237	49	37	36	10	3	0
	Average 1-way		88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
	Average 2-way		177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177

Notes:

(1) The turbine deliveries for Oweninny Wind Farm Phase 3 will occur during night-time with traffic management and garda escort. As this traffic will be isolated from other daily traffic movements, it has not been added into the daily traffic volumes in this table.

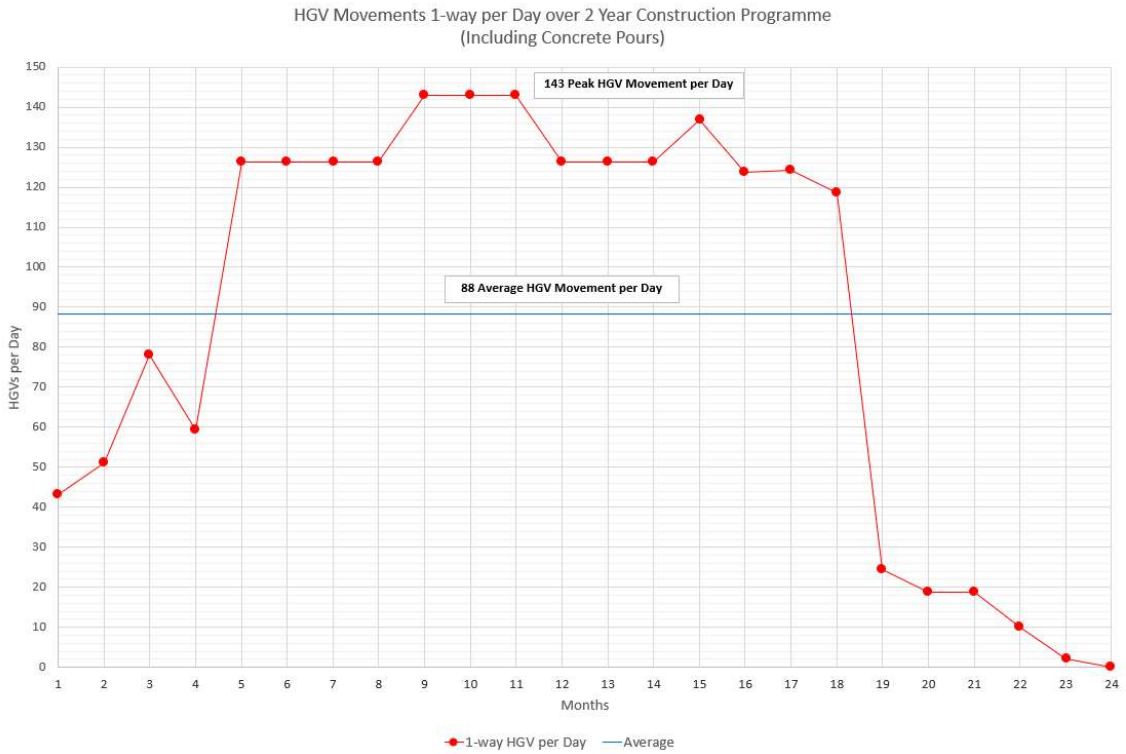


Figure 17-5 Graphical representation of the Construction Traffic over Construction Programme, representing 1-way movements per Day – with Concrete Pour HGVs

To mitigate the impact of the construction traffic on the road network and surrounding environment, during the days for the concrete pours all other construction HGVs will be limited to essential deliveries and / programmed to occur on other days of the construction programme.

The resulting impact on the construction traffic volumes are represented in Table 17-3 and Figure 17-6. The peak construction HGV movements will be 81 HGV one-way per day and an average of 52 HGV movements one-way per day. These values have been taken forward into the assessment of the potential impact.

Table 17-3 Construction Programme 1-way HGV Construction Volumes per day excluding Concrete Pours

		Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ref	Task Name	Task Description	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
1	Site Health & Safety																									
2	Site Compounds	Site compounds, site access, fencing, gates	19	19	19						17	17	17													
3	Site Roads	Construct roads, install drainage measures, install culverts, install water protection measures	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24									
4	Bellacorick decommissioning	Decommission Bellacorick turbines and remove turbine components from site, decommission existing meteorological mast		8	8	8																				
5	Turbine Hardstands	Excavate base, construct hardstand areas			25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25						
6	Turbine Foundations	Fix steel, erect shuttering, concrete pouring					14	14	14	14	14	14	14	14	14	14	14	14	14	14						
7	Substation Construction & Electrical Works	Construction substation, underground cabling between turbines, cabling from new substation to Bellacorick substation			2	2	2	2	2	2	2	2	2	2	2	2	8	2	8	2	8	2				
8	Backfilling and Landscaping																	17	17	17	17	17	17			
9	Turbine Delivery and Erection																5	5						10		
10	Substation Commissioning																						2	0	2	
11	Turbine Commissioning																									0
	Total 1-way / day		43	51	78	59	65	65	65	65	81	81	81	65	65	65	75	62	63	57	24	19	19	10	2	0
	Total 2-way / day		86	102	156	118	129	129	129	129	163	163	163	129	129	129	146	119	125	114	49	37	36	10	3	0
	Average 1-way		53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
	Average 2-way		105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105

Notes:

(1) The turbine deliveries for Oweninny Wind Farm Phase 3 will occur during night-time with traffic management and garda escort. As this traffic will be isolated from other daily traffic movements, it has not been added into the daily traffic volumes in this table.

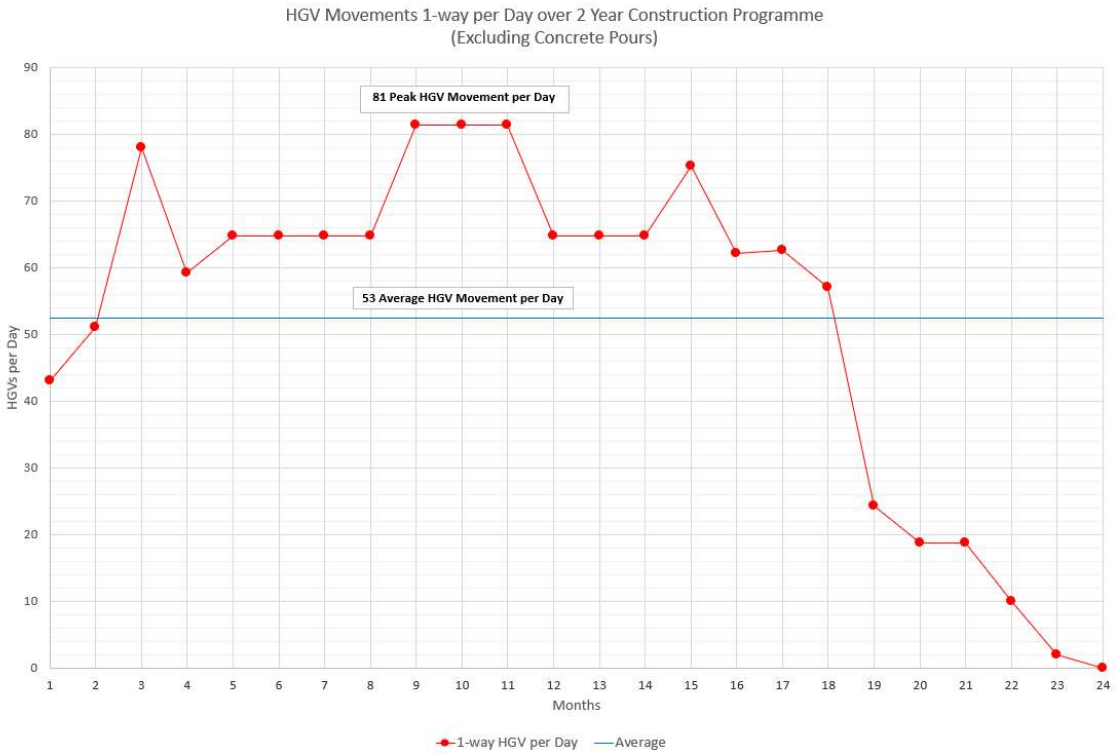


Figure 17-6 Graphical representation of the Construction Traffic over Construction Programme, representing 1-way movements per Day – excluding Concrete Pour HGVs

Traffic Generation – Peak and Average

The construction traffic associated with the construction of the Wind Farm on the Construction Haul Route is assessed under two scenarios, as a peak and an average traffic generation.

Peak: The peak traffic generation will be associated with the 81 HGV one-way movements over the 3-month period described above.

Average: The average construction traffic will be associated with the 53 HGV one-way movements over the 2-year construction programme.

Construction Trip Generation – Staff

The number of construction staff will vary dependant on the phase of the construction activities. At the peak construction on the Wind Farm site, a maximum of approximately 100-120 personnel are estimated. A reduction in construction staff on site is expected when the construction activities are more technical and less labour intensive.

For the grid connection cabling works on the local road, L52925, the road crossing works will be undertaken by Hydraulic Directional Drilling (HDD) as outlined in Chapter 3 Table 3.3. For the road crossing works, the construction staff numbers will be 4/5 personnel.

17.2.4.4.2 Abnormal Indivisible Load (AIL) Haul Route

The trip generations associated with the delivery of the AILs are based on the number of turbines, their associated components and delivery method and delivery of the transformer to site. As outlined in Chapter 3, Section 3.4.1.4 Turbine Blades, the turbine blades, and the vehicle for transporting the blades will be determined upon procurement. The proposed blade options include:

- segmented blades with 2 segments over 2 no. deliveries via an extended artic or
- non-segmented blades with 1 no. delivery via a blade lifter.

Table 17-4: Abnormal Indivisible Load Traffic – Blade Options

Element	Blade Type	Truck Type	Turbines	Blades	Segments	Total Components
Blades	Segmented	Extended artic	18	3	2	108
Blades	Non-Segmented	Blade Lifter	18	3	1	54

This EIAR chapter assesses the worst-case scenario for the traffic volume associated with the turbine components and their elements. As evident in Table 17-4, the maximum movements will be associated with the segmented blades, and these have been collated into the table below.

The traffic movements associated with the AIL deliveries are summarised in Table 17-5.

Table 17-5: Abnormal Indivisible Load Traffic - Total Traffic Volume

Turbine Component	Truck Type	Turbines	Quantity per Unit	Total Truck Loads
Nacelle	Extended artic	18	1	18
Blades (Segmented)	Extended artic	18	3 x 2	108
Towers	Extended artic	18	5	90
Transformer	Extended artic	1	1	1
Total				**217**

17.2.4.4.3 Operational Traffic Calculations

The operational traffic has been developed based on the traffic volumes associated with the operation of the existing Oweninny Wind Farm Phase 1.

17.2.4.4.4 Decommissioning Traffic Calculations

The decommission traffic has been developed based on a similar methodology to the construction traffic calculation and will take account of infrastructure retained onsite (i.e. internal access roads for amenity use) which will result in a lower traffic volume than the construction phase.

17.2.4.5 Input Data and Assumptions

The input data and assumptions made are described in the following sections.

17.2.4.5.1 Proposed Construction Stage Vehicle Details

Standard Construction Vehicles

The construction vehicles will be standard rigid and articulated lorries for material deliveries / removal at the site. The rigid vehicles will include standard concrete trucks, flatbed trucks for delivery of building materials, excavators, tipper trucks, waste haulage and aggregate delivery trucks. The articulated vehicles will typically be used for the delivery of building materials (i.e. bricks, fencing, rebar, met mast, culverts etc).

Other vehicles include cranes and onsite construction vehicles / machinery (i.e. rollers, tipper trucks, excavators, JCBs, rock crusher etc). These main construction vehicles will be standard HGVs in common use on Irish roads which are significantly smaller than the abnormal load vehicles required for transporting the turbine components.

Staff Vehicles

Staff are assumed to arrive and depart using Light Vehicles (LV) (i.e. car or vans).

Proposed Turbine Details and Transport Vehicle Details

As outlined in Section 17.2.4.2, the wind turbine in the assessment has a 200m tip height, a hub height of 121 m, and a rotor diameter of 158 m, which corresponds to a maximum component

length of 77.5m. The use of either blade lifter technology and or segmented blades have been assessed.

It is expected that the 77.5m blade will be delivered to site in 2 no. segments over 2 no. vehicles, with the longer segment being up to 57.5m and the shorter segment a minimum of 20m. It is noted that the longer segment corresponds to the size of the blades of the turbines currently construction / under construction for Oweninny Wind Farm Phase 1 and Phase 2. As such the AIL Route C, will not require any works to accommodate the proposed AILs as a blade of the same size has been successfully transported to the site.

For the blade lifer technology, an assessment was undertaken by Collettt & Sons Limited, specialists in haulage of AILs. The swept paths indicate the blade length corresponding to the 77.5m length blade proposed. The vehicle can be driven with the load flat (i.e. zero elevation) and with the load elevated (i.e. 60 degree elevation), see Figure 17-7 and Figure 17-8 respectively.

When the blade lifter technology is in its elevated position, the corresponding length of the vehicle and load is approximately 50m. The length of the AIL is less than the 57.5m length of the blades transported to site for the Phase 1 and Phase 2 of Oweninny Wind Farm.

