
INCHAMORE WIND DAC

**INCHAMORE WIND FARM
CO. CORK**

**CONSTRUCTION ENVIRONMENTAL
MANAGEMENT PLAN
(CEMP)**

**MANAGEMENT PLAN 7
TRAFFIC MANAGEMENT PLAN**



MAY 2023

Inchamore Wind DAC,
C/O FuturEnergy Ireland,
27/28 Herbert Place,
Dublin 2,
D02DC97,
Ireland.



Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park,
Sligo.
Tel.: 071 9161416
Fax: 071 9161080
email: info@jodireland.com



JENNINGS O'DONOVAN & PARTNERS LIMITED

Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 91 61416

Fax (071) 91 61080

Email info@jodireland.com

Web Site www.jodireland.com



DOCUMENT APPROVAL

PROJECT	Inchamore Wind Farm	
CLIENT / JOB NO	Inchamore Wind DAC	6226
DOCUMENT TITLE	Construction Environmental Management Plan (CEMP) Traffic Management Plan	

Prepared by

Reviewed/Approved by

Document	Name	Name
Final	David Kiely	Sean Molloy
Date	Signature	Signature
May 2023		

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Directors: D. Kiely, C. McCarthy

Regional Director: A. Phelan

Consultants: C. Birney, R. Gillan

Senior Associates: R. Davis, M. Forbes, S. Gilmartin, J. Healy, S. Lee, J. McElvaney, T. McGloin, S. Molloy

Associates: B. Coyle, D. Guilfoyle, L. McCormack, C. O'Reilly, M. Sullivan

Company Reg No. 149104 VAT Reg. No. IE6546504D



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1 INTRODUCTION

1.1 General

This document is a Traffic Management Plan (TMP), prepared as an Appendix to the Construction Environmental Management Plan (CEMP).

The TMP is a "living document". Therefore, any changes which may occur in the planning process and in the detailed construction programme can be incorporated, as can inputs by the Contractor(s), the detailed design team and the Developer. The commitments included within the Environmental Impact Assessment Report (EIAR) and in the CEMP are the minimum commitments that the Contractor shall follow, and others will be developed during the Construction Phase in consultation with the various stakeholders, including the Local Authorities.

1.2 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 as outlined in Section 3.15 of the CEMP.

The primary objectives of this TMP are to:

- Outline minimum road safety measures to be undertaken at site access/egress locations during the Construction Phase, including approaches to such access/ egress locations.
- Demonstrate to the Developer, Contractor and suppliers the need to adhere to the relevant guidance documentation for such works.

The TMP addresses the following issues which are explained in detail in this report:

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

1.3 Implementation and Monitoring

The works are likely to be constructed under three separate contracts:

- Turbine Supply Contract;
- Civil Works Balance of Plant Contract, and
- Electrical Works Balance of Plant Contract including Grid Connection.

In addition, forestry will be clearfelled and removed from site by a specialist forestry felling Contractor.

All contracts have the potential to impact on traffic and roads.

The Contractors shall agree and implement measures to monitor the effectiveness of the TMP, in conjunction with the Local Authority and Developer. On finalisation of the TMP, the Contractors shall adopt the plan and associated monitoring measures.

In order to ensure that environmental awareness and compliance is communicated effectively at the start and throughout the construction works, this TMP in conjunction with the CEMP and its contents, will be communicated to all site personnel, including management staff, operative and sub-contractors. The key elements of this CEMP will form part of the site induction which will be mandatory for all employees, Contractors and visitors attending the site. Refer to Environmental Training and Awareness in Section 4.6 of the CEMP.

2 THE PROJECT

2.1 Project Location

The Site, as shown in **Figure 2.1**, is located within an agricultural and forested landscape. Inchamore is situated between Milleeny, Co. Cork, Coomagearlahy, and Derryreag, in Co. Kerry. The nearest settlements are Inchamore which is situated 741 m to the south of the Site Boundary, and the village of Milleeny is located 1 km to the south-east of the Site Boundary. The Site is located 5.9 km west of Ballyvourney, Co. Cork and shares a boundary with the county boundary between Cork and Kerry. It is 54 km west of Cork City, and 23 km north-east of Kenmare, Co. Kerry.

The Development is located within the townlands of Inchamore, Mileeny, Derryreag and Derreenaling.

The overall length of the grid connection between the substation and the existing 220 kV GIS substation at Ballyvouskill is 19.9 km, of which 1.3 km is within the Site. The remaining 18.6 km is located off-road and in third-party lands through the townlands of Inchamore, Derryreag, Derreenaling, Cummeenavrick, Glashacormick, Clydaghroe, Cummeennabuddoge and Caherdowney. The proposed grid connection will consist of underground cables.

Turbine components will be delivered via Ringaskiddy Port, Co. Cork.

The N22 National Primary Road runs in a south-east to north-west direction some 0.9km north of the wind farm site. The Macroom By-Pass (22km new section of the N22) is currently under construction (14km remaining to be constructed) and is expected to be fully open to traffic on the 9th December 2023.

2.2 Project Description

The project will include the construction of 5 No. Wind Turbines, a meteorological mast, an on-site substation and all ancillary works and the construction of an underground grid connection to Ballyvouskill 220kV GIS substation, Co. Cork.

The Development will consist of the following main components:

- Construction of six wind turbines with an overall ground to blade tip height ranging from 177 m to 185 m inclusive. The wind turbines will have a rotor diameter ranging from 149 m to 155 m inclusive and a hub height ranging from 102.5 m to 110.5 m inclusive.
- Construction of permanent turbine hardstands and turbine foundations.
- Construction of a temporary construction compound with associated temporary site offices, parking areas and security fencing.
- Installation of a (35-year life cycle) meteorological mast with a height of 110 m and a 4 m lightning pole on top.
- Development of an on-site borrow pit.
- Construction of new permanent internal site access roads and upgrade of existing internal site access to include passing bays and all associated drainage infrastructure.

- Development of an internal site drainage network and sediment control systems.
- Construction of a permanent 38 kV electrical substation including a control building with welfare facilities, all associated electrical plant and equipment, security fencing and gates, all associated underground cabling, wastewater holding tank, and all ancillary structures and works.
- All associated underground electrical and communications cabling connecting the wind turbines to the wind farm substation.
- Ancillary forestry felling to facilitate construction of the Development.
- All associated site development works including berms, landscaping, and soil excavation.
- Upgrade works on the Turbine Delivery Route to include the following:
- Improvement of an entrance to an existing forest road off the N22 to include localised widening of the road and creation of a splayed entrance, removal of existing vegetation for visibility splays to facilitate the delivery of abnormal loads and turbine component deliveries.

2.3 Site Access and Egress

2.3.1 There are three separate elements of the works which will have somewhat different access routes viz:

- Haul route for delivery of turbine components.
- Haul route for crushed stone, concrete, substation components and other materials for the wind farm site.
- Haul routes for construction of the grid connection.

It is proposed that the turbine and electrical components will be delivered via Ringaskiddy Port, Co. Cork.

- Exit Ringaskiddy Port onto N28.
- At the roundabout, continue on N28.
- At the roundabout, continue on N28.
- At the roundabout, take the 2nd exit onto N28.
- Continue on N28, then take the slip road onto N40.
- Continue on N40 to N22, use the Macroom By-Pass which ends north-west of Ballyvourney (Ballyvourney junction).
- Rejoin the existing N22, Continue on N22, then turn left at site access point at Derryreag. Continue on 2.5km of forest track to the wind farm site.

- On exit, turn left onto N22, then turn right at the island junction at Cummeenavrick and complete a 180 degree turning manoeuvre and continue on the N22.

Figures 2.1 and 2.2 show the turbine component haul route.

2.3.2 While sub-base and base course materials for the internal wind farm site Access Tracks and Turbine Hardstand construction will be sourced from an on site borrow pit, crushed stone will be imported for the final running layer. Specific grades of rock fill may be required as fill under Turbine Foundations. The crushed stone as well as rock fill and concrete for Turbine Foundations, concrete blocks for the construction of the substation building and precast chambers for site cabling will be sourced from one of the local quarries in the area. Concrete, crushed stone and concrete blocks for construction of the Development will come from licenced quarries in the locality such as:

- McGroup Keim Quarry;
- Coppeen Concrete, Enniskeane;
- Mid-Cork Quarries, Gortnadiha;
- McSweeney Bros, Kilmichael;
- Keohane Readymix, Ballygurteen, and
- Murray Bros Tarmacadam Ltd, Ardcahan.

These quarries will also be the source of crushed stone and concrete for grid connection works.

The N22 Macroom By-Pass is a dual carriageway Type 2 road with four junctions:

- Baile Bhuirne (Ballyvourney) grade-separated junction: the tie in with the existing N22 at the western end of the road development west of Baile Bhuirne.
- Tonn Láin (Toolane) grade-separated junction and off-line roundabout: This will provide access to and from the existing N22, to the east of Baile Mhic Íre.
- Gurteenroe grade-separated junction and off-line roundabout: The location where the proposed route crosses the regional road, R582.
- Coolcour roundabout: This is the tie-in with the existing N22 at the eastern end of the road development in the townland of Coolcour.

Two of these junctions are at each end of the by-pass with only two in between.

The materials delivery routes proposed are such as to maximise use of the new N22 Macroom By-Pass and to avoid centres of population such as Macroom, Ballyvourney and Ballymakeery.

For the quarries to the south, trucks will use the R587, then the R584, then the existing N22 south-eastwards to join the new N22 Macroom By-Pass, will follow the new N22 Macroom By-Pass to the Ballyvourney Junction, then exit onto existing N22 and travel westwards to Derryreag and then follow the existing forest track to the wind farm Site (see **Figure 2.3**).

From Keim, trucks will follow the R582 in a south-easterly direction and join the New Macroom By-Pass (N22) at Gurteenroe Junction. They will then follow the new N22 By-Pass to Ballyvourney Junction and then the existing N22 to Derryreag to access the forest track to the wind farm site (see **Figure 2.3**).

Wood from forestry felling required to accommodate part of the Development will be removed from site once the civil works are complete. Possible suitable locations have been identified in Enniskeane and Lissarda. The proposed route for transporting wood is shown on **Figure 2.4**. This route is effectively the reverse of the civil construction haul route and trucks will leave the wind farm site via the forest track and N22, drive eastwards on the existing N22 to the Ballyvourney junction of the new N22 Macroom By-Pass, follow the By-Pass to either the entrance junction and north-westwards to the R584 or to the Coolcour junction with the existing N22 and then proceed south-eastwards to the L-7489.

- 2.3.3 The proposed grid route is largely independent of the haul routes (see **Figure 2.5**). Leaving the wind farm site, the grid route will follow the forest tracks for c.1.5km as far as the N22 which will be crossed by directional drilling (70m). It will then follow the old route of the N22 (also by directional drilling) for a short distance (c.0.58km) before following forestry tracks to the existing Ballyvouskill Substation. Of the total length of 19.9km, only 0.07km will be within public roads with a further 0.58km under former roads. The majority of the line (18.2km) is within lands under the control of the Developer.

For the grid connection, general material excavated from trenches will be graded on top of or adjacent to the existing tracks. As the N22 will be crossed by directional drilling, very little waste (c.30m³) will arise from drilling. This soil waste will be transported to one or more of the following licensed facilities (see **Figure 2.6**):

- Tomas Mullins, Scrahanagown, Coolea, Co. Cork
- Richard & Dennis Carroll Plant Ltd., Clonfadda, Macroom, Co. Cork
- Ciaran Ryan Plant Hire Ltd., Ballymacorcoran, Clondrohid, Co. Cork
- Séan Ó Luasa, Na Foithrí (Fuhirees), Cúil Aodha, Maighchromth, Co. Chorcaí

Soil and stone spoil from road widening at the site access from the N22 at Derryreagh will be disposed of to the same facilities.

Grid construction traffic for the section of grid south-west of the N22 will be from the N22 at the site access port at Derryreag Td. For the section of the grid connection north-east of the N22, access will be gained from the N22 at Cummeenavrick Td.

The widened front access junction with the N22 at Derryreag for the wind farm site will comply with the requirements of a 2.4m 'X-distance' setback with 'Y-distance' of 160m. The geometry of the junction (once widened) to accommodate articulated vehicles has been confirmed by swept path analysis.

3 EXISTING ROAD NETWORK

The EIAR Traffic and Transport Chapter (Chapter 15) describes the existing surrounding road network to be impacted by the proposed wind farm Development including grid connection. The main routes to the various elements of the works are via the N22, Regional Roads and forest tracks.

Table 3.1 summarises the roads to be impacted by the proposed Development.

Table 3.1: Roads to be Impacted by the Proposed Development

Road Number	Activity Likely to Generate Impact
N22 (incl. By-Pass)	To be used for delivery of wind turbine components, electrical equipment, concrete, reinforcing steel, precast concrete components, crushed stone, building materials, electrical ducts, road surfacing materials for the wind farm, haul route works and grid connection. To be used for removal of forestry logs from the site. May be used for spoil disposal for haul route works and grid works. Will also be used for construction workers travelling to/from the site.
R582, R584, R587, R585, R588, R586, L-4604 & L-4605 L-4624	To be used for the delivery of crushed stone, concrete, precast concrete products. To be used for the delivery of road surfacing for grid connection. May be used for removal of forestry logs.

4 CONSTRUCTION STAGE

4.1 Programme

The project will have a construction period of 21 months as follows:

- Mobilisation, Setting Out, Preparatory Work, Environmental Controls Month 1
- Other site establishment works, forest felling Months 2-3
- Civil and Building Works Months 2 – 11
- Electrical Works – substation and wind farm Months 9 –17
- Haul Route Works incl. Clear Span Bridge Months 6 – 9
- Forestry Removal Months 13 – 15
- Turbine Deliveries Months 12 – 16
- Turbine Erection Months 13 – 16

- | | |
|------------------------------|----------------|
| • Turbine Pre-Commissioning | Months 17 – 18 |
| • Construction of Substation | Months 2 -14 |
| • Grid Connection Works | Months 6 -17 |
| • Energisation | Month 18 |
| • Commissioning | Months 19 – 21 |

However, the programme will be dependent on lead times for turbines, transformers and electrical cable as well as weather conditions and the programme could stretch to 24 months.

It is anticipated that, subject to obtaining Planning Permission, securing a grid connection offer under the Enduring Connection Process (ECP) and being successful in obtaining a Renewable Energy Support Scheme (RESS) contract, work could commence during 2026.

4.2 Hours of Construction

The hours of construction activity will be limited to avoid unsociable hