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Lissinagroagh Wind Farm, Co. Leitrim Traffic Management Plan

BUILT ON KNOWLEDGE

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1. INTRODUCTION

This Traffic Management Plan (TMP) has been prepared for the proposed Lissinagroagh Wind Farm. The site is approximately 3 km northeast of Manorhamilton in north County Leitrim at its nearest point. It is also located in close proximity to the Northern Ireland border in County Fermanagh which is approximately 3 km to the north.

The purpose of this TMP is to assess the potential effects of the development on the local road network and to set out appropriate mitigation measures.

The proposed project consists of fourteen (14) wind turbines with all associated site works, including a grid connection (GCR) and TDR accommodations to facilitate delivery of abnormal indivisible loads. A full description of the proposed project is provided in Chapter 2 – Description of the Proposed Project.

This TMP is intended as a "live" document, to be updated as required throughout the planning and construction process. It will incorporate any changes arising from the detailed construction programme, together with inputs from the Contractor, the design team and the Client.

The measures contained in the Environmental Impact Assessment Report (EIAR), Construction Environmental Management Plan (CEMP) and Natura Impact Statement (NIS) represent the minimum requirements to be implemented by the Contractor. Further measures may be agreed during the construction phase, in consultation with the Local Authorities and other relevant stakeholders.

1.1 OBJECTIVES

This TMP has been prepared prior to the appointment of a Contractor, material suppliers and final construction phase programme. It will be updated following grant of planning permission and prior to commencement of any construction works.

The primary objectives of this TMP are as follows:

- Outline minimum road safety measures to be undertaken at site access/egress locations during the construction phase, including approaches to such access/egress locations; and,
- Demonstrate to the developer, contractor, and suppliers the need to adhere to the relevant guidance documentation for such works.

The TMP will address the following issues which are explained in detail in this Plan:

- Consent, Licenses, Notifications and Permissions,
- General Provisions,
- Site Access and Egress,
- Routing of Construction Traffic,
- Site Specific Temporary Traffic Measure,
- Enforcement of Traffic Management Plan, and
- Emergency Procedures During the Construction.

1.2 IMPLEMENTATION AND MONITORING

The principal Contractor will agree and implement measures to monitor the effectiveness of the TMP, in conjunction with Leitrim County Council and Client. On finalisation of the TMP, the Contractor will adopt the plan and associated monitoring measures.

To ensure that environmental awareness and compliance are communicated effectively at the start and throughout the construction works, this TMP will be communicated to all site personnel, including management staff, operatives, and sub-contractors. The key elements of this TMP will form part of the site induction which will be mandatory for all employees, contractors and visitors attending the proposed project works.

2. THE PROPOSED PROJECT

2.1 PROPOSED PROJECT LOCATION

The proposed project site is located approximately 3 km northeast of Manorhamilton in north County Leitrim at its nearest point. It is also located in close proximity to the Northern Ireland border in County Fermanagh which is approximately 3 km to the north. The site lies within the townlands of Lisdarush, Shasmore, Faughary, Boleyboy, Cashelaveela, Tawnafeacle, Lissinagroagh and Tawnylust in north County Leitrim between the villages of Kiltyclogher to the northeast and Manorhamilton to the southwest.

The proposed project site borders between the R282 and R283 regional roads, and L61801, L61802, L6184, L61844, L6117, L61803, L61804, and L61807 local roads. In general terms, the area surrounding the main project site can be described as rural with dispersed settlement type.

Figure 2-1 **Error! Reference source not found.**presents the location of the project in relation to regional site location. Figure 2-2 presents the relevant local road network surrounding the proposed wind farm site.

In general terms, the area surrounding the main wind farm site can be described as agricultural and forested landscape.

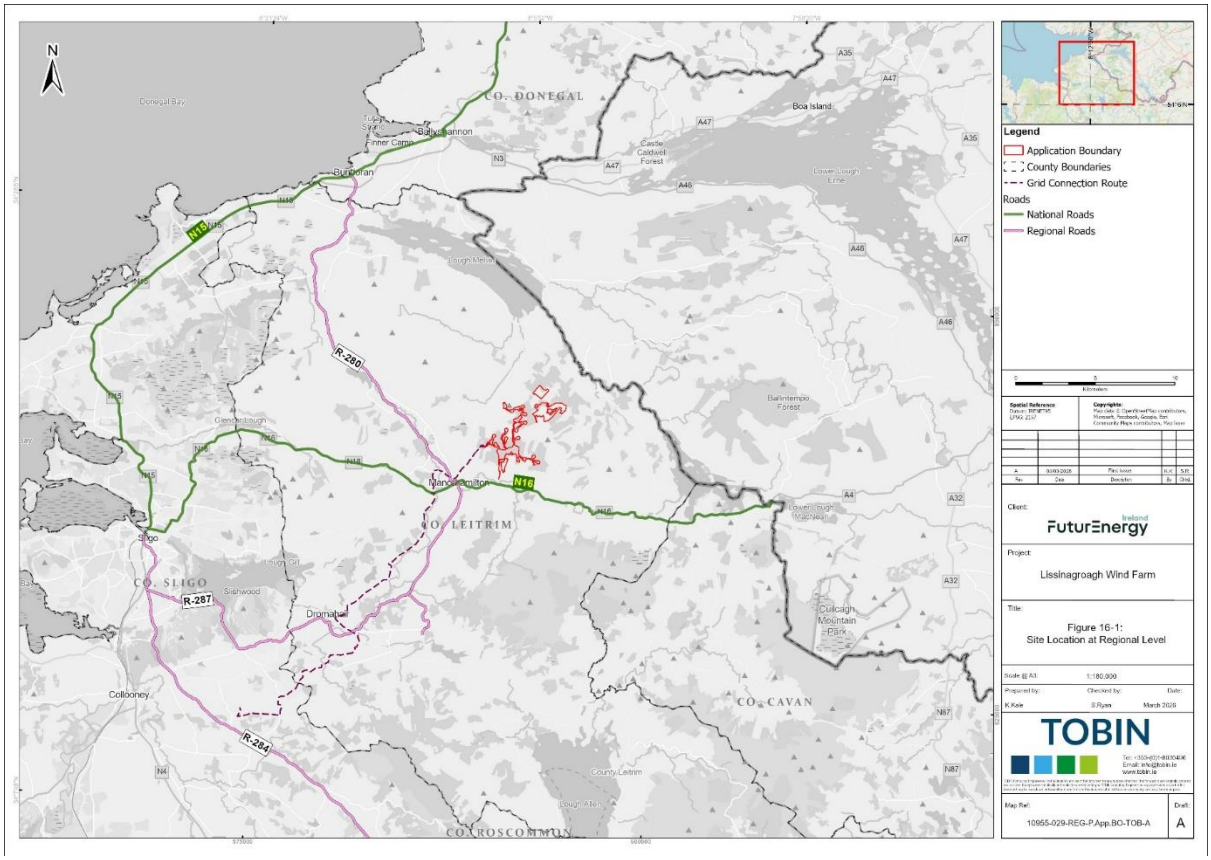

Figure 2-1: Site Location at Regional Level

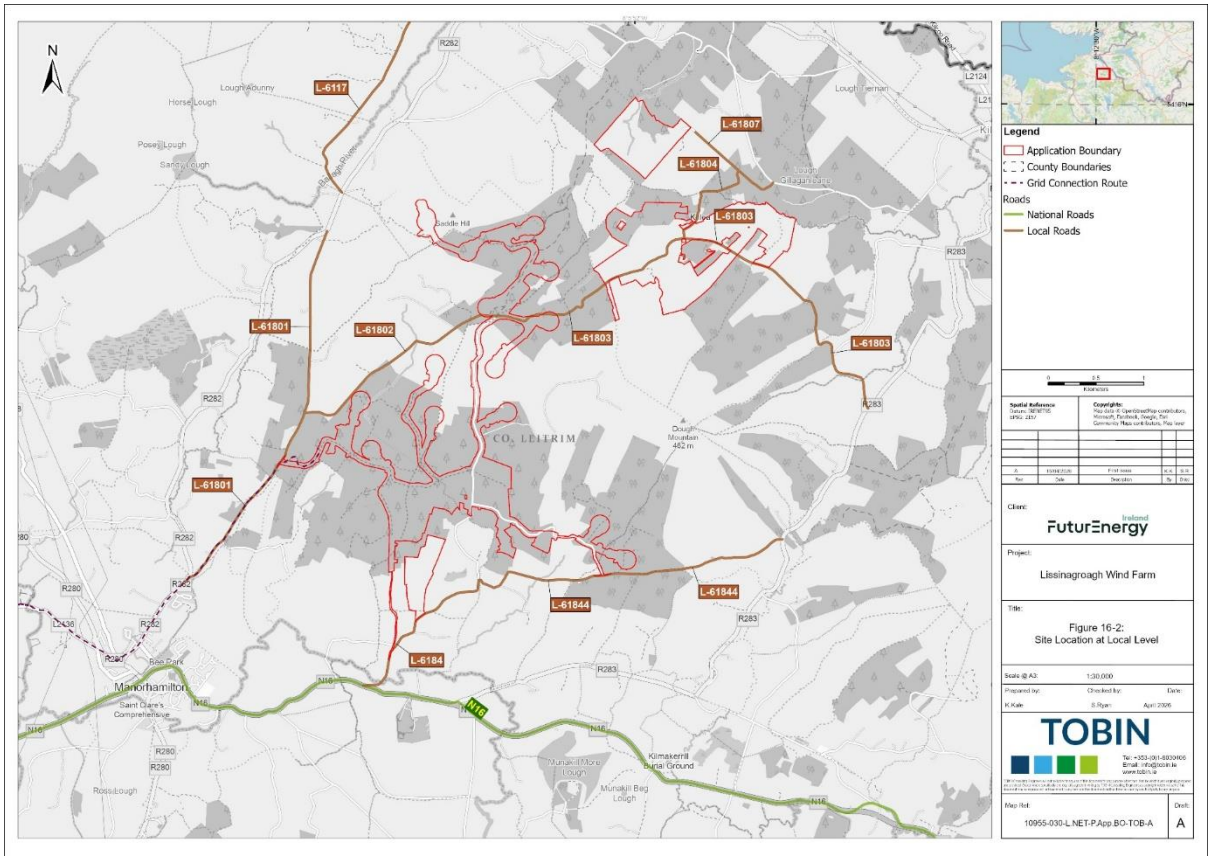

Figure 2-2: Site Location at Local Level

2.2 DESCRIPTION OF THE PROPOSED PROJECT

The project comprises of the development of a wind farm of up to 14 no. wind turbines and all associated infrastructure including turbine foundations, hardstanding areas, access tracks, an on-site 110 kV electrical substation, and a grid connection.

A detailed description of the proposed project is provided in Chapter 2 - Description of the Proposed Project.

2.3 PROPOSED ACCESS ARRANGEMENTS

2.3.1 Accesses

On the public road network, the proposed project will be served by 7 no. permanent site entrances, 2 no. temporary site access and 2 no. temporary road crossings. The following entrances will serve the site, as presented in Figure 2-3:

- Permanent Site Entrance 1 (L61801): Modified existing entrance to be used during construction and to serve the proposed project during operational phase.
- Permanent Site Entrance 2 (L6184): Modified existing entrance to serve proposed project.
- Permanent Site Entrance 3 (L6184): Modified existing entrance to serve proposed project.
- Permanent Site Entrance 4 (L6184): Proposed entrance to serve Turbine T8.
- Permanent Site Entrance 5 (L6184): Modified existing entrance to serve Turbine T5.
- Permanent Site Entrance 6 (L6184): Modified existing entrance to serve Turbines T7.
- Permanent Site Entrance 7 (L6184): Modified existing entrance to serve Turbine T1, T2, T3, T4, and T6.
- Temporary Site Access 1 (L6184 Cherrybrook): Proposed temporary entrance to be used during construction for delivery of AIL components only. This entrance could be used during operational stage but only in rare event that AIL delivery is required.
- Temporary Site Access 2 (L61844): Modified existing temporary entrance to be used during construction.

All permanent entrances have been designed in accordance with *TII standards (DN-GEO-03060, May 2023)*, with sightlines provided to the required x- and y-distance standards. Swept path analysis confirms suitability for both AILs such as turbine blades and the maximum legal articulated vehicle (16.5 m). Entrances will remain in place after decommissioning for forestry and agricultural use.

2.3.2 Passing Bays

A total of eight (8 no.) passing bays are proposed along the L6184 to facilitate the safe movement of construction traffic and general road users along this section of the local road network. The provision of these passing bays will improve operational efficiency and reduce the potential for conflict between opposing vehicles, particularly given the constrained width typical of rural local roads.

The passing bays have been designed in accordance with Transport Infrastructure Ireland (TII) guidance, specifically *Section 9.9 of DN-GEO-03031 — Rural Road Link Design.* In line with this guidance, passing bays are provided on sections of the route where the existing carriageway width was identified as 5.3 m or less, as an alternative to full carriageway widening.

Details of the location and layout of the proposed passing bays are illustrated on the drawings accompanying the planning application. The relevant drawings are Drawing Nos. 10955-2080 to 10955-2082, which show the positioning and geometric design of each passing bay along the L6184.

2.3.3 Internal Tracks

Approximately 7.95 km of new access tracks and 8.35 km of upgraded existing tracks will be constructed. Site access tracks will have a running width of approximately five metres (5.5 m including shoulders), with wider sections (which vary but are up to approximately 10.0m) at some corners and on the final approaches to turbine hardstands, as shown on the drawings accompanying the application. The proposed new tracks will include passing bays to allow traffic to pass easily. Roads will incorporate a 2.0% camber and drainage design as detailed in the planning drawings 10955-2033 (See Appendix 1-1).

Chapter 2 – Description of the Proposed Project provides a detailed description of the proposed project site, including access arrangements and crossing points.

A Road Safety Audit (RSA) (see EIAR Appendix 16-2) was undertaken for this project.

The entrance junctions have been designed in accordance with the Transport Infrastructure Ireland (TII) document Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions) - DN-GEO-03060 May 2023.

The entrance visibility complies with the requirements of a 3.0m 'x-distance' setback with 'y-distance' of 90m for the regional roads. Swept path analysis for the largest vehicles accessing the site at the site entrances has been undertaken and can accommodate the wheel tracks of these vehicles, i.e., AIL (turbine blade, where required), and maximum legal articulated vehicle (16.5 m in length), as shown in the drawings presented in EIAR Appendix 16-2.

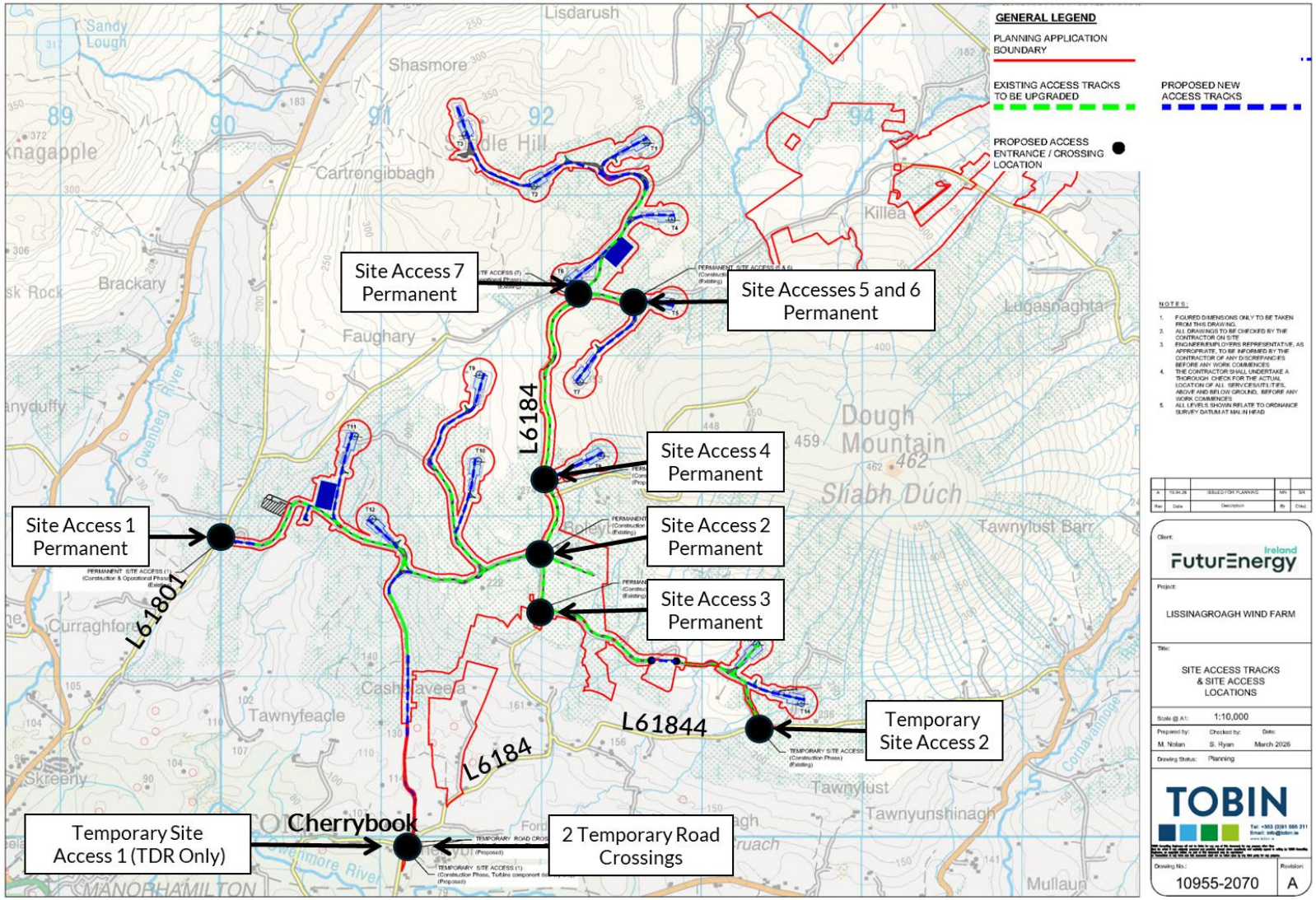

Figure 2-3: Site Entrances and Temporary Crossing Points

2.3.4 Crossing Points

The proposed project requires two temporary crossing points on the public road network along the L6184 Cherrybrook. These crossings are designed to facilitate turbine component deliveries by avoiding a tight bend on the existing road and eliminating difficult turning manoeuvres, thereby minimising the extent of use of the public road network.

The crossings will be used during the construction phase only and will be closed following completion of turbine deliveries.

Turbine component deliveries during the operational phase are not anticipated; however, they may be required in the unlikely event of a turbine failure necessitating replacement. Should such a situation arise, a project-specific transport assessment would be undertaken at that time to evaluate any associated impacts.

2.4 EXISTING ROAD NETWORK

Chapter 16 (Traffic and Transport) of the EIAR provides a detailed description of the existing road network surrounding the proposed wind farm. The primary haul routes to the site utilise the national and local road networks. The road network has been assessed in terms of its capacity to support Abnormal Indivisible Loads (AILs), general construction traffic, haul routes and the grid connection.

The AIL haul route will utilise the national road network, including the N56, N15, and N16, providing a high-standard connection from Killybegs Port to the site. These roads are in good condition, with adequate carriageway widths, road markings, signage, drainage, and junction lighting, and are capable of safely accommodating turbine deliveries and other AIL movements, subject to minor accommodations at a number of locations.

Local access to the wind farm site will be provided via the L61801 (access 1), L6184 (access 2-7) and L61844 (access 8). These local roads vary in width from 3 m to 6 m, are bordered by hedgerows and vegetation, and generally provide limited formal markings and signage.

3. CONSTRUCTION PHASE

3.1 CONSTRUCTION PHASE WORKS

The proposed project has a construction period of approximately 24 months with construction envisaged to commence in March 2028. Peak construction activity is expected to take place between September and November 2028 (3 months). The phasing and scheduling of the main construction task items for the proposed project are detailed in Chapter 2 - Description of Proposed Project.

As the construction activities progress inward from the site access, various phases will become active and will overlap with each other in different areas within the site at different phases of the construction programme.

3.2 CONSTRUCTION HOURS

The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will be restricted to between 07:00 hrs and 19:00 hrs Monday to Friday (excluding public holidays) and between 07:00 hrs and 14:00 hrs on Saturdays.

However, during the following critical periods longer hours will be required:

- Concrete pours for turbine foundations;
- During turbine installation when the weather is suitable (i.e. light winds);
- Delivery of oversized loads; and
- In the unlikely event of an emergency (this is unlikely - see Chapter 17 (Major Accidents and Natural Disasters)).

Any such out of hours working will be agreed in advance with Leitrim County Council apart from in the case of an emergency and in line with the Schedule of Mitigation Measures of this EIAR (Chapter 19 (Schedule of Mitigation Measures).

3.3 CONSTRUCTION PHASE TRAFFIC

3.3.1 STAFF LEVELS

The number of construction staff will vary depending on the phase of the construction activity. At the peak construction, approximately 139 staff are estimated, during off-peak activities 50 people are estimated on site. A reduction in construction staff on site is expected when the construction activities are more technical and less labour intensive.

In addition to the onsite construction workforce, additional construction staff will be required for the cable laying works and the advanced AIL haul route accomodations. At each location off-site, approximately 10 construction staff are anticipated, including traffic management operatives.

3.3.2 STAFF TRIP GENERATION (LV)

At the peak construction, approximately 139 staff are estimated, during off-peak activities 50 people are estimated on site. For the purpose of this assessment, all staff members are assumed to arrive at the site by LVs with an occupancy of 1 person per vehicle, as such a total of 278 trips

(two-way) can be expected during peak construction and 100 trips (two-way) daily during off-peak.

3.3.3 CONSTRUCTION VEHICLES

The construction phase for the proposed wind farm will result in additional traffic on the roads in the vicinity of the proposed wind farm. The proposed HVs will typically be rigid vehicles (i.e., concrete trucks, dump trucks, delivery vehicles) or maximum legal articulated vehicles within normal vehicle loading.

This additional construction traffic will include the following:

- Construction worker vehicles, e.g., cars or vans (light vehicles),
- HVs carrying conventional earthworks equipment such as an excavator, a roller, stone crusher, forklifts, etc.
- Mobile Cranes,
- Delivery vehicles carrying:
  - conventional construction materials for the site, e.g., aggregate, concrete, rebar, etc.
  - conventional construction materials for the substation, e.g., bricks, concrete, rebar, fencing, etc.
  - Drainage infrastructure i.e., tanks, etc.
  - met masts, electric cabling, inverter stations and electrical equipment for the on-site substation.

3.3.3.1 ABNORMAL INDIVISIBLE LOAD

The transformer and the wind turbine components will be transported by abnormal indivisible loads (AILs). An assessment of the AILs has been made based on the details in Chapter 16 (Traffic & Transport), pending confirmation of the specification during procurement at construction stage. The contactor will be responsible for obtaining all associated licences from Leitrim County Council or Gardaí during construction for the abnormal loads.

3.3.4 CONSTRUCTION VEHICLES TRAFFIC GENERATION (HGV)

A total of 43 HV one-way (86 trips total) have been estimated at peak construction time (excluding the concrete pour volumes) and an average of 22 HV during off-peak (44 trips total). The peak movements are anticipated to occur from September to November 2028 when the site compounds, site roads, turbine hardstands, and turbine foundations are occurring simultaneously.

3.3.4.1 CONCRETE POUR VOLUMES

The construction methodology for the concrete turbine foundations occurs over 14 non-consecutive days requiring each foundation to be poured on a single day, resulting in 230 HVs arriving onsite per day. Considering the working hours, it is expected an average of 19 HVs arriving on site per hour during concrete pours.

The TMP aligns with Chapter 16 (Traffic and Transport) assessments, confirming that peak construction traffic will not exceed national or local road network capacity.

3.3.5 CONSTRUCTION HAUL ROUTE

3.3.5.1 TYPICAL CONSTRUCTION TRAFFIC DELIVERIES

The proposed construction haul routes have been assessed with reference to local quarries and sensitive receptors in nearby towns and villages. Construction materials will be delivered by standard heavy vehicles (HVs), including rigid and articulated lorries, as well as construction machinery such as cranes, excavators, concrete trucks, tippers, and stone crushers.

Peak daily traffic is expected between September and November 2028, associated with the importation of aggregate for site compounds, internal haul routes, turbine hardstanding areas, and steel and blinding for turbine foundations.

The next highest traffic impact will occur during concrete pours for turbine foundations. The construction methodology for the concrete turbine foundations takes place over 14 non-consecutive days, with each foundation poured in a single day. These concrete pour days are one-off events and not typical of day-to-day construction activity. On each pour day, this will result in 230 HVs arriving onsite. Considering the working hours, it is expected that an average of 19 HVs will arrive on site per hour.

Materials will generally be sourced from the quarries, while other materials—including met masts, building materials, fencing, drainage, water treatment, substation materials, and welfare facilities—generally assumed to be sourced locally, arriving via the N16 to site accesses on the L61801, L6184, and L61844. Delivery routes and the final source of quarry material will be determined by the appointed contractor.

The proposed construction haul routes are shown in Figure 3.1 and have been reviewed as suitable to accommodate two-way delivery traffic in terms of alignment, width, and road condition.

Traffic volumes on the haul routes, both peak and average, are discussed in EIAR Chapter 16 (Traffic and Transportation).

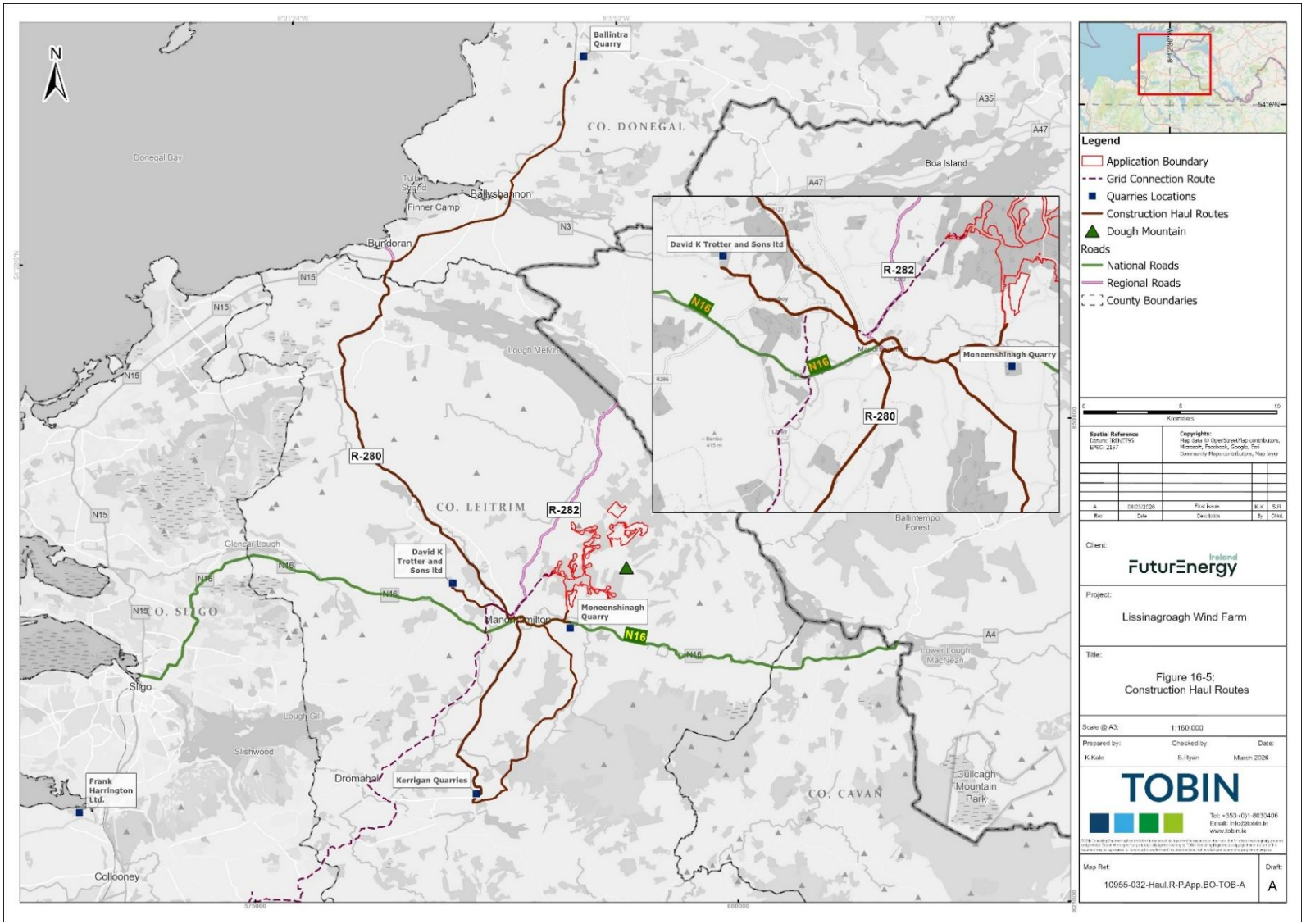

Figure 3-1: Haul Route Map - Typical Construction Vehicles

3.3.5.2 ABNORMAL INDIVISIBLE LOAD DELIVERIES

Killybegs Port is the anticipated port for the import of the AILs. The route selected for the AILs utilises the national road network as much as feasible from the port to the site. The AIL route on the national road network is a Type 1 Single Carriageway, with wide carriageway widths.

It is estimated that 23-38 delivery events will be needed on a maximum of 23-38 days for delivery of these oversized loads. The delivery route is expected to begin at the port of entry in Killybegs, Co. Donegal and proceeds southeast along the N56 around Donegal Town. From there, it continues southwest on the N15 towards Sligo Town, before connecting to the N16 and approaching Manorhamilton, running along the N16 past Manorhamilton for approx. 2km before joining the L6184 to the proposed project site from the south.

Turbine deliveries will take place outside of normal construction hours, primarily during night-time, to take advantage of lower traffic volumes on public roads. These movements will be carried out under traffic management measures and accompanied by a Garda escort.

The AIL delivery route is shown in Figure 3-2 and the swept path analysis is included in Appendix 16-2. Traffic generation associated with the AIL haul route during the construction phase is outlined in Table 3-1.

Table 3-1: Traffic Generation during the Construction Phase – AIL

AIL Elements	No. of Turbines	Parts	Components per Element	Total Components	Trips with 3 AIL per Convoy	Trips with 5 AIL per Convoy
Nacelle	14	1	14	112	38	23
Blade		3	42			
Tower		4	56			
Transformer				1		

Note:

(1) Traffic associated with the delivery of AILs has not been included in the traffic impact percentage increase, as these deliveries will take place at night, when traffic volumes are low, and will be managed under traffic control measures with Garda escort.

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

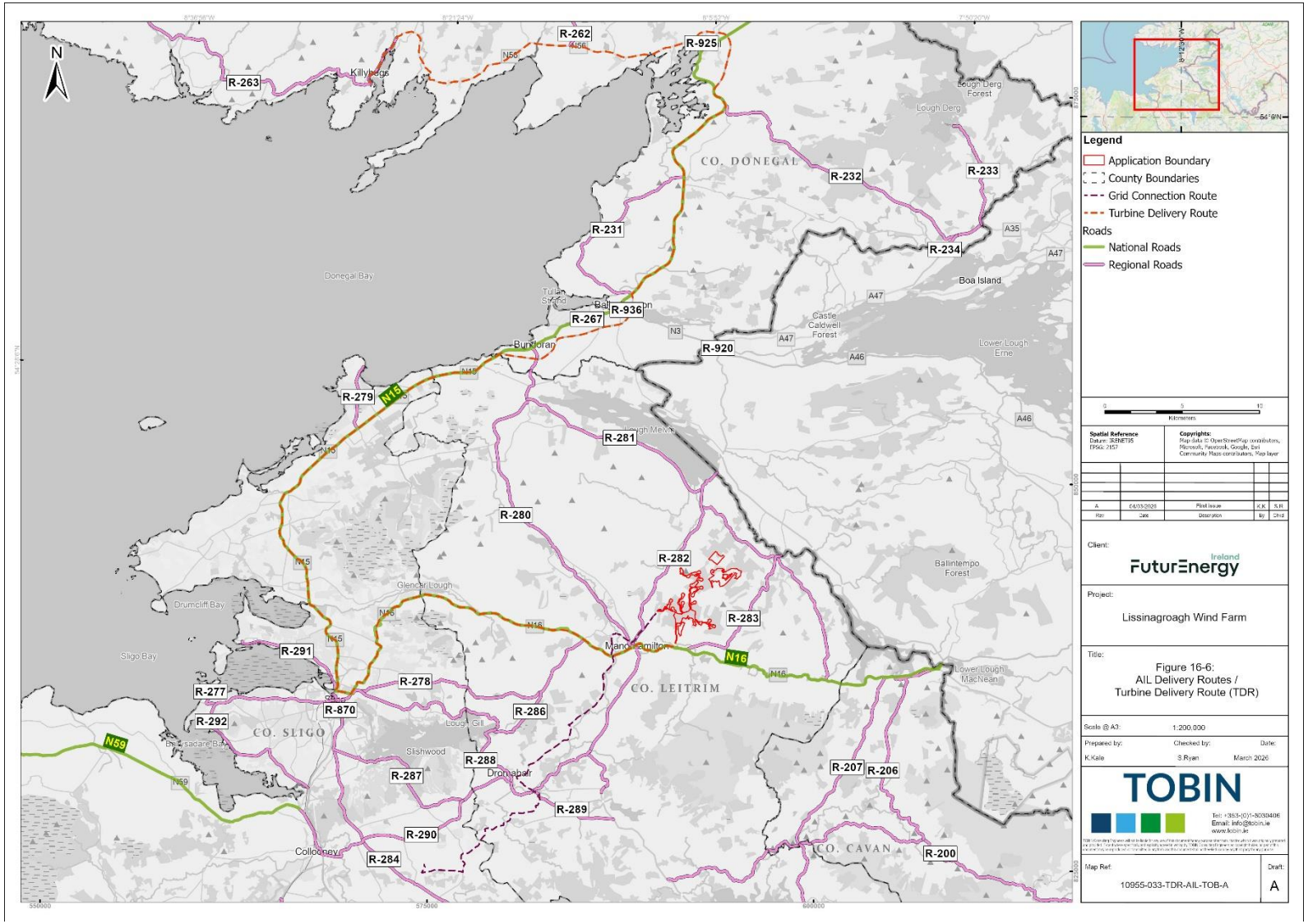

Figure 3-2: AIL Delivery Routes / Turbine Delivery Route (TDR)

3.3.6 CONSTRUCTION PHASE SUMMARY

The construction traffic impact of the additional HVs and LVs on the existing road network has the potential to impact the existing pavement condition, the carrying capacity of the road, the existing junction flows on the haul route, and site access for the duration of the construction programme. The construction phases, including the advanced AIL accommodations will have varying impacts on the road network and environs.

The proposed wind farm construction has an envisaged construction programme of 24 months and a peak construction activity for the concrete pours for the turbine foundations. During the off-peak construction phase, lower traffic volume impacts on the road network are expected. The main construction traffic associated with the proposed project may result in a negligible increase in delay at all surveyed junctions due to the increased traffic.

Traffic management operatives' control will be required to facilitate safe access/egress at the site during the peak construction activities.

Minor delays of short duration may be encountered on the turbine delivery haul route N56, N15, N16, L6184, and L61844 due to the AIL delivery accommodations. Temporary accommodations include local strengthening of road edges, trimming or removal of vegetation and removal of street furniture.

A temporary traffic management plan will be employed by the appointed contractor to safely facilitate works on/adjacent to the live carriageway for the AIL accommodations.

4. CONSTRUCTION PHASE TRAFFIC MANAGEMENT PLAN

The Contractor will develop and take account of the commitments imposed within this TMP. The following are the commitments made at the planning stage of the proposed project, which shall be further developed by the Contractor and agreed upon with the Roads Authorities, prior to works commencing on site:

- General Provisions,
- Site Access and Egress,
- Routing of Construction Phase Traffic,
- Site Specific Temporary Traffic Measures,
  - Traffic Management Logistics,
  - Traffic Management Speed Limits,
  - Traffic Management Signage,
  - Road Closures,
  - Timings of Material Deliveries to Site,
  - Abnormal Load,
  - Road Cleaning,
- Enforcement of Traffic Management Plan, and
- Emergency Procedures During the Construction.

4.1 CONSENTS, LICENCES, NOTIFICATIONS AND PERMISSIONS

The key consents, licences, notifications, and permissions likely to be required for the proposed project with regards to traffic and roads are summarised as:

- Planning permission and associated planning compliance.
- Abnormal loads – it is envisaged that permits will be required for the abnormal loads that will be required for the delivery of the transformer and turbine components to the site.
- Road opening licences for underground cable works, junction upgrade works, etc.
- Approval of temporary traffic management plans.
- Road closures and diversions.
- Permission for works outside of standard construction operation hours agreed upon with Leitrim County Council.

The above list is non-exhaustive but identifies the key consents, licenses, notifications, and permissions required for the proposed project. This list will be further populated as required through planning compliance and stakeholder engagement to ensure that any further consents are identified as early as possible and do not impact on the construction programme.

Consultation with local residents will be undertaken in advance of the commencement of construction works.

4.2 GENERAL PROVISIONS

The construction traffic impacts of the proposed project have been identified as being temporary in nature. It is important that any impact caused by the proposed project is minimised

as far as possible, and, considering this, the following mitigation measures shall be included in future developments of this TMP:

- Traffic movements will be limited to 07:00 – 19:00 Monday to Friday and 07:00 – 14:00 Saturday, unless otherwise agreed in writing with Leitrim County Council.
- HGV movements will be restricted during peak road network hours from 08:00 – 09:00 and 17:00 – 18:00 Monday to Friday, unless otherwise agreed in writing with Leitrim County Council.
- HV movements for the proposed development shall be directed away from sensitive areas (i.e., schools, urban centres), where possible.
- A temporary over-run area will be provided with a suitably bound surface treatment to prevent migration of loose material onto the carriageway and to maintain safe conditions for all road users in liaison with Leitrim County Council. Temporary street lighting will be implemented to always ensure adequate and uniform lighting levels in liaison with Leitrim County Council to provide suitable temporary lighting during the works.
- Temporary protection for drainage kerbs will be provided, in liaison with Leitrim County Council, to maintain drainage function during the works.
- Temporary barriers will be provided, in liaison with Leitrim County Council, to prevent inadvertent use of temporary over-run areas and to maintain safe conditions for all road users.
- Overhead cables will be managed in liaison with the utility provider to ensure safe clearance is always maintained.
- Affected sections of footpath will be physically closed and a suitable diversion route provided for the duration of the AILs deliveries. This will be implemented in liaison with the Leitrim County Council to ensure pedestrian safety.
- Utility poles and associated cables will be properly secured in liaison with the utility provider to maintain safety during the works.
- During the delivery of the AILs, no parking will be permitted along the access route for unloading or activities that result in blockages of access routes. Such vehicles will be immediately requested to move to avoid impeding the works and traffic on the road network.
- Measures to remove queuing of construction traffic on the adjoining road network, including turning space and queuing of convoy HVs will be provided within the sites.
- Wheel wash equipment will be used on site to prevent mud and stones from being transferred from the site to the public road network.
- Activities generating dust will be minimised where practical during windy conditions. Loads will be covered on arrival and departure from the site, where required.
- Clear construction warning signs will be placed on the public road network to provide advance warning to road users of the presence of the construction site and slower-moving vehicles making turning manoeuvres.
- Access to the construction site will be controlled by onsite personnel and all visitors will be asked to sign in and out of the site by security/site personnel, and site visitors will all receive a suitable Health and Safety site induction.

- Security gates will be sufficiently set back from the public road, so that vehicles entering the site will stop well clear of the public road.
- The final TMP will also include provisions by the appointed Contractor, for details of the intended construction practice for the development, including:
    - Traffic Management Co-ordinator – a competent traffic management co-ordinator will be appointed for the duration of the proposed development, and this person will be the main point of contact for all matters relating to traffic management.
    - Delivery Programme – a programme of deliveries will be submitted to Leitrim County Council in advance of the delivery of the turbine components to the site.
- Information to locals – residents in the area will be informed of any upcoming traffic related matters, e.g., temporary lane/road closures (if required) or any night deliveries of turbine components, via posters in public places. Information will include the contact details of the Developer's representative, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided.
- Pre and Post Construction Condition Survey – A pre-construction survey of roads on the approach to the site will be undertaken prior to the commencement of construction to record existing conditions. A post-construction survey will be carried out following completion of the works to identify any remedial measures required to restore the road to at least its pre-construction condition, at the Applicant's expense. The timing of these surveys will be agreed with Leitrim County Council.
- Liaison with Local Authorities – liaison with Leitrim County Council, including the roads and transport section, through which the delivery route traverses, and An Garda Siochána, during the delivery phase of the AILs, wherein an escort for all convoys may be required.
- Temporary Alterations – implementation of temporary alterations to road network at critical junctions.
- Travel plan for construction workers – a travel plan for construction staff and sub-contractor construction staff.
- Temporary traffic signs – As part of the traffic management measures, temporary traffic signs will be put in place.
- Traffic Management Operatives (TMOs) will be present at site access point during peak delivery times.
- Traffic Management Operatives (TMOs) will be present for road closures or other works along the grid connection route, as required.
- Delivery Times of Large Turbine Components – The management plan will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.

The TMP will be updated by the principal Contractor and agreed with the Planning Authorities prior to the commencement of project works in the event of a grant of permission.

4.3 CONSTRUCTION PHASE SITE ACCESS AND EGRESS

At the proposed main site access point visibility splays will be provided and maintained in accordance with the *TII Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions) (TII DN-GEO-03060, May 2023)*. It requires a 3.0-metre setback over a length of 90 min both directions. To ensure safe working access for all construction vehicles on the proposed wind farm site, these works will be required to be undertaken in advance of all other activities on the site utilising this access. Minor improvements to the sight lines in the form of trimming and ongoing maintenance of existing foliage shall be required upon completion of the site access construction works on the L61801, L6184 and L61844.

The Contractor shall be required to utilise a safe system of traffic management, potentially including the use of Traffic Management Operatives (TMOs) for the control of traffic during access/egress operations at the site access location during peak construction activities.

4.4 ROUTING OF CONSTRUCTION PHASE TRAFFIC

The proposed construction haul routes were identified based on review of existing local quarries, principal road networks (i.e., national and regional) and consultation with Leitrim County Council. The haul routes utilise the national and regional road network as much as feasible, with only localised use of the local road network. Construction traffic will arrive to the proposed wind farm site via National Roads N15 and N16, Regional Roads R280, R282, and R290, and the Local Roads L6184, L61844, and L61801. Most materials will be delivered using maximum legal articulated lorries or smaller vehicles.

Construction HV traffic will be directed away from communities and sensitive receptors (i.e., schools, dense residential areas, urban centres), where possible, to minimise the effect on these communities.

4.5 SITE SPECIFIC TEMPORARY TRAFFIC MEASURES

The specific details of each temporary traffic measure shall be developed by the Contractor(s) for site access and the grid connection route, in consultation with the Roads Authority, An Garda Síochána and other Emergency services, before being submitted to the Roads Authority for formal approval prior to any works taking place.

The maximum length of the active traffic management area (i.e., including taper lengths) shall be no more than 500 metres in length for any proposed shuttle system. To minimise traffic delays, it may be necessary to limit the works site to shorter lengths if queuing delays are encountered.

Traffic lane closures will be controlled by an active traffic management system (i.e., temporary traffic signals or Stop & Go/Taigh discs). An Garda Síochána will be consulted prior to the implementation of the active traffic management system. The operation of a manual 'Stop & Go/Taigh' system will be undertaken by trained personnel, wearing suitable high visibility garments. The operators of this type of system will be in verbal contact (i.e., radio) and preferably inter-visible. At these locations queue lengths will be estimated initially with onsite measurements to determine the necessary warning distance for approaching drivers. The signage shall be adjusted as necessary when the actual impact on traffic flows is established.

During grid connection cabling works on the relevant road network, a diversion route for traffic will be implemented. This shall be approved by Leitrim and Sligo County Council following consultation with the Road Authority, An Garda Síochána and other emergency services.

A desktop study has been carried out of the roads likely to be affected by the GCR. It was determined that feasible diversion routes are available along the route. However, the appointed contractor will need to liaise with Sligo and Leitrim County Councils to agree on the most suitable diversion routes, if required.

Were reasonably practicable, consideration will be given to the possibility of removing the traffic management measures to deal with:

- Particularly high traffic volumes due to sporting or other events,
- Adverse weather conditions,
- Emergency access, or
- Times when work is not in progress.

If the night-time or weekend Temporary Traffic Management (TTM) measures vary from the daytime plan, a separate TTM will be prepared to be approved by Leitrim County Council.

On completion of the works, the traffic management measures are to be removed when the road is safe and free from obstructions, all reinstatement of road surfacing is completed, and all permanent signs, road markings, and other items are in place.

4.5.1 TRAFFIC MANAGEMENT SYSTEMS/LOGISTICS

The Contractor as a minimum will employ the following traffic management systems and logistics to facilitate the safe transport of materials to and from the proposed project.

4.5.1.1 TRAFFIC MANAGEMENT OPERATIVES (TMOs)

During peak construction activities, and otherwise as required e.g. for the grid construction works, with a higher number of HV movements to and from the site, a TTM (i.e., stop/go system) at the site access may be required to facilitate the movement of construction vehicles.

Also, during peak construction activities, TMOs may be required within the site to manage the movement of HVs within the internal layout.

TTM for the AIL delivery will be developed by the appointed Contractor in consultation with the specialised haulage provider, An Garda Síochána, and the relevant Local Authorities, namely Leitrim, Sligo and Donegal County Council.

4.5.1.2 CONVOY SYSTEM

A convoy system will be employed by the Contractor, applied to HVs departing the site, involving:

- Traffic management operatives at the proposed wind farm access/egress point to facilitate movement of construction vehicles in a convoy system (maximum 4 no. HVs),
- Suitable spaces shall be made available within the site for queuing of HVs (i.e., passing bays and at site access),

- Traffic management operatives shall be stationed at the site access T-junction with a suitable intercommunication system (i.e., radio) to control the release of the convoy system,
- The convoy shall have separation between convoys to facilitate use of the public road network in the absence of construction HV movements.

4.5.2 TRAFFIC MANAGEMENT SPEED LIMITS

Once a temporary speed limit is deemed appropriate by the Contractor to facilitate the construction phase activities along the public roads serving the proposed development, it shall be required for the Contractor to liaise with the relevant Local Authorities, namely Leitrim, Sligo and Donegal County Council, for obtaining a temporary speed limit.

Adherence to posted/legal speed limits will be emphasised to all staff, suppliers, and contractors. In areas where the speed limit exceeds 60 km/h, drivers of construction vehicles/HGVs will be instructed that vehicular movements in sensitive locations, such as schools and local community areas, shall be restricted to 60 km/h. Such advisory speed limits will only apply to construction phase haulage traffic and will not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

4.5.3 TRAFFIC MANAGEMENT SIGNAGE

Signage for temporary traffic measures shall be provided in accordance with the *Department of Transport, Tourism and Sport - Chapter 8 – Temporary Traffic Measures and Signs for Roadworks – August 2019.*

Advanced warning signs will be used to alert drivers to the unexpected road layout. Clear construction warning signs shall be placed at adjacent roads, the entrances and the relevant sections of the grid connection route, to advise the general public of the presence of construction sites and activities. All permanent road signs contrary to the proposed roadworks will be covered for the duration of the works and uncovered on removal of the temporary traffic management measures.

4.5.4 TIMING OF MATERIAL DELIVERIES

With the aim to reduce impacts on local communities and residents adjacent to the proposed wind farm site, it is planned that:

- Construction activities will be undertaken based on a six-day working week, with deliveries between 07:00 hrs - 19:00 hrs on weekdays and 07:00 hrs - 14:00 hrs on Saturdays.
- Construction activities and deliveries outside these hours shall be agreed with the Local Authority in advance.
- The Contractor shall liaise with the management of other construction projects and the local authority to co-ordinate deliveries.
- The Contractor shall schedule deliveries in such a way that construction activities and delivery activities do not occur during peak traffic flows or run concurrently, such as:
    - avoiding pouring of concrete on the same day as other large material deliveries to site with the purpose of minimise conflicts between vehicles.

    - staggering the pouring of concrete on different days.
- HV deliveries to the development site will be suspended on the days of any major events (i.e., sporting, agricultural etc), that have the potential to increase traffic volumes on the existing road network in the vicinity.

The scheduling of material deliveries is required to facilitate the implementation of traffic management activities at the site and the work zones within the site. It will also impact on the offsite locations for the AIL accommodations. A convoy system shall be employed for HVs departing the proposed wind farm site, where appropriate, to reduce the frequency of isolated HV movements on the public road network as much as practicable.

4.5.5 ABNORMAL INDIVISIBLE LOAD

A total of 112 no. AILs are anticipated to be transported to the site along the AIL haul routes illustrated in Figure 3-2. A maximum of 14 turbines (i.e., all tower, nacelle and blades) will be delivered to site per month. It is likely that these deliveries will be spread out over a longer period. It is envisaged that these loads will be moved outside of normal hours as night-time works in convoys.

The principal Contractor shall ensure that the haulage of these AILs is done in conjunction with an Gardaí Síochána and the Roads Authorities. The appointed Contractor and their haulage provider will be responsible for obtaining all necessary permissions and licences from the local authorities and Gardaí.

4.5.6 ROAD CLOSURE

The Contractor shall carry out such temporary road closures outside of peak traffic flow times and only for the duration of the working days, when possible. At the time of this construction work and in advance of the required Road Closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a Road Closure.

4.5.7 ROAD CLEANING

Regular visual surveys of the road network in the vicinity of the proposed wind farm site will be carried out. Where identified/required, the Contractor shall carry out road sweeping operations, employing a suction sweeper to remove any proposed project related dirt and material deposited on the road network by construction/delivery vehicles. It shall be a requirement of the works contract that the Contractor(s) will be required to provide wheel cleaning facilities, and any other necessary measures to remove mud and organic material from vehicles.

4.6 ENFORCEMENT OF TRAFFIC MANAGEMENT PLAN

The appointed Contractor will further develop this TMP in consultation with Leitrim County Council. The Contractor will agree and implement an appropriate way of monitoring the effectiveness of the plan.

All proposed project staff and material suppliers will be required to adhere to the TMP. Inspections/spot checks will also be carried out by the Contractor to ensure that all staff and material suppliers follow the agreed measures adopted in the TMP.

4.7 EMERGENCY PROCEDURES DURING THE CONSTRUCTION

In case of emergency, the following procedures shall be implemented:

- Emergency Services will be contacted immediately by dialling 112,
- Exact details of the emergency/ incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner,
- Follow the instructions of the Local Authorities and An Garda Síochána,
- Emergency will be reported to the Site Team Supervisor and the Safety Officer,
- Where required, site first aiders will attend the emergency immediately, and
- The Safety Officer will ensure that the emergency services are enroute.

It is important that during the construction phase, emergency services can gain ready access to any property along the haul road or in the vicinity of any of the infrastructure sites or indeed can gain priority usage of any haul road. Emergency procedures will be agreed, and contact numbers provided to the local emergency services. On being notified of a priority condition, all construction vehicles will be directed to give right of way to the emergency vehicles until the need for priority access has passed.

With respect to an emergency condition arising on the proposed wind farm site, priority access to and from the site will be given to ambulance or fire tenders.

5. OPERATIONAL AND DECOMMISSIONING PHASES

5.1 OPERATIONAL PHASE

Once the proposed project is operational, the majority of traffic generated will comprise small vehicles associated with routine site operations, inspections, and monitoring. Such activities are expected to occur daily. On these occasions, the operational phase is anticipated to generate a maximum of 4 light vehicle (LV) movements on any given day (i.e. 2 arrivals and 2 departures).

Very occasional AIL deliveries during operational stage if unexpected large component replacement is required. In the unlikely event this is required, the transport arrangements would be subject to agreement with Leitrim, Donegal, and Sligo County Councils, including obtaining any necessary consents for abnormal load transport, temporary traffic management measures, and/or Garda escorts, as required.

The operational phase is expected to last 35 years. During this period, traffic will remain low, with a maximum of six light vehicle (LV) movements per day (three arrivals and three departures). This level of traffic is sub-threshold under TII TTA Guidelines, as it does not exceed 10% of turning movements at national road junctions and remains below 100 trips in/out during peak hours. Consequently, operational traffic impacts will be negligible compared to existing background traffic.

Internal access tracks may also be used for forestry, agricultural, or recreational purposes, which are existing activities and considered to have a neutral effect. Site access roads will be maintained, as needed. Access junctions will also be maintained to ensure adequate visibility splays. Adequate visibility is available in both directions in accordance with the Leitrim County Development Plan 2023-2029 and TII DN-GEO-03060 (May 2023).

5.2 DECOMMISSION PHASE

The proposed wind turbines are expected to have a lifespan of up to 35 years without replacement of major components.

Turbine design renders the decommissioning process as a straightforward process. In the decommissioning phase, cranes disassemble each turbine section and remove from the site. The upper sections of the foundations projecting above ground will be removed, and the remainder of the foundations will be covered by soils typical of the surrounding environment and then re-seeded or left to re-vegetate according to ecological requirements.

The internal site access roads/tracks and substation will be retained.

The main purpose of the site is forestry and agriculture, and this will continue after decommissioning. The substation will form part of the national grid network and will be retained.

Ahead of the decommissioning of the proposed project, a decommissioning plan will be prepared and implemented to minimise the effects during this phase. An Outline/Preliminary decommissioning plan has been included in the CEMP submitted with the application. The decommissioning phase will employ similar mitigation measures as the construction phase.

The traffic management of the decommissioning phase will be advised by the road conditions at the time of decommissioning. It is not possible to predict the changes to the public road infrastructure and policies in the next 35 years. It is envisaged that a Traffic Management Plan, similar to this plan, will be developed for the decommissioning phase.

6. CONCLUSION

The Traffic Management Plan is a living document and will be developed through the detailed design and construction phase with ongoing consultation with Leitrim County Council, An Garda Síochána, Emergency Services, local residents, and other stakeholders.

This TMP has thus far been developed for the Planning Stage, so that the necessary steps are taken throughout the planning proposals to support an efficient, safe transportation operation, with the least possible impact upon vulnerable road users and traffic along the haul roads or close to the proposed project works.

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