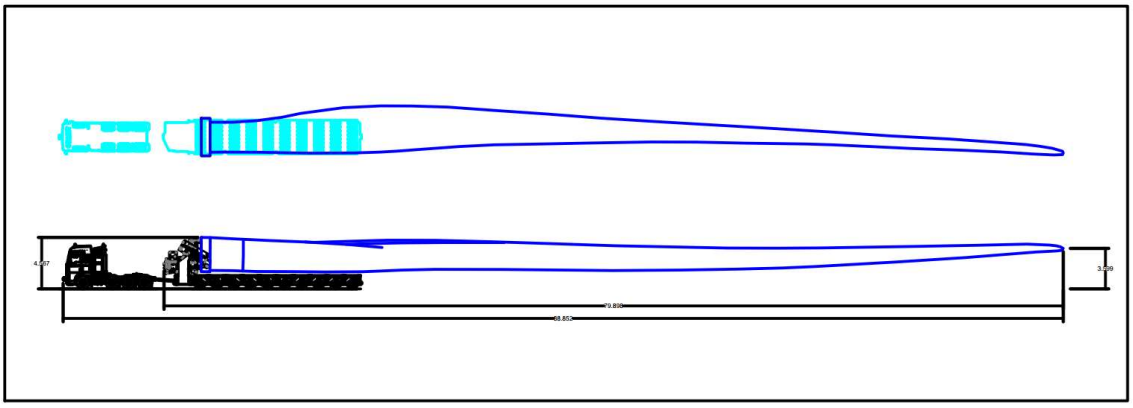


Figure 17-7 Blade Lifer Technology Schematic with Turbine Blade – Zero Elevation

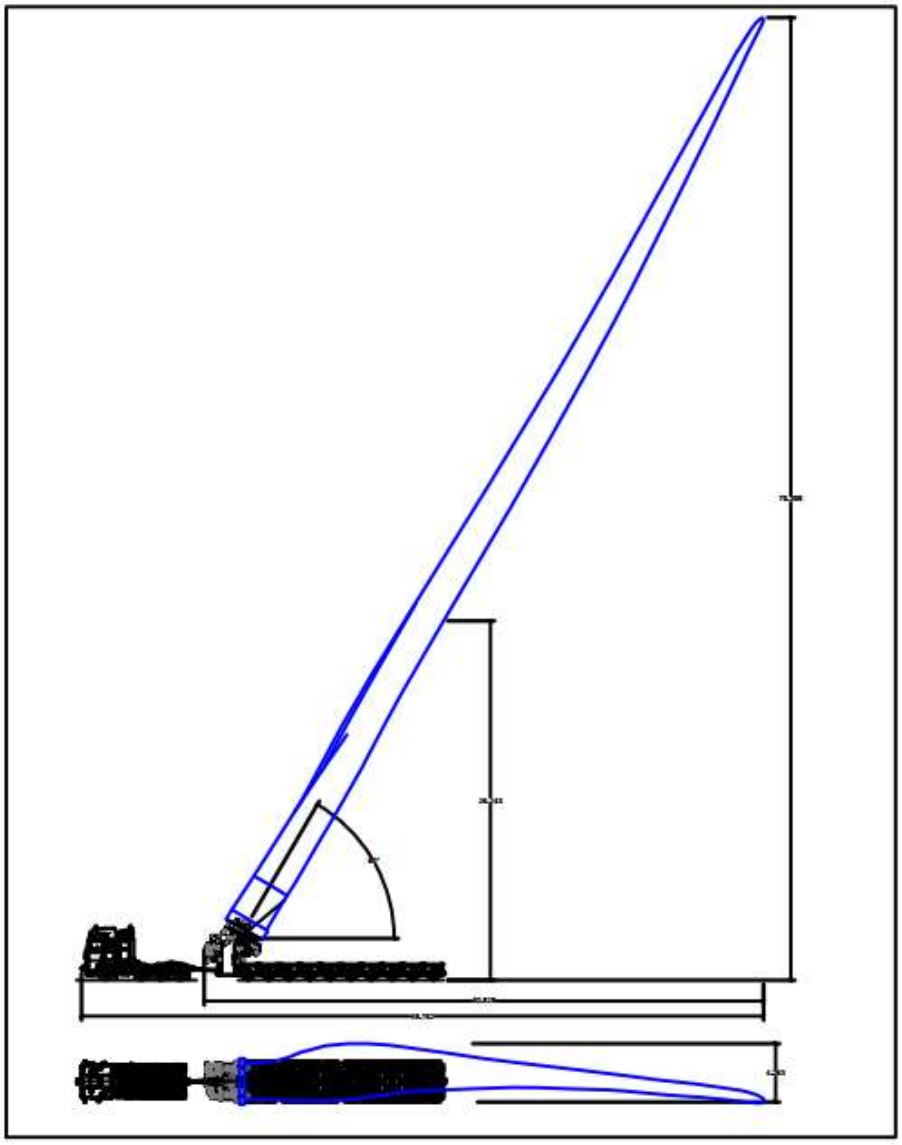


Figure 17-8 Blade Lifter Technology Schematic with Turbine Blade – Sixty Degree Elevation

17.2.4.6 Junction Assessment

Traffic volume information available for the TII Live traffic counter was assessed for the current year and forecasted to the future assessment years. The potential impact of the development is added to this baseflow traffic to determine the potential impact for the different assessment scenarios (i.e. traffic generations and traffic distributions).

17.2.4.6.1 Assessment Years

Assessment Years

The assessment years are initially based on the Project Programme:

- Construction Year 2025-2027.
- Operational Year 2027 – 2057.
- Decommission Year 2057.

Other considerations in determining the assessment years are,

- TII Traffic and Transportation Assessment (TTA) Guidelines
  - Outlines the Thresholds and Sub-thresholds for undertaking a TTA.
  - Recommends Assessment Years for:
    - Baseflow,
    - operational year,
    - operational plus 5 years and
    - operational plus 15 years.
- TII Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projects
  - Defines the annual growth rates to apply to the baseflow traffic until the year 2050.
- Scoping with the Local Authority

Based on the above, the operational phase of the Proposed Development will be sub-threshold and not require a TTA and this was agreed during scoping with MCC. The decommissioning year will be in 2057 outside of the available growth rates for forecasting the baseflow traffic to the assessment year. Hence, the only assessment years will be the following:

- Baseflow Traffic in 2022 and 2027
- Construction Stage Traffic in 2027.

The forecasted baseflow traffic in the year 2027 is based on Central Growth Rates for the associated county value in accordance with TII *Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (October 2021).*

Table 17-6 Link-Based Growth Rates: County Annual Growth Rates (excluding Metropolitan Area)

PE-PAG-02017	Growth Rates	County	2016-2030	
			LV	HV
Table 6.2	Central Growth Rates	Mayo	1.0127	1.0330
Table 9.2	Alternative Future Demand Sensitivity Scenario (AFDSS)	Mayo	1.0102	1.0330

17.2.4.6.2 Proposed Development Traffic Generations and Distributions

Traffic Generations

As outlined in section 17.2.4.2, there are two types of haul routes in this EIAR. The Construction Haul Route and the AIL Haul Route. For the junction assessment, only the Construction Haul Route is assessed as the AIL will be delivered at night-time under Garda escort and potential road closures. As the traffic volumes for the AILs will be low, at night-time and potentially operating under a road closure, no / low volumes other vehicles will be on the road. Hence, the AILs have been excluded from the Junction Assessment.

All staff are assumed to arrive to the site by LVs with approximately 2 persons per vehicle.

Traffic Generations for the assessment of the Construction Phase for traffic on the Construction Haul Route are shown in the Table 17-7:

Table 17-7 Traffic Generations for Construction Phase Traffic on the Construction Haul Route

Scenario – Vehicle Type	Construction Activity	Programme (Duration)	Inbound (1-way)	Outbound (1-way)	Total (2-way)
Peak Traffic - HGV	Combined Construction Activities: • Site Compounds • Site Roads • Turbine Hardstanding • Turbine Foundations *(excluding the concrete pours)* Refer to Table 17-3	3 months	81	81	162
Peak Traffic - LV		3 months	60	60	120
Average Traffic -- HGV	All other construction activities (excluding the concrete pours)	17 months	53	53	106
Average Traffic -- LV		17 months	30	30	60

Note:

(1) The total construction programme is 550 days / 2years.

(2) The peak and average traffic volumes do not include for the concrete pour for the turbine foundations, as it is assumed that this activity occurs onsite while all other activities requiring deliveries are restricted.

For full details on the traffic generation, refer to Appendix 17.2.

Traffic Generations for the Construction Phase for the AIL Haul Route are shown in Table 17-8:

Table 17-8 Traffic Generations for Construction Phase Traffic on the AIL Haul Route

AIL Elements	No. of Turbines	Parts	Components per element	Total Components	Trips with: 3 per Convoy	Trips with: 5 per Convoy
Nacelle	18	1	18	217	73	44
Blade	18	3 x 2	108			
Tower	18	5	90			
Transformer			1			

Note:

(1) Note traffic associated with the delivery of the AILs were not assessed as these traffic movements will be night-time works during low traffic volumes and under traffic management and Garda escort.

(2) The AILs will be transported in convoys of 3 to 5 no. components per convoy.

(3) The longest component of the Bellacorrick Wind Farm for decommissioning are the blade lengths of approximately 15m in length and these will not be regarded as AILs for transport.

Traffic Distributions

As outlined in the Trip Generation section above, there are two different assessment scenarios. **Peak Traffic** and **Average Traffic**. These assessments are based on the materials being delivered (i.e. HGV movements) to site by the same traffic distributions. The worst-case scenario for the traffic distribution will be to assume all the traffic movements arrive and depart on the same route (i.e. direction)

The traffic distributions are as follows on the N59:

- **East Distribution HGVs** for delivery are all (i.e. 100%) assumed to arrive from the east (i.e. direction of Bangor Erris) and depart west in the direction they arrived from.
- **West Distribution HGVs** for delivery are all (i.e. 100%) assumed to arrive from the west (i.e. direction of Crossmolina) and depart east in the direction they arrived from.
- **Staff Distributions** are assumed to match the existing distributions on the N59.

The AIL haul route has various options as outlined in section 17.2.4.2. As previously mentioned, the AIL routes will not be included in the Junction Assessment as these movements will be undertaken at off-peak traffic times, under Garda escort and traffic management.

For full details on the traffic distributions, refer to the TTA in Appendix 17.2.

17.2.4.6.3 Junction Modelling

The baseflow and proposed development generated traffic is inputted into the modelling software, Transport Research Laboratory (TRL) computer program:

- JUNCTION 9 – PICADY, used for the analysis of uncontrolled junctions.

The key parameters examined in the results of the analysis are:

- The Ratio of Flow to Capacity Value (RFC) - The desirable RFC Values for junctions assessed using PICADY is less than 0.85 Values over 1.00 RFC indicate that the approach arm is over capacity.
- Maximum queue length on all approach to the junctions; and
- Average delay for each vehicle passing through the junction during the modelled period.

PICADY requires the following input data:

- Basic modelling parameters (usually peak hour traffic counts synthesised over a 90-minute model period);
- Geometric parameters (including lane numbers and widths, visibility, storage provision etc.); and
- Traffic demand data (usually peak hour origin/destination table with composition of heavy goods vehicles input*).

For the purpose of this Report, the varying vehicle types have been segregated into LV's and HGVs prior to input. Traffic volumes input into the assessment software were in number of vehicles and, accordingly HGV composition was set to the percentage of that arm.

The results of the PICADY analysis are presented in the TTA and discussed in section 17.4.2. The origin/destination traffic demand tables for all the different scenarios tested for the analysed junctions are provided in the TTA's appendix.

17.3 EXISTING ENVIRONMENT

This section of the report documents the background road network impacted by the Proposed Development related traffic and transportation.

17.3.1 Site Location & Site Access

Oweninny Wind Farm is located in north Mayo, 17.3km west of Crossmolina and 14km east of Bangor Erris on the N59 national primary road. Bellacorick village is located adjacent to the site on the N59, and to the west of the site a local road (L5292) runs northwards from the N59 to the townlands of Shanvolahan and Formolye., see Figure 17-9

To the west of the site from Bellacorick village the L52925 runs northwards from the N59, parallel to the Oweniny River. The L52925 links the N59 to the ESB substation at Bellacorick, see Figure 17-10.

An existing access to the existing Oweninny Wind Farm Phase 1 is available via a Priority T-Junction on the N59, located approximately 300m north of the junction of the N59 / R312. This existing access is also used as the amenity access point to the pathways and cycleways. The existing wind farm entrance on the N59 will be used to transport materials and equipment to the site including the AILs during the construction phase.

During the operational phase this access will be used for maintenance and operations traffic and the amenity traffic. It is envisaged to be used at the decommissioning stage of the development.

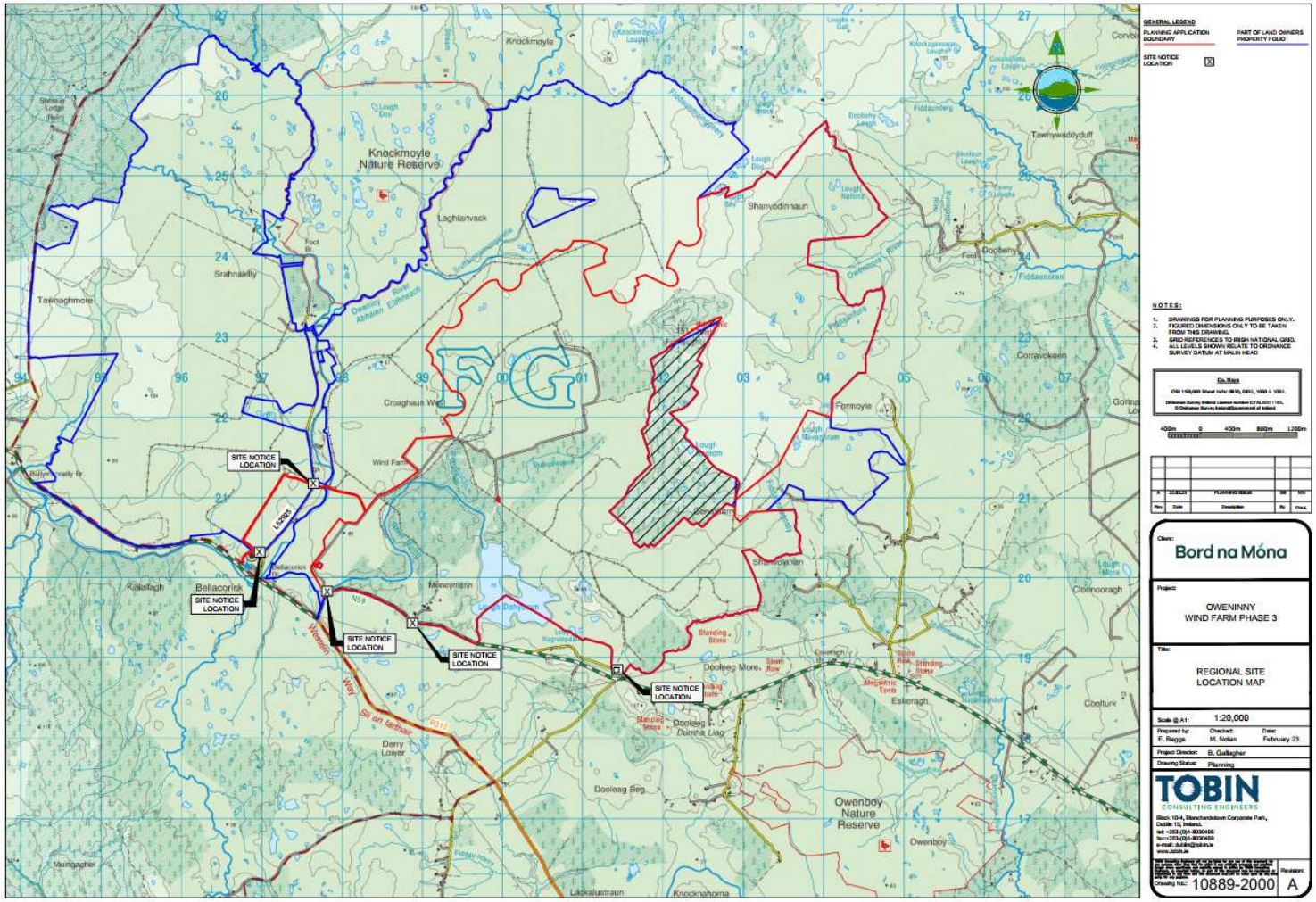


Figure 17-9 Site Location Map (Refer to Appendix 2-2 Drawing No. 10889-2000)

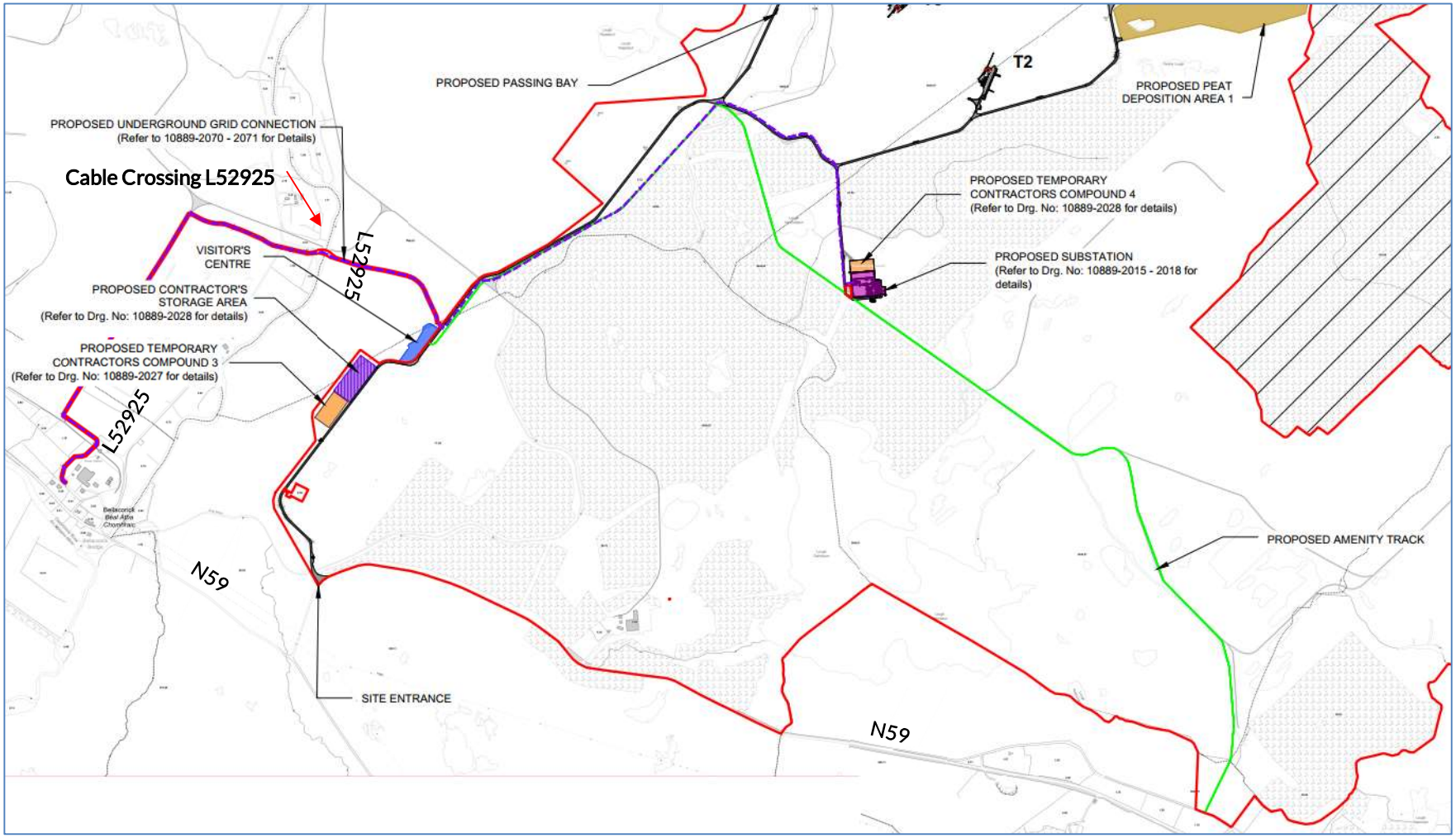


Figure 17-10: Site Access & Cable Route to Bellacorrick Substation (Extract of Drawing No. 10889-2003, refer to Appendix 2-2)

17.3.2 Construction Haul Routes

17.3.2.1 Site Access

The proposed site access to the development will be via the existing Oweninny Wind Farm Phase 1 site access on the northside of the N59, national road. The existing access is a priority T-junction with existing "STOP" road marking and signage. The pavement condition at the existing access is in good condition with a bituminous surface finish. Drainage is via over the edge drainage into the grass verge / stone fill.

Plate 17-1 Site Access on N59 – View to Site

Plate 17-2 Site Access on N59 – View to East on the N59

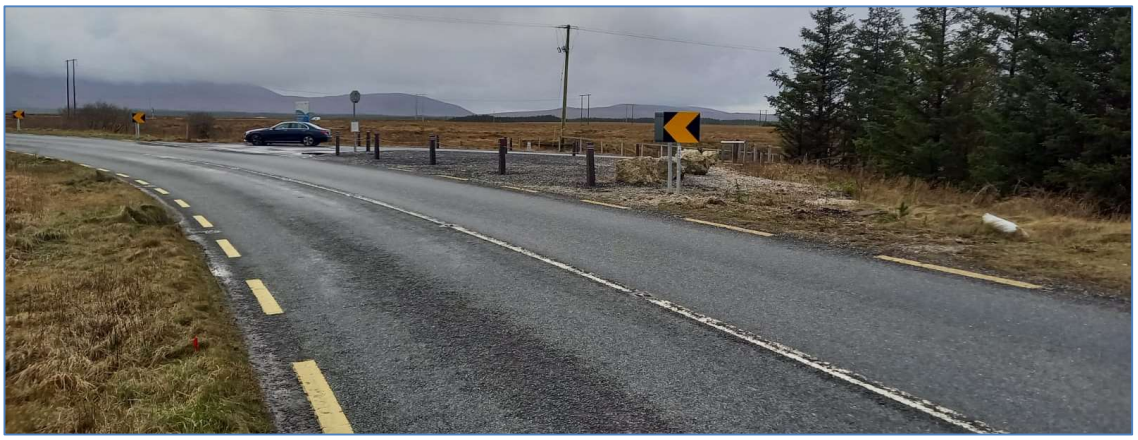


Plate 17-3 Site Access on N59 – Westbound on the N59 to Site Access

Bollards are present at the back of the bituminous road surface. On the east side of the access a compacted hardstanding overrun area for the movement of the AILs is available behind the bollards. This overrun area was formerly used during the previous phase turbine component delivery (i.e. AILs) to the site and is proposed for use in Phase 3.

The access roads within the development site, are the existing internal access roads with some widening of existing and a new section of internal access road constructed, refer to drawing in Appendix 2-2 Drawing No. 10889-2003 to 10889-2009.

17.3.2.2 Construction Haul Route

The Construction Haul Route is outlined in section 17.2.4.2 and shown in Figure 17-2.

17.3.2.3 AIL Haul Route

The AILs will be delivered on the AIL haul route as detailed below and shown in Figure 17-3.

Route A – Galway Port to Oweninny Wind Farm Site Access

The route commences at Galway Port from the Harbour along Lough Atalia Road, Wellpark Road (R339), Tuam Road (R336), Bothar na dTreabh (N6) to the western terminus of the M6 motorway at the N6 dual carriageway. This route is the designated AIL haul route from the Harbour to the outskirts of Galway City.

The route continues on the M6 motorway to Junction 18 Rathmorrissey Interchange. At the rotatory grade separated junction the route continues north on the M17 Motorway towards Tuam. The route by-passes Tuam Town via the N17 Tuam By-pass dual carriageway. On the north side of Tuam Town, this route continues north at the roundabout of the N83 / N17 onto

the N17 Milltown Road. The route passes through the towns of Milltown and Ballindine, and onwards avoiding towns on the N17 via the Knock-Claremorris Bypass to the N5 at Charlestown.

At the roundabout junction to the N5, the Charlestown Bypass, the route turns west to Ballyvary and the N58, national road to Foxford. In Foxford Town, the route continues north on the N26 to Ballina.

In Ballina Town, the route continues north from the N26 onto the N59 towards the Circular Road Roundabout, via Teeling Street, see Figure 17-11. At the roundabout, the route continues straight through onto the R314 Killala Road. Approximately 600m north of the roundabout, at the priority T-junction with the link road, Slí Eachtra, the route turns west and then south to Convent Hill Road / McDermott Street and west at this priority T-junction to the Gurteens Roundabout with the N59.

The route west on the N59, is as per all other route options. The route passes through Crossmolina onto the site access to Oweninny Wind Farm.

Route A1 – Shannon-Foynes Port to Oweninny Wind Farm Site Access

This route commences at Foynes Port on the N68 east towards Limerick City. It by-passes Askeaton Town via the N69 By-pass and continues through the villages of Kildimo and Clarina.

At the Dock Road West Roundabout (i.e. N68 / N18) the route will continue onto the N18 via two options:

- Via the Limerick Tunnel with a height clearance of 4.65 metres or
- Via the R510 Dock Road into Limerick City, over the River Shannon on the R527 Shannon Bridge and Condell Road. At Coonagh Roundabout, the route will continue northwest onto the R445 Limerick to Shannon Dual Carriageway and onto the N18 at Junction 4.

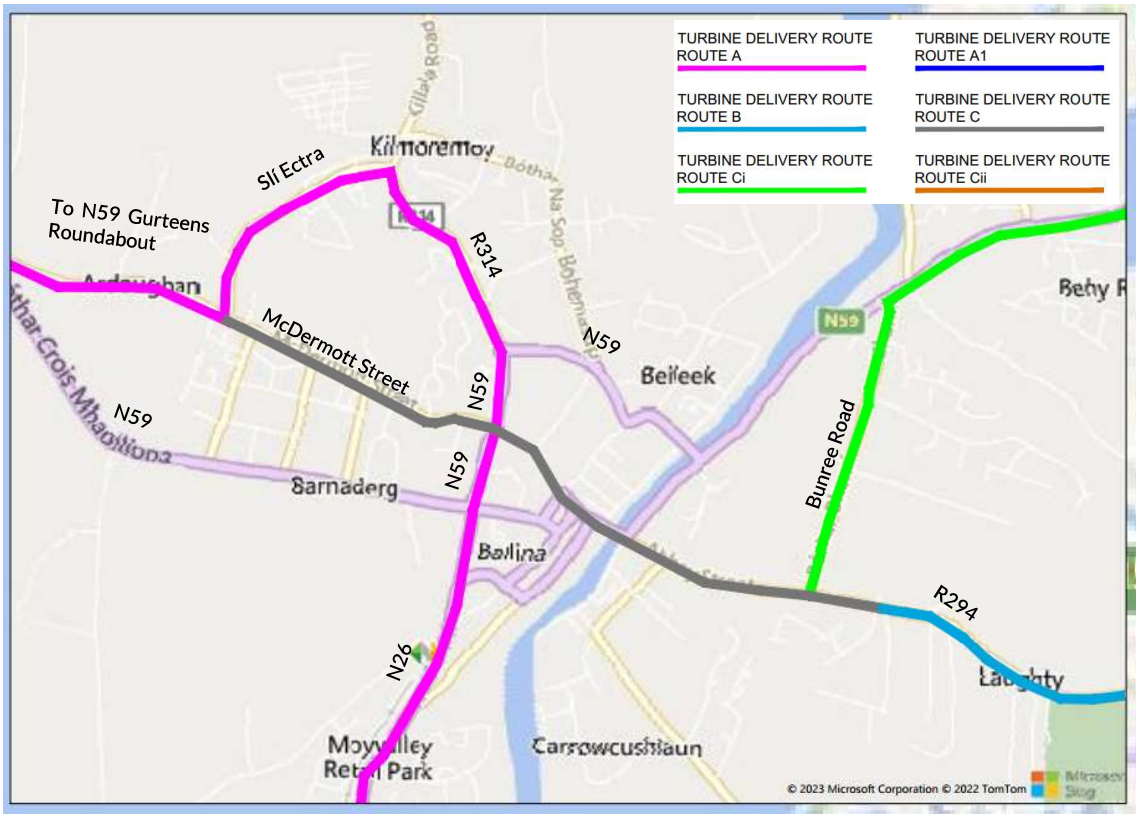


Figure 17-11 AIL Route Options in Ballina, Co. Mayo

The N18 dual carriageway transitions into the M18 motorway at Junction 9. This route continues north to the Rathmorrissey Interchange of the M18/ M6 / M17. The route continues onto the Route A towards Tuam and the Oweninny Wind Farm site access.

Route B – Killybegs Port to Oweninny Wind Farm Site Access

The route commences in Killybegs Town at the Port on the R263 Port Road. The route continues onto the national road, the N56 and by-passes Mountcharles and Donegal Town, as per Route C.

At the Drumlonagher Roundabout (i.e. N56/N15/R267), the route continues south on the N15 towards Sligo Town and by-passes the towns of Ballyshannon and Bundoran. The N15 transitions into the N4 urban dual carriageway through Sligo Town, as per Route C.

The route continues on the N4 dual carriageway to the roundabout junction with the N17, south of Collooney, as per Route Cii in Figure 17-3. Route B, shown on the Figure, commences on the junction between the N4 and N17. The N17 continues southwest towards Tobercurry and by-passes the town on Tobercurry on the northside via Circular Road.

In Tubercurry, at this signalised priority T-junction of the Circular Road, N17, with Station Road and Ballina Road, R294, the route continues west towards Ballina past Kilgarvin Bog and wind farm.

In Ballina Town, the R294 Abbey Street becomes the N59 Upper Bridge at the river bridge crossing of the River Moy, see Figure 17-11. The route continues with the flow of traffic on Tolan Street and becomes contraflow against traffic along Tone Street, Garden Street, McDermott Street, Convent Hill to the junction with Fenian Row, west of Saint Dymphna's School. From the junction of Convent Hill Road / McDermott Street with Slí Eachtra, the route continues to the N59 roundabout and continues west from Ballina as per Route A to the site access.

Route C – Killybegs Port to Oweninny Wind Farm Site Access

The route commences in Killybegs Town at the Port on the R263 Port Road and continues to N4 dual carriageway south Sligo Town as per Route B and referred to as Route C on the Map.

Route Ci commences, south of Sligo Town at the S1 Ballydrehid Junction on the N4, the route continues west on the N59, through Ballysadare Town and onto Ballina.

In Ballina Town, the N59 crosses over the River Brusna via a bridge, see Figure 17-11. Immediately after the bridge the route turns south onto the Bunree Road at the signalised junction towards the R294. At the Bunree Road / R294 junction the route turns west at the wide junction into Ballina Town as per Route B above until the Gurteen Roundabout on the N59 and onwards to Crossmolina and the site access.

Note Route C is the route utilised in 2019 and 2021 for Oweninny Wind Farm Phase 1 and 2 for the transport of the turbine blades of 57.5m in length.

The assessment of the AIL haul route is discussed further in Section 17.4.2.2.

17.3.3 Grid Connection

As outlined in Chapter 3.4.7, the proposed 110kV substation will be connected to the national grid at the existing 110kV Bellacorick substation via underground MV cables and will export power via the existing 110 kV overhead line infrastructure from Bellacorick substation.

The MV cables to Bellacorick substation will follow the route shown in Drawing 10889-2003, utilising the existing internal road network for part of the route, and will require approximately 5km of transmission cable from the substation to the Bellacorick substation.

The cables will be laid in trenches as per the Trench Bedding Details Drawings 10889-2058, 10889-2070 and 10889-2071. The route will require one public road crossing of the L52925, local road. Horizontal Directional Drilling will be used to facilitate the cable crossing beneath the local road.

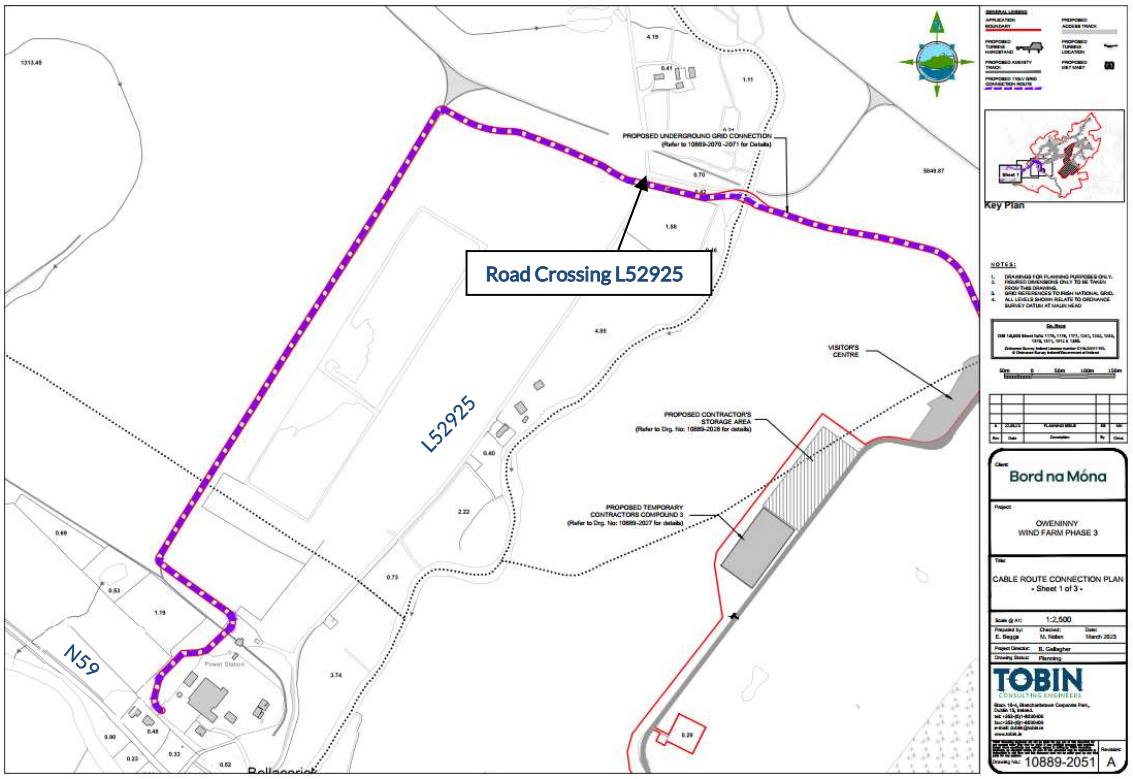


Figure 17-12: Grid Connection Route – Sheet 1 of 3 (Extract from Appendix 2-2 Drawing No. 10889-2051)

17.3.4 Existing Road Network & Existing Traffic Volumes

The following section details the existing environment of the road networks and the associated traffic volumes.

17.3.4.1 Existing Road Network

N59

The existing Oweninny Wind Farm junction for Phase 1 is the proposed construction and operational site access for Oweninny Wind Farm Phase 3. It is located on the N59 approximately 300m north of the priority T- junction of the N59 /R312.

The N59 is a national secondary road between Sligo and Galway with a circular route around the west of Ireland through County Mayo and County Galway. The N59 has an 100km/h speed limit in the vicinity of the site access. The rural speed limit is typically 100km/h between Bangor-Erris and Crossmolina, with a short sections of 80km/h at Bellacorick and on the approach to Bangor-Erris.

The N59 is a Type 3[3] single carriageway, with 6.0m carriageway width with grass verges to both sides. Road marking (i.e. centreline and road edge) and road signage are present on the N59. Drainage on this road is by over the edge drainage in rural sections. No street lighting is present in the vicinity of the site.

Galway City Boundary

All the routes identified within the Galway City boundary are dedicated AIL haul route maintained by Galway City Council to facilitate movements of AILs from the Harbour to the motorway and national road infrastructure to promote and support Galway's Port for trade and commerce. These routes of Lough Atalia Road, Wellpark Road (R339), Tuam Road (R336), Bothar na dTreabh (N6) will accommodate the AILs associated with the proposed development.

[3] Type 3 Single Carriageway – An all-purpose road with a 3.00m lane in each direction constructed to the geometric standards of DN-GEO-03031 and CC-SCD00003. *(TII DN-GEO-03031, June 2017)*

N6 / M6

The N6 dual carriageway commences at the Coolagh Roundabout to Junction 19 Oranmore and is a Type 1 Dual Carriageway[4]. It is the dual carriageway preceding the M6 motorway also designed to a Type 1 Dual Carriageway. The N6 / M6 is the route from Galway City to Kinnegad, Co. Westmeath. The motorway has a default speed limit of 120km/h. Grade separated junction are present on the M6 with street lighting present at junctions. The drainage is typically by filter drain or piped gully system where kerbs are present at junctions. Road markings and signage are present throughout. The road surface condition is maintained in good condition.

The Rathmorrissey Interchange (i.e. Junction 18) is the grade separated rotary junction at the intersection of the M6, M17 and M18 motorways.

[4] Type 1 Dual Carriageway – A divided all-purpose road with a minimum of two lanes and hard shoulder in each direction constructed to the geometric standards of DN-GEO-03031 and CC-SCD00006. *(TII DN-GEO-03031, June 2017)*

N18 / M18

The N18 / M18 is a national primary national dual and motorway road connecting Limerick City to Galway. The N18 dual carriageway commences on the south side of Limerick city, crosses the River Shannon via the Limerick Tunnel becoming a motorway (i.e. M18) at Junction 9 Shannon. The Limerick Tunnel had a height restriction of 4.65m. The drainage is typically by filter drain or piped gully system where kerbs are present at junctions. Road markings and signage are present throughout. The road surface condition is maintained in good condition.

The M18 motorway is from Shannon to the Rathmorrissey Interchange where it intersects with the M6 and the M17 motorways. The motorway has a default speed limit of 120km/h.

N17 / M17

The M17 is a national motorway road commencing at the Rathmorrissey interchange to Tuam. The motorway has a default speed limit of 120km/h. Grade separated junction are present on the M6 with street lighting present at junctions. The drainage is typically by filter drain or piped gully system where kerbs are present at junctions. Road markings and signage are present throughout. The road surface condition is maintained in good condition.

The N17 is a national primary road from Tuam to Sligo. The N17 is a dual carriageway by-passing Tuam Town. The default speed limit is 100km/h and road markings, signage, drainage and good pavement condition are present.

At the roundabout junction with the N83, the N17 becomes a Type 1 single carriageway. From Tuam to Sligo, the road type, speed and width varies with towns by-passes, climbing lanes, ghost island and urban street environments present. As a national primary route, road markings and signage are present, and the road condition is maintained in a good condition. Street lighting is present in urban areas.

N4

The N4 is a primary national road from Dublin to Sligo. The section of the road along the AIL Haul Road is the rural dual carriageway (i.e. MMaRC B 2019 Tasked Service Area) and the N4 urban dual carriageway at Sligo Town. The speed limit on the rural dual carriageway is 100km/h and the urban dual carriageway is 50km/h.

Similar to the motorway, the dual carriageway has road markings, signage, drainage throughout with street lighting at rural junctions. The N4 through Sligo Town is urban and has multi-lane

approaches to signal controlled junctions, with controlled pedestrian crossings facilities. Street lighting, road marking, signage and piped drainage are provided throughout the urban area. The pavement is in good condition on the N4.

N15

The N15 is a primary national road on the AIL Haul Route B and Route C, as outlined in section 17.3.2.3. The N15 runs from Sligo to Lifford, Co. Donegal. Along this road a number of the larger towns are by-passed (i.e. Bundoran, Ballyshannon, Donegal Town). The road type is typically a Type 1 single carriageway with rural speed limits of 100km/h with short sections of 80km/h. In the urban areas, the speed limit is 50km/h with transitional speed limits (i.e. 60km/s) on some approaches. In the rural sections, road markings and signage are present, no street lighting is present. The road surface condition appears to be in good condition.

N56

The N56 is a national secondary road on the AIL Haul Route B and Route C as outlined in section 17.3.2.3. The N56 connects Donegal Town with Letterkenny and is approximately 4.0km from Killybegs Harbour. The N56 is a Type 3 single carriageway, with 6.0m carriageway width with grass verges to both sides. The road type varies with climbing lanes and traffic calming in urban environments. Road marking (i.e. centreline and road edge) and road signage are present. Drainage on this road is by over the edge drainage in rural sections. No street lighting is present in rural areas.. The road surface condition appears to be in good condition.

N69

The N69 is a national secondary road on the AIL Haul Route A1 as outlined in section 17.3.2.3. The N69 connects Limerick with Tralee, with a junction to Shannon Foynes Harbour. The road is a two-way single carriageway with grass verges and no hardshoulders. In rural areas, the larger junctions have ghost island. The rural typical speed limit is 100km/h. Road marking and signage is present on the road, with no street lighting in rural areas.

In urban areas through the villages both urban and transitional speed limits are present. Footways are adjacent to the carriageway, with street lighting present.

R263

The R263 is a regional road of Type 1 single carriageway[5] cross section with kerbed footway within Killybegs Town from Killybegs Harbour to the interface with the N56. Street lighting, road markings and signage are present along this section of the road.

The R263 has a 50km/h urban speed limit in the town of Killybegs with a rural speed limit of 80km/h outside the town.

R314 Killala Road

The R314 road is a regional road in County Mayo that connects the R313 road at Atticonaun to the N59 road in Ballina. 600m of the R314 forms part of the AIL Haul Route A in Ballina Town. The section of the road is located within an urban environment with direct accesses to properties and footways present on both sides of the two-way carriageway. Street lighting, road markings, signage and piped drainage is present.

R510

The R510, Dock Road, is the link road from the N69 / N18 to R527 in Limerick City. The regional road provides an alternative route to the Limerick Tunnel for vehicles travelling northbound. The R510 is a wide semi-urban two-way single carriageway, with footway to both sides. The junctions on this road are typically roundabouts with direct accesses / junctions to industries and commercial building / estates. The speed limit is both 50 and 60 km/h.

At the signalised junction with James Casey Walk / O'Curry Street, the road type becomes more city urban, with controlled pedestrian crossing facilities. At the roundabout over the River Shannon, the R510 meets the R527.

R527

The R527 is a regional road in County Limerick which mainly follows former routes of the N18 and N24 in Limerick City. The R527 formers the alternative route from Foynes to the site for the AIL Deliveries, which may be restricted by the Limerick Tunnel. The Shannon Bridge has recently been changes into a two-way single carriageway with a former traffic lane being incorporated into active travel as uses as a segregated two-way cycle lane.

[5] Type 1 Single Carriageway – An all-purpose road with a 3.65m lane in each direction constructed to the geometric standards of DN-GEO-03031 and CC-SCD00001. *(TII DN-GEO-03031, June 2017)*

The Condell Road, has a wide cross section with two-way traffic, one-way bus lane, on-road cycle lanes and grass verges with landscaping / footways adjacent to the carriageway. Controlled pedestrian crossing facilities are provide along this section of the road.

R445

The R445 is a regional road and a non-motorway alternative route to the N7/M7 motorway between Naas and Limerick. The section of the R445 from the Coonagh Roundabout to the N18 forms part of the alternative AIL Route for Route A1. The road is a two-way urban dual carriageway with a 60km/h speed limit. Road markings, signage and street lighting are present.

L52925

The L52925 is a local tertiary road with a priority T-junction with the N59 in Bellacorick, Co. Mayo. The local road has a varying road width. At the junction with the N59, the road width is wide, with an approximate width of 10.0m. At the junction, road markings, signage and street lighting are present.

Beyond the junction the carriageway reduces in width to approximately 3.5m – 4.0m. No road markings, street lighting, footpaths, kerbs, or signage are present on the local road.

Slí Extra

This local road in Ballina Town is a link road, connecting the R314 to the west of the town towards the N59 Gurteens Roundabout. The road is two-way with off road segregated pedestrian and cycling facilities. This road provides access to St. Mary's Secondary School and is in close proximity to Saint Dymphna's School. Street lighting, road markings, signage and piped drainage is present.

17.3.5 Existing and Forecasted Traffic Volumes

17.3.5.1 Existing Traffic Volumes

The existing traffic volumes (i.e. baseflow traffic volumes) without development generated traffic are outlined below for the N59 for the Construction Haul Route as agreed with MCC. TII Live traffic count data used in the assessment is based on Average Daily Traffic (ADT[6]) and percentage heavy good vehicle (HGV) content in 2022 and specifically the month of August 2022 at the location shown in Figure 17-13 and outlines in Table 17-9.

Table 17-9: Existing Baseflow Traffic 2022

Route		2022			
	Period	Traffic	%HGV	HGV	Coverage
N59 N59 Between Crossmolina and Bangor-Erris, Moylaw, Co. Mayo (TII Station ID: TMU N59 070.0 S)	**AADT**	2,103	4.7%	99	100%
	ADT -August	2,619	7.8%	204	100%

Note:

(1) The traffic count location on the N59 is located approximately 13km east of the Oweninny Wind Farm Phase 3 access.

(2) Note traffic counts on the AIL haul route were not assessed as these traffic movements will be night-time works during low traffic volumes and under traffic management and Garda escort.

[6] Average Daily Traffic (ADT) is the total volume of traffic in vehicles passing a point or segment of a road, during a period of time, divided by the number of days in the period to represent an estimate of traffic volume for an average day of the year.

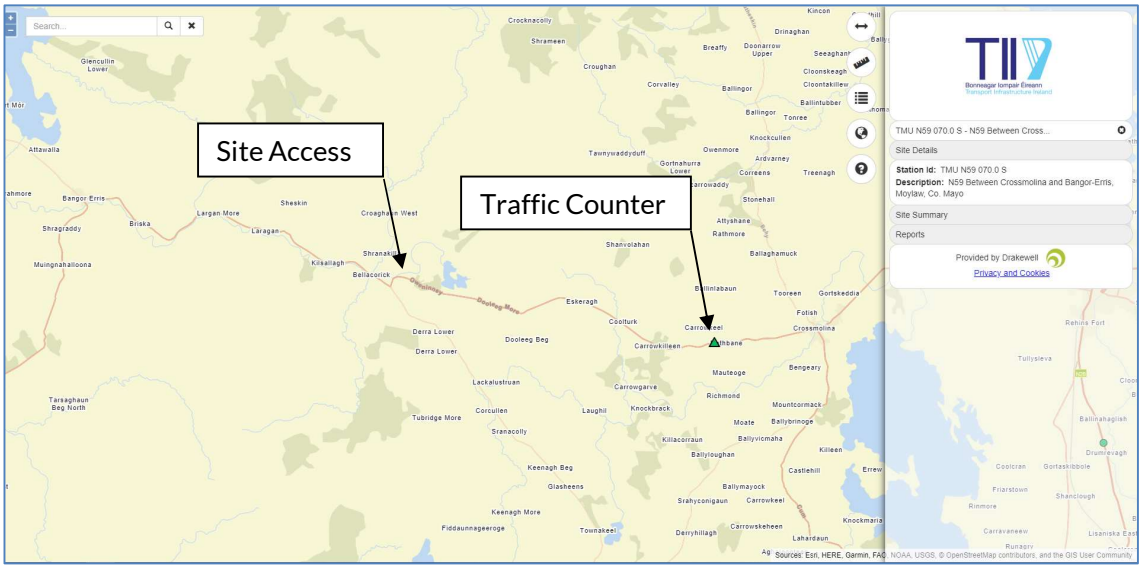


Figure 17-13: Traffic Count Location on Construction Haul Route

17.3.5.2 Forecasted Background Traffic Volumes

The baseflow traffic volumes have been forecasted to the year corresponding to the end of the construction period in the year 2027 (i.e. construction commencing in 2025 and programmed for 2 years). As discussed with the Local Authority, as the operational traffic is low, assessment of the operational year, design years plus 5 years and plus 15 years have not been assessed. This is in accordance with the TII *Traffic and Transporation Assessment Guidelines,* as the operational traffic will be sub-threshold.

Table 17-10 shows the forecasted baseflow August traffic to the year 2027 based on Central Growth Rates and Alternative Future Demand Sensitivity Scenario (AFDSS) for the associated route county value in accordance with TII *Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (October 2021).*

Table 17-10: Forecasted Baseflow Traffic 2027

Route	Link-Based Growth	2027		
		AADT	%HGV	HGV
N59 N59 Between Crossmolina and Bangor-Erris, Moylaw, Co. Mayo (TII Station ID: TMU N59 070.0 S)	Central Growth	2,812	8.5%	240
	AFDSS	2,781	8.6%	240

17.3.6 Existing Road Safety

17.3.6.1 Site Access Road Safety

The site access is existing and is operational for the Oweninny Wind Farm Phase 1, as no changes or modifications are proposed to the existing access it was agreed during the scoping process with MCC that a Road Safety Audit (RSA) is not required.

The Road Safety Authority data bases on road traffic collision data available at this link: https://www.rsa.ie/road-safety/statistics/road-traffic-collision-data has not been available for a number of months due to a review of their data sharing policies and procedures. Former data available at this location is shown in Figure 17-14.

A number of minor accidents were recorded on the N59, with no accidents recorded at the existing site access. The road traffic collision statistics database identifies collisions from the year 2005 to 2016. The minor collisions occurred in 2011, 2013 and 2015 and are all located west on the site access on the N59 in close proximity to the N59 / L52925 priority T-Junction in Bellacorrick.

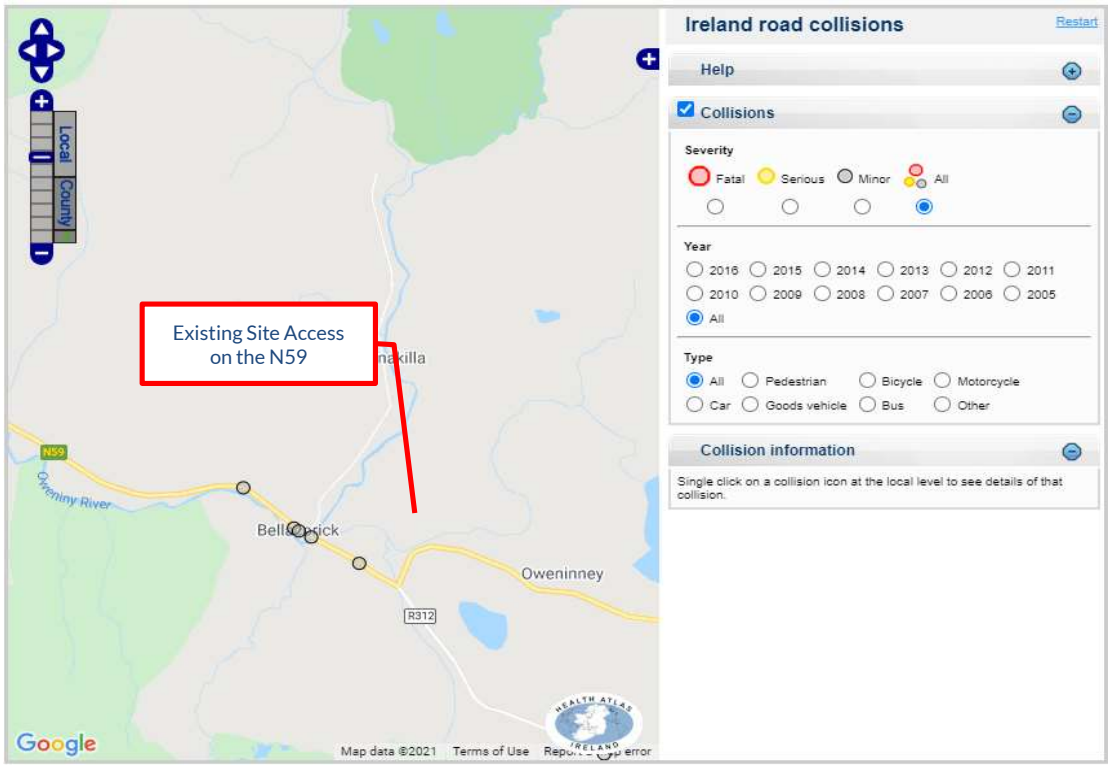


Figure 17-14: Collision Statistics in the vicinity of the Site Access (Source: www.rsa.ie)

Note - the Road Safety Authority database is not a comprehensive record of collisions and is most accurate when read in conjunction with the Local Authority / Gardaí records for the site. We note that the gardaí records in respect of collisions is not publicly available, but road safety was discussed with the roads department of MCC and MCC did not advise of any road safety concerns for this route.

17.4 POTENTIAL EFFECTS

17.4.1 Do Nothing Effects

If the development is not progressed the existing traffic and transportation environment will remain largely unchanged. In the absence of the proposed development increases in traffic volumes on the road network would be expected gradually over time due to annual growth rates in traffic as per the TII PE-PAG-02017.

17.4.2 Potential Effects – Construction Phase

The Construction Haul Route and the AIL Haul Route have been assessed separately as the character of the impacts are different.

Construction Haul Route: This section assesses the potential effect of standard construction related traffic on the road network. The construction traffic is assessed on both:

- the **short-term peak construction traffic** volumes over the 3-month period when the combined construction activities result in the peak traffic volumes on the road network and
- the **long-term average construction traffic** volumes over the remaining months of the construction programme.

We acknowledge that the concrete pours will also have a high volume of traffic over the 18 days of the concrete pours, however, the envisaged traffic volumes for this activity will be lower than the estimated peak traffic for the combined activities.

AIL Haul Route: This section is assessed on the potential effects that the haul of the AILs will have on the existing road network infrastructure. The focus of this assessment is on the longest turbine component, the turbine blade. Swept path analysis have been undertaken on all the AIL routes proposed and the details are included in Appendix 17.1. This section is not assessed based on traffic volumes as the AILs will be transported to site during low volume traffic flows on the network at off-peak time and under Garda escort and traffic management.

17.4.2.1 Construction Haul Route Impact

The traffic generation and distributions associated with the construction phase of the Wind Farm for both the peak and average traffic volumes on the N59 are shown in Table 17-11.

Table 17-11 Construction Haul Route - Potential Impact

Route	Link-Based Growth 2027	Scenario	Construction Traffic			Difference	
			ADT	%HGV	HGV	%HGV	Total % Increase
N59	Central	Baseflow 2027	2,812	8.5%	240	-	-
	Central	Peak Construction	3,095	13.0%	403	4.5%	10%
	Central	Average Construction	2,977	11.6%	345	3.1%	6%
	AFDSS	Baseflow 2027	2,781	8.6%	240	-	-
	AFDSS	Peak Construction	3,064	13.2%	403	4.6%	9%
	AFDSS	Average Construction	2,946	11.7%	345	3.2%	5%

As evident in Table 17-11, the **peak** construction activities increase the background traffic volumes the most by 9%-10% and an associated percentage increase in HGV movements on the N59 of 4.5-4.6%. This impact of the peak traffic is of short duration, over 3 months with a temporary moderate negative effect on the road network.

The **average** construction traffic potential impact is lower with a total traffic volume increase of 5-6% of the baseflow in the year 2027 and a 3.1-3.2% increase in HGV content. The impact of these movements is longer over the remaining 21months of the construction programme. The average traffic potential impact will be slight, negative and of short-term effect.

Junction Assessment – N59 / Site Access

In addition to this comparison of the potential traffic impact on the N59 national road, a Junction Assessment was also undertaken at the site access. The full details are available in Appendix 17.2. In summary, the assessment results are shown in Table 17-13.

The assessment criteria is outlined in the Assessment Methodology for Junction Modelling, Section 17.2.4.6.3 In all junction assessment scenarios, the RFC value is significantly below 0.85 (maximum of 0.20 RFC) and will operate with a good Level of Service (LOS) for the junction of "A". There is no noticeable delay at the junction with the maximum junction delay is below 2 seconds.

The traffic volumes at the junction due to additional construction traffic does not impact on the junctions LOS. The junction's LOS as an "A" rating is maintained. The increase in construction traffic will result in an increase in the RFC value, however, this increase is low with a maximum

RFC level of 0.2. Only one traffic stream results in a LOS increase to "B" for Stream B-A in the peak construction traffic for the east distribution scenario, this relates to traffic turning westbound out of the site onto the N59 which require gap acceptance to turn onto the mainline.

With respect to the assessment criteria outlined in Section 17.2.3 and 17.2.4, the magnitude of this impact is likely to be negative but slight with a temporary effect for the peak traffic and a short term not significant effect for the average construction traffic.

Description of Effects

With respect to the EPA's criteria for description of effects, the potential effects associated with this aspect of the construction phase are described below.

Table 17-12: Potential Effect - Construction Haul Route – EPA Criteria Effect

Extent	*Scenario*	*Significance*	*Duration*
N59 Route	Peak Traffic	Moderate Negative	Temporary (3 months)
	Average Traffic	Slight Negative	Short Term (21 months)
N59 / Site Access Junction Assessment	Peak Traffic (West & East Distribution)	Slight	Temporary (3 months)
	Average Traffic (West & East Distribution)	Not Significant	Short Term (21 months)

The above effects should be considered in terms that the effect is variable, and that this assessment considers only peak and average activities. The peak is the worst-case scenario the proposed development is envisaged to generate with regards to traffic. Outside of the 3-month peak, the traffic associated with the development will be below this worst-case impact. During the construction programme, there will be days when construction generated traffic will be lower than the average traffic. This assessment is robust in providing worst case scenarios.

Table 17-13: Junction Assessment Summary – Existing, Baseflow & Proposed Construction Development Traffic

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS
2022 – Existing														
Stream B-C	D1	0.0	0.00	0.00	A	0.10	A	D2	0.0	4.05	0.00	A	0.10	A
Stream B-A		0.0	0.00	0.00	A				0.0	4.95	0.00	A		
Stream C-AB		0.0	4.89	0.01	A				0.0	0.00	0.00	A		
2027 – Baseflow – Central Growth														
Stream B-C	D3	0.0	0.00	0.00	A	0.09	A	D4	0.0	4.06	0.00	A	0.09	A
Stream B-A		0.0	0.00	0.00	A				0.0	4.98	0.00	A		
Stream C-AB		0.0	4.89	0.01	A				0.0	0.00	0.00	A		
2027 – Proposed Dev. Construction Peak – West Distribution														
Stream B-C	D5	0.0	8.12	0.02	A	1.57	A	D6	0.1	5.10	0.06	A	1.42	A
Stream B-A		0.0	0.00	0.00	A				0.0	5.40	0.05	A		
Stream C-AB		0.0	5.90	0.09	A				0.0	8.63	0.03	A		
2027 – Proposed Dev. Construction Peak – East Distribution														
Stream B-C	D7	0.0	0.00	0.00	A	1.33	A	D8	0.1	5.07	0.06	A	1.46	A
Stream B-A		0.0	10.21	0.20	B				0.0	5.37	0.05	A		
Stream C-AB		0.1	5.20	0.06	A				0.0	8.62	0.03	A		
2027 – Proposed Dev. Construction Average – West Distribution														
Stream B-C	D9	0.0	0.00	0.00	A	0.60	A	D10	0.0	4.73	0.02	A	0.79	A
Stream B-A		0.0	0.00	0.00	A				0.0	5.48	0.03	A		
Stream C-AB		0.1	5.35	0.04	A				0.0	8.48	0.01	A		
2027 – Proposed Dev. Construction Average – East Distribution														
Stream B-C	D11	0.0	0.00	0.00	A	0.62	A	D12	0.0	4.18	0.02	A	0.83	A
Stream B-A		0.0	0.00	0.00	A				0.0	6.25	0.05	A		
Stream C-AB		0.1	5.38	0.04	A				0.0	0.00	0.00	A		

17.4.2.2 AIL Haul Route Impact

The impact of the AIL deliveries on the existing road network have been assessed based on the longest component to be delivered to site, the turbine blade. The worst case scenario for the swept path of the non-segmented blade on the blade adaptor vehicle was undertaken at the pinch points, junctions and bends on the AIL Haul Routes (Route A, B and C) as outlined in Section 17.2.4.2.

Route C is the route utilised in 2019 and 2021 for Oweninny Wind Farm Phase 1 and 2 for the transport of the turbine blades of 57.5m in length. Note Route C, continues west from Ballina town towards Oweninny Wind Farm on the N59 as denotated by Route A in Figure 17-3.

The segmented blade option will have a smaller total length of blade and vehicle as those previously transported in Phase 1 and Phase 2, as such Route C and Cii and the section of Route A from Ballina is a proven route from Killibegs Port. Hence, swept path analysis have not been undertaken on the sections of the AIL routes. Any permanent works required for the movement of the blades will have been carried out during Phase 1 and 2, and will be in place to accommodate Phase 3. With the exception of minor temporary traffic management works to temporarily remove signage during the haul of the AILs, no significant works are required which will result in generation of additional traffic volumes outside of the AIL haulage.

Route A has been assessed from Foxford to Ballina, where it meets the N59 on the west of the town. The details of the potential impacts of the haulage of the AIL is outlined in Table 17-14 with associated drawings in Appendix 17.1. The swept paths typically indicate locations where overhead lines require removal to accommodate the elevated blade adaptor. The relocation of the overhead wires underground will have a reduced impact on the environment than oversail of the blade into vegetated areas. These works to accommodate the swept path of the blade, will result in low volumes of traffic similar to maintenance works by the Local Authority and will be undertaken at a significant distance from the site access and junction assessment, so as to not influence the junction traffic assessment.

Route B has been assessed from Tobercurry to Ballina, where it meets the proven Route Cii route on the east of the town. The details of the potential impacts of the haulage of the AIL is outlined in Table 17-14 with associated drawings in Appendix 17.1. The swept paths typically indicate locations where overhead lines require removal, vegetation pruning and oversail of the verge, with an isolated location requiring temporarily removal / relocation of a public lighting

column. At one location, road widening is required on the R294, along the inside of the bend to accommodate the wheel track of the vehicle and trailer. As evident in Drawing No. 359222-630B1.1, the overrun area is narrow and will not require significant works to construct. The low volume of traffic associated with these works will be isolated away from the proposed development with maximum of 4 no. vehicles over 2-3day. These other works to accommodate the swept path of the blade, will result in low volumes of traffic similar to maintenance works by the Local Authority and will be undertaken at a significant distance from the site access and junction assessment, so as to not influence the junction traffic assessment.

In Table 17-14, the Route A, B and C, refers to the section of the N59 west of Ballina to the site access. It is notes that the existing site access has been designed to accommodate the swept path of the blade adaptor with full blade as shown in Drawing No. 359222-210B0.1.

Table 17-14 Swept Path Analysis – Route, Drawings and Actions

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
A	359222-070B1.1 Foxford	Junction of Main Street and N2 (Option 1 N58 to N26)	✓		✓			✓
A	359222-080B1.1 Foxford	Option 2 - Junction of Davitt Street (N58) & Morrogh Bernard Road (N58)			✓			✓
A	359222-081B1.1 Foxford	Option 2- Junction of Morrogh Bernard Road (N58) & N26			✓			✓
A	359222-090B1.1 Foxford	Right Bend & Bridge Crossing on N26, Foxford			✓			✓
A	359222-091B0.1	N26, Heading Out of Foxford			✓			
A	359222-100B0.1	Approach To a Left Bend In A Hamlet North Of Foxford			✓			
A	359222-110B0.1	Right Bend on N26			✓			
A	359222-111B0.1	Overhead Cables on N26 - Junction With L1317			✓			
A	359222-112B0.1	Overhead Cables on N26 - Left Bend			✓			

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
A	359222-113B0.1	Overhead Cables on N26 - Left Bend			✓			
A	359222-130B0.1	Overhead Cables - Cross Road of N26/ N59/ R294			✓			
A	359222-131B0.1	Overhead Cables - Crossroad of N59/ McDermott Street & Tone Street			✓			
A	359222-132B0.1	Overhead Cables - Killala Road (R314) After Roundabout			✓			
A	359222-133B0.1	Overhead Cables - Left Bend on Killala Road			✓			
A	359222-134B0.1	Junction Of Killala Road and Slí Ectra			✓			✓
A	359222-135B0.1	Junction Of Slí Ectra and The L1119						✓
A, B, C	359222-136B0.1	Overhead Wires - Left Bend on L1119						✓
A, B, C	359222-137B1.1	Gurteens Roundabout, Ballina (With Flow)	✓					✓

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
A, B, C	359222-137B1.2	Gurteens Roundabout, Ballina (Contra Flow)						✓
A, B, C	359222-138B0.1	Overhead Wires - N59 To Bangor, Ballina	-	-	-	-	-	-
A, B, C	359222-140B0.1	Overhead Wires - Left Bend N59, Bundeelin			✓			
A, B, C	359222-150B0.1	Overhead Wires - Right Bend N59, Crossmolina	-	-	-	-	-	-
A, B, C	359222-151B0.1	Overhead Wires - N59, Crossmolina			✓			
A, B, C	359222-152B0.1	River Bridge - N59, Crossmolina						✓
A, B, C	359222-153B0.1	S Bend Junction on N59/ Church Street/ The Boreen, Crossmolina			✓	✓	✓	✓
A, B, C	359222-154B0.1	Overhead Wires - Erris Street (N59), Crossmolina			✓			
A, B, C	359222-160B1.1	Overhead Wires - N59	-	-	-	-	-	-
A, B, C	359222-161B1.1	Left Bend on N59, Cloonawillin	-	-	-	-	-	-

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
A, B, C	359222-162B1.1	Overhead Cables on N59, Cloonawillin	-	-	-	-	-	-
A, B, C	359222-163B1.1	Overhead Cables on N59, Cloonawillin	-	-	-	-	-	-
A, B, C	359222-170B1.1	Overhead Cables on N59, Moylaw	-	-	-	-	-	-
A, B, C	359222-171B0.1	Overhead Cables on Right Bend On N59, Moylaw						✓
A, B, C	359222-172B0.1	Overhead Cables On Left Bane On N59, Moylaw	-	-	-	-	-	-
A, B, C	359222-173B0.1	Overhead Cables On Right Bend On N59, Moylaw			✓			
A, B, C	359222-174B0.1	Right Bend On N59, Moylaw	-	-	-	-	-	-
A, B, C	359222-180B1.1	Overhead Cables On N59, Eskeragh		✓				
A, B, C	359222-181B0.1	Overhead Cables On Left Bend On N59, Eskeragh	-	-	-	-	-	-
A, B, C	359222-182B0.1	Overhead Cables On N59, Eskeragh	-	-	-	-	-	-

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
A, B, C	359222-190A0.1	Right Bend On N59, Dooleeg	-	-	-	-	-	-
A, B, C	359222-191B0.1	Overhanging Trees On N59, Dooleeg		✓				
A, B, C	359222-192B0.1	Left Bend On N59, Dooleeg	-	-	-	-	-	-
A, B, C	359222-193B0.1	Right Bend On N59, Dooleeg						Verge
A, B, C	359222-194B0.1	S - Bend On N59, Dooleeg			✓			
A, B, C	359222-200B0.1	Overhead Cables On N59, Oweninny						Verge
A, B, C	359222-201B0.1	Right Bend On N59, Oweninny						Verge
A, B, C	359222-210B0.1	Left Bend On N59, Oweninny Wind Farm	-	-	-	-	-	-
A, B, C	359222-210B0.1	Left Bend On N59, Oweninny Wind Farm	✓				At Site Access to Oweninny, pavement strengthening in place from Phase 1	Verge
B	359222-300B0.1	Right Bend On N26, Foxford			✓			Footway
B	359222-410B0.1	N17, East Tobercurry			✓			

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
B	359222-411B0.1	N17 At The Junction With Humber Street, Tobercurry						Footway
B	359222-412B1.1	N17 At The Junction With Humber Street, Tobercurry		✓	✓			
B	359222-413B0.1	LEFT BEND ON R294, TOBERCURRY						
B	359222-600B1.1	Overhead Cables & Right Bend on R294		✓	✓			Verge
B	359222-602B0.1	Overhead Cables & Left Bend on R294		✓				
B	359222-610B1.1	Overhead Cables on Left Bend On R294, Gorterslin		✓	✓			
B	359222-612B1.1	Overhead Cables on Right Bend On R294, Gorterslin		✓	✓			Verge
B	359222-620B1.1	Overhead Cables and Right Bend On R294, Glenavoo		✓	✓			Verge
B	359222-622B1.1	2nd Right Bend and Overhead Cables On R294, Glenavoo		✓	✓			Verge

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
B	359222-624B0.1	Junction On R294 With Road to Lough Talt, Glenavoo		✓	✓			Verge
B	359222-630B1.1	Left Bend on R294, Glenavoo		✓	✓		✓	Verge
B	359222-632B1.1	Left Bend on R294, Glenavoo		✓				Verge
B	359222-640B1.1	Left Bend on R294		✓				Verge
B	359222-650B1.1	S Bend on R294, Near Lough Talt		✓	✓ (Electrical pole to be removed)			Verge
B	359222-652B1.1	S Bend on R294, Near Lough Talt		✓				
B	359222-654B1.1	Right Bend on R294, Near Lough Talt		✓				Verge
B	359222-660B1.1	Left Bend on R294	-	-	-		-	-
B	359222-662B1.1	Left Bend on R294	-	-	-		-	-
B	359222-670B1.1	Right Bend in Series Of Bends On R294						Verge
B	359222-672B1.1	Left Bend in Series Of Bends On R294	-	-	-		-	-

Route	Dwg No.	Title	Demount Signage	Prune Vegetation	Overhead Wire Removal	Public Lighting Removal	Widen Road / Footway Strengthening	Oversail
B	359222-674B1.1	Right Bend in Series Of Bends On R294						✓
B	359222-676B1.1	S - Bend in Series Of Bends On R294			✓			✓
B	359222-678B1.1	Left Bend in Series Of Bends On R294		✓				Verge
B	359222-680B1.1	Left Bend on R294, Near Bonnyconnellan			✓			Verge
B	359222-682B1.1	Overhead Wires on R294, Near Bonnyconnellan			✓			Verge
B	359222-684B1.1	Left Bend on R294, Bonnyconnellan		✓				
B	359222-686B1.1	Left Bend on R294, Bonnyconnellan		✓		✓		✓
B	359222-688B1.1	Left Bend on R294, Bonnyconnellan	-	-	-		-	-

Note:

1. The blade adaptor in the swept path analysis has been elevated to reduce the oversail of third-party lands.
2. The blade adaptor has been lowered in elevation where feasible to avoid overhead lines.
3. In urban areas, parking restriction will be required to facilitate the turning movements of the vehicles.

4. At Construction Stage, the appointed Contractor and Haulage Company will be responsible for the temporary traffic management, agreements, and licensing with the Local Authorities and an Garda Síochána.

As outlined in Table 17-14, minor advanced works have been identified along the various AIL haul routes including 1 No. pinch points requiring temporary hardstanding, relocation / demountable street furniture, utility diversions, 1 No. public lighting works and pruning of vegetation to facilitate the AIL delivery of the turbine component loads.

The aforementioned works may be undertaken as advanced works / maintenance works upon selection of the preferred route.

The traffic generations for the AIL haulage is by convoys as outlined in Table 17-8. Of the 217 components to be transported, this will be in convoys of either 3 or 5 components per convoy a total of 73 trips or 44 trips respectively.

17.4.2.2.1 Description of Effects

With respect to the EPA's criteria for description of effects, the potential associated effects associated with this aspect of the construction phase are described below.

Table 17-15: Potential Effect - AIL Haul Route – EPA Criteria Effect

Extent	*Advanced Works*	*AIL Convoy*	*Duration*
Route A	Imperceptible	Moderate	Temporary
Route A1	Imperceptible	Moderate	Temporary
Route B	Imperceptible	Moderate	Temporary
Route C	Imperceptible	Moderate	Temporary

The advanced works to accommodate the haulage of the AILs will be imperceptible due to the low volume of permanent works required on the routes. The vegetation pruning, signage and overhead line works may be undertaken as maintenance works in advance of the project with low volumes of traffic associated with these works.

For the transport of the AILs by convoy, the volume per convoy is low, however, the impact on the existing road environment will be moderate. To allow for the long and wide vehicles to travel on some of the routes of narrower width, temporary traffic management operations will be required.

17.4.3 Potential Effects – Operational Phase

The operational phase of the project is envisaged to last for a duration of 30 years. During this time, the development will generate small volumes of traffic for operational and maintenance purposes. 8 no. LV movements per day (i.e. 4 arrivals and 4 departures), with an additional movement to and from once a month for a worst-case scenario of 10 LV movements per day.

The Wind Farm operational traffic volumes were assessed against the TII TTA Guidelines thresholds. This assessment indicates that the operational phase of the development will be sub-threshold based on the following:

- Average Daily Traffic from TII Counter is 2,622 vehicles on the N59. Resulting in a 10% traffic volume of 262 vehicles
- The traffic to the site (i.e. 10 no. LVs) is below 10% of the national road flow and less than 100 trips in / out combined in the peak hours for the proposed development.

17.4.3.1 Description of Effects

With respect to the EPA's criteria for description of effects, the potential associated effect of the operational phase is described below on the road network (i.e. N59).

Table 17-16: Operation Traffic – EPA Criteria Effect

Extent	*Scenario*	*Significance*	*Duration*
N59	Operational Traffic	Imperceptible	Long-term (30 years)

The operational traffic volumes will result in a very low increase in traffic that will be without significant consequence on the road network.

17.4.4 Decommission Stage Potential Impact

The design life of the wind farm is 30 years, after which time a decision will be made to determine whether or not the turbines may be replaced with a new set of machines, subject to planning permission being obtained, or the site may be decommissioned fully. Further details are provided in Chapter 3 of this EIAR (Description of the Proposed Development).

It is proposed that turbine foundations and hard-standing areas will be left in place and covered with peat/soil/topsoil. It is proposed to leave the access tracks in situ at the decommissioning stage (i.e. for forestry / agricultural / recreational use). It is considered that leaving the turbine foundations, access tracks and hard-standing areas in situ will cause

less environmental damage than removing and recycling them. The decommissioning will be managed on a phased basis and the recreational use will be restricted during these times.

If the site is decommissioned, cranes will disassemble each turbine tower and all equipment. All infrastructure including turbine components will be separated and removed off-site for re-use, recycling and waste disposal.

Due to the potential changes to baseline traffic conditions over the operational time period of the wind farm, detailed assessment of the decommissioning phase of the development is not included as part of this assessment. It is proposed that in advance of the decommissioning process a Traffic Management Plan would be prepared to ensure that traffic impacts are minimised during this phase.

17.4.4.1 Decommissioning Traffic Impact

It is estimated that the volume of traffic associated with the decommission stage will be significantly less than the construction stage as the turbine foundation, internal access roads and substation will be retained. The proposed car parking and internal access roads will be used for other recreational purposes. The large volume of stone aggregate and concrete for the concrete pours brought to site during the construction stage will not require removal. The overall traffic associated with the decommissioning stage is likely to have a slight adverse temporary effect.

On completion of the decommissioning works, the site will still facilitate agricultural and recreational use. The agricultural and recreational uses will have a not significant impact on the road network as they are existing operations occurring in the absence of the Wind Farm.

17.4.4.1.1 Description of Effects

With respect to the EPA's criteria for description of effects, the potential worst-case associated effects of the decommissioning phase will be similar to the construction phase effect. On this basis the effect is as outlined in Table 17-17.

Table 17-17: Decommissioning Traffic – EPA Criteria Effect

Extent	*Scenario*	*Significance*	*Duration*
N59	Decommissioning Phase	Slight	Short Term

The above effects should be noted as the worst-case scenario, as a number of deliveries for the construction of infrastructure will not be required at decommissioning.

17.5 MITIGATION MEASURES

The assessment of potential impacts indicates that the proposed development will have a not significant effect. However, to reduce the impact on the environment further the following will be undertaken.

17.5.1 Mitigation Measures – Construction Stage

To mitigate the impact of the construction traffic, the Wind Farm will utilise all available resources within the existing site to reduce the requirement for importation of materials to site. Excavation of stone material from the borrow pits within the Wind Farm site to provide construction material will reduce the HGV volumes.

The largest traffic volume impact is associated with the haulage of the materials for the combined construction activities from September to November 2025. Key deliveries during this period are aggregate and stone which may be sourced from within the site from the borrow pits. The internal access tracks have been designed to utilise existing Wind Farm access tracks where feasible, reducing the volume of materials required for importation to the site.

The second largest volume traffic impact is associated with the concrete pours for the turbine foundations. The works at other areas within the main site will continue during these concrete pours, but only essential deliveries will be scheduled to occur on the same days as the concrete pours. To mitigate this impact, liaison with local authorities and the community in advance of the foundation pours as well as minimising other works/deliveries as noted.

17.5.1.1 Cabling Methodology

Grid connection via cabling from the Wind Farm to the Bellacorrick Substation is proposed. The route for the cable will cross the L52925, local road. To mitigate the impact on the road network, the proposed methodology for the cable laid within the public road will be by Hydraulic Directional Drilling (HDD). This methodology will not disturb the existing road surface or result in impacts associate with traffic management (i.e. road closures) for standard cable laying works in trenches and their associated reinstatement.

17.5.1.2 Pre- and Post-Construction Pavement Surveys

The proposed development will result in a significant increase in traffic volume in particular HGVs during the construction phase of the project. The weighted loading of the HGVs to the site has the potential to impact on the road network surface (i.e. the N59) causing deterioration of the road pavement.

To capture suitable mitigation works the client will undertake pre-construction and post-construction visual pavement surveys on the N59. Where the surveys conclude that damage to the road surface is attributable to the construction phase of the proposed project, the developer will fund the appropriate reinstatement works to bring the road surface back to pre-construction condition as a minimum, details for which will be agreed with the Roads Authorities.

17.5.1.3 Traffic Management Plan (TMP)

The successful completion of this project will require significant co-ordination and planning in order to minimise the effects of the additional traffic generated by the proposed development which are outlined in the Traffic Management Plan (TMP). The TMP is a comprehensive set of mitigation measures that will be put in place by the Contractor before and during the construction stage of the project to minimise effects. The purpose of the TMP is to capture the mitigation measures in this EIAR as discussed with Mayo County Council during scoping and any future traffic mitigation as they may arise during the project. The TMP proposed for the Oweninny Wind Farm Phase 3 is included in the CEMP, in Appendix 3.1.

Note, the TMP has been included as a separate document (CEMP - Appendix B). Any changes which may arise from the planning process and in the detailed construction programme can be incorporated.

The following mitigation has been incorporated into the TMP:

- Haul route selection to avoid sensitive receptors and preference for national road infrastructure over regional and local road.
- Existing site access has been designed to accommodate the AILs, with minor modifications at the access to temporarily removed the bollards during delivery of the AIL and re-installation after delivery.

- The existing and widened internal access roads facilitate queuing of construction vehicles off the public road.
- Traffic Management Operatives (TMOs) will be provided by the principal contractor in accordance with their Traffic Management Plan at the site access during peak construction traffic activities, refer to the TMP.
- A wheel wash will be provided within the site.
- Passing bays on the internal access track and a loop layout within the Wind Farm site to facilitate safe passing of vehicles within the site, vehicles travelling in a forward direction (reducing higher risk reversing manoeuvres).

17.5.1.4 Project Delays

To avoid delays to the project programme all required road opening licenses, agreements with the Local Authorities and an Garda Síochána to facilitate movement of AILs should be sought by the appointed Contractor in a timely manner to avoid delays to the project.

A delay to the project construction programme, will have a negative environmental impact, increasing the duration of construction vehicles on the road network, potentially extending traffic management timeframes with increased periods of queuing vehicles idling.

17.5.2 Mitigation Measures – Operational Stage

As outlined in Section17.4.3, due to the relatively low operational traffic of the Wind Farm, it is envisaged that the operational effect of the Proposed Development will be imperceptible when compared to the existing background traffic. As such, no mitigation measures are proposed for the operation and maintenance of the Wind Farm.

17.5.3 Mitigation Measures – Decommission Stage

On decommissioning of the Wind Farm, a decommissioning plan will be prepared and implemented to minimise the effects during this stage. The decommissioning phase will employ similar mitigation measures as the construction phase. As the decommissioning phase is envisaged to be over 30 years from now, a new TMP will be undertaken to take account of any road improvements and changes to the network in the future.

When the turbine blades are decommissioned, they are cut to a more manageable size. The reduced blade section lengths, tower sections and nacelle are likely to remain abnormal loads, however the swept path of the long blades will be reduced. This will reduce the

impact on third parties and existing road infrastructure (i.e. signs, vehicle restraint systems etc).

As previously mentioned, the large volume of material aggregate and concrete imported to site will remain onsite. The principal expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and a significantly reduced volume of materials only (i.e. haul routes maintained, turbine foundations retained, substation retained, car parking hardstanding areas retained for future amenity).

17.6 CUMULATIVE EFFECTS

Cumulative Developments are referred to in roads terminology as per the TTA Guidelines as Committed Developments. A committed development is a development that has been granted planning (typically in the previous 5 years) and is not constructed. Committed developments are considered in the TTA assessment to get a cumulate understanding of the future baseflow traffic volumes on the road network, that have not been captured within the traffic counts as these developments are pending construction.

17.6.1 Cumulative Developments

A number of wind farm projects are constructed within the vicinity of the site and the operational phase traffic will be accounted for in the baseflow traffic. The following consented Wind Farms are in vicinity of the Proposed Development:

- Oweninny Wind Farm Phase 1,
- Oweninny Wind Farm Phase 2,
- Corvaderry Wind Farm (formerly Gortnahurra Wind Farm),
- Sheskin Wind Farms,
- Sheskin South Wind Farm,
- Kilsallagh Wind Farm.

The decision to determine if these developments should be assessed in the traffic assessment as committed development is dependent on grant of planning permission, overlapping haul routes, overlapping timelines and their associated traffic volumes.

Oweninny Phase 1 Wind Farm is construction and operational. The proposed Oweninny Wind Farm Phase 3 will utilise the same access as Oweninny Phase 1. The traffic associated with the operational phase will be low (i.e. approximately 2 to 5 vehicles per day). The traffic associated

with the operational phase is accounted for in the traffic counts (i.e. baseflow) undertaken in 2022. Hence, no additional traffic is included for as a cumulative development.

Oweninny Phase 2 Wind Farm is currently at construction and is assumed to be completed construction in advance of the construction works for Oweninny Wind Farm Phase 3. The traffic associated with the construction phase is accounted for in the baseflow traffic and no additional cumulative effects for the construction traffic on the N59 are required. The traffic associated with the operational phase will be passing the site access on the N59 towards its respective site access further west on the N59. No turning movements associated with Phase 2 will occur at the proposed development site access. The passing operational traffic volumes will be low (i.e. approximately 2 to 5 vehicles per day) and hence, they are assumed to be accounted for in baseflow traffic annual growth factors.

Sheskin Wind Farm, site access is located off the L52926, which has a junction with the N59 and is located approximately 5km west of the Proposed Development site access. The Sheskin Wind Farm development is under construction and the traffic associated with the construction phase is in part accounted for in the baseflow traffic. Information available on the Abo-wind website[7]https://www.abo-wind.com/ie/company/projects/sheskin-wind-farm.html outlines their current construction programme, with start of construction activities in Quarter 3 (Q3) of 2021. The construction activities for the turbine commissioning are scheduled for Q4 of 2023 which occurs after the turbine foundations are construction. The turbine commissioning is a technical element of the construction work, with typically low traffic volumes and specialist workers. In 2024, the anticipated start date for Oweninny Wind Farm Phase 3, only these activities will be envisaged at Skeskin. The traffic associated with the construction phase is accounted for in the baseflow traffic and no additional cumulative effects for the construction traffic on the N59 are required.

The Sheskin Wind Farm operational traffic volumes will be low (i.e. approximately 2 to 5 vehicles per day) and hence, it is assumed to be accounted for in baseflow traffic annual growth factors.

Corvoderry Wind Farm (previously Gortnahurra) Wind has a proposed site access via the existing operating Oweninny Wind Farm Phase 1 and the proposed Oweninny Wind Farm Phase 3 access on the N59. Oweninny Wind Farm Phase 1 operational traffic is part of the baseflow traffic volumes at the site access. Corvoderry Wind Farm planning permission has expired and therefore it has not been considered as a committed development.

[7] https://www.abo-wind.com/ie/company/projects/sheskin-wind-farm.html#photos

Sheskin South Wind Farm, is a proposed planning application pending permission. The wind farm will be located west of the access to the Oweninny Wind Farm site access via the N59. The details within the permission indicate that the proposed construction programme will not commence onsite until January of 2028. The Construction Stage of this wind farm will be after construction works have concluded on the Oweninny Wind Farm Phase 3. As the peak traffic volumes associated with the Sheskin South and Oweninny Wind Farm do not overlap it is not assessed as a committed development.

Kilsallagh Wind Farm is a proposed planning application with a Pre-Application Consultation (Case reference: PC16.312282) with An Bord Pleanála and the consultation has yet to be concluded. Information available on EDF Renewables website (https://www.edf-re.ie/media-centre/edf-renewables-to-host-public-exhibition-for-kilsallagh-wind-farm/) indicates that the turbines will be located in a forested area north east of Slieve Carr, approximately 8km southeast of Bangor Erris, will have tip heights of up to 200m.

At the time of this EIAR, no information was available to assist in the determination of the inclusion or exclusion as a committed development. Hence, due to the absence of information pertinent to undertake an assessment, the Kilsallagh Wind Farm is not assessed as a committed development.

The decommissioning phases of the aforementioned cumulative wind farm developments will be a number of years in the future. The baseline traffic conditions, and potential road improvements will impact on the assessment. These wind farm cumulative developments will be subject to TMPs to mitigate the impact on the road network.

The following committed developments were discussed with MCC during scoping and are located within the vicinity of the site and/ are on the road network impacted by the development.

- **Crossmolina Diversion Channel** - Estimated to be under construction in 2024 for 4 years, coinciding with the construction of the proposed development in the year 2027. MCC have advised that the construction haul route will be between Crossmolina and the Coolturk quarry. This route is located east of the proposed development and does not overlap with the haul route associated with the proposed development. Hence, the Crossmolina construction traffic will not be passing the junction under assessment and hence, has not been assessed as a committed development.

- **Mayo Hydrogen Production Plant** – This development is currently pending planning permission. It is estimated to be under construction in 2026, which coincides with the construction phase of the Oweninny Wind Farm Phase 3. Review of the EIAR and associated TTA, indicate the haul routes for this development will pass the site access to Oweninny Wind Farm Phase 3 on the N59. This development has a site access located to the west of the Wind Farm Phase 3 on the L52925. As this project has not been granted planning at the time of this submission, it has not been assessed as a cumulative development.

Further to the scoping with MCC, the following committed development was identified in the vicinity of the site and/ are on the road network impacted by the development.

- **Open Cycle Gas Turbine (OCGT) -** A planning application was made to Mayo County Council (ref: 23/60028) for a 114MW gas fired peaking power plant (which will be capable of running on a mix of natural gas and hydrogen). The electricity generating station will comprise of 2 no. open cycle gas turbine (OCGT) generators. As this project has not been granted planning at the time of this submission, it has not been assessed as a cumulative development.

This assessment has considered the potential cumulative impacts of the proposed development in combination with other wind energy developments and permitted developments in the area. No potential cumulative impacts have been included in the traffic and transportation assessment.

Oweninny Bog

Bord na Móna made an application to An Bord Pleanála for leave to apply for Substitute Consent in respect of the historical peat extraction on the Oweninny Bog, which ceased in 2003 and this application is expected to be submitted in 2023. Given the fact that there is no potential overlap between the historical peat extraction, and this proposed development, there is no potential for a negative cumulative.

Visitor Centre – Oweninny Wind Farm

On the Oweninny Wind Farm is an existing permitted Visitors Centre, which will be operational during the Oweninny Wind Farm Phase 3 operational phase. Based on previous data at similar sites, an additional 300 visitors are anticipated at the Visitor Centre with a mix of tour buses and passenger cars.

Estimates for the vehicle numbers are based on 3 no. buses with occupancy of 52 visitors and 72 no. passenger cars with 2 visitors per car. Staff during the peak tourist season are envisaged to be 3 no. staff and are assumed to arrive / depart by individual passenger car. The estimated associated traffic volume is 156 vehicles per day, with peak activities on weekends.

The combined operational traffic (i.e. Wind Farm Phase 3 and Visitor Centre) for the two-way movements is 166 vehicles or 6% of the ADT on the N59. The combined operational traffic is below the TTA threshold of 10% on the N59. Although the operational traffic percentage is above the 5% TTA threshold in congested sensitive areas, the location on the N59 is not congested. The traffic distribution patten typical at an amenity will result in a varied traffic pattern with a low volume peak.

17.6.1.1.1 Description of Effects

With respect to the EPA's criteria for description of effects, the potential associated cumulative effect of the Visitors Centre with the operational phase of Oweninny Wind Farm Phase 3 is described below on the road network (i.e N59).

Table 17-18: Cumulative Effect - Operation Traffic – EPA Criteria Effect

Extent	*Scenario*	*Significance*	*Duration*
N59	Operational Traffic	Slight	Long-term (30 years)

It is noted that the Visitor Centre traffic is seasonal with a higher demand in the summer months and during the weekends. The traffic distributions throughout the day will be varied with a low peak volume. As such, no mitigation measures are proposed for the operation and maintenance of the Wind Farm.

17.7 RESIDUAL EFFECTS

17.7.1 Construction Phase

During the construction phase of the project, it is forecast that the additional construction traffic that will appear on the delivery route, the N59, will have a variable effect and duration on the existing road network. The traffic volumes associated with the Wind Farm already account for the general mitigation by design (i.e. use of existing access track infrastructure where feasible and restricting HGV movements on days of concrete pours).

The residual average construction traffic impact will remain as per the potential impact, with a short-term slight negative effect on the national road network. The residual peak construction traffic impact will remain as per the potential impact, with a temporary moderate negative effect on the national road network.

Further to the mitigation, the residual impact associated with the AIL haulage will remain as the potential impact. The impact will be moderate and temporary on the days / nights of the convoys.

17.7.2 Operational Phase

As the traffic impact of Oweninny Wind Farm will be imperceptible, long-term, negative during the operational stage, there will be no significant residual effects during this stage of the development.

17.7.3 Decommissioning Stage

As stated above, when the proposed development is decommissioned, a decommissioning plan will be prepared and implemented in order to minimise the residual effects during this stage. The decommissioning phase will employ similar mitigation measures as the construction phase. When the turbine blades are decommissioned, they are cut to a more manageable size reducing the overall impact of the AILs during removal from site. As the expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and materials only, the residual impact is considered to be not significant and temporary in duration.

17.8 SUMMARY

The EIA was undertaken on the site access and the mainline route (i.e. the N59) as agreed with MCC. The route assessment is based on the average daily traffic (ADT) on the route in the baseline condition and comparing against the ADT with the proposed development. The site access assessment (i.e. Junction Modelling) was undertaken in accordance with the TII Guidance.

When considering a development of this nature, the potential traffic effects on the surrounding route, road network and site access are considered for two scenarios with regards to the construction traffic:

- the peak construction traffic and
- the average construction traffic.

The N59 route assessment based on ADT and percentage HGV content on the road network due to the proposed development indicated the following potential impacts:

- the peak construction traffic with a moderate negative effect over a temporary duration and
- the short-term effect of the average construction traffic is slightly negative.

The impact of transporting the AILs to the site, will be moderate and temporary in nature. Routes A, B and C have been assessed in this report and are viable routes for the transport of the AILs based on the swept path analysis and proven history of Route C for Phase 1 and 2 of Oweninny Wind Farm. The transport of the AILs by convoy will be mitigated by traffic management during the construction phase.

The operational phase of the wind farm will be imperceptible over the long-term duration. The decommissioning phase will have a lower impact than the construction phase and will be not significant and of a temporary duration.

In accordance with these guidelines, only the construction phase traffic at the N59 / Site Access required a Junction Modelling assessment in accordance with the TTA assessment. Due to the operational phase being sub-threshold, this phase was not assessed in accordance with the TTA Guidance Document. The decommissioning phase is at a date in the future outside the available parameters to forecasting traffic data, however, considering that the traffic volume will be less than the construction phase, the impact will be the same or less than the construction phase.

The TTA assessment of the junction, indicates that the junction (i.e. site access) will operate with a slight impact during the temporary peak traffic volumes from September to November 2025. On average the traffic impact will be not significant and of a short-term duration.

The review of the cumulative developments indicates Oweninny Wind Farm Visitor Centre will have cumulative traffic during the operational phase of the Wind Farm. The effect will be slight due to the volume of visitors generated by the Visitor Centre. The operational Wind Farm traffic will be imperceptible.

The residual effects will be as per the potential effects with the adoption of the mitigation measures as outlined in the EIAR.

17.9 REFERENCES

- EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports May 2022 (EPA, 2022)
- Traffic and Transportation Assessment (TTA) Guidelines (TII PE-PAV-02045 May 2014)
- Mayo County Development Plan 2022-2028
- Spatial Planning and National Roads Guidelines for Planning Authorities (2012)
- Renewable Energy Strategy for County Mayo 2011-2020
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (TII PE-PAG-02017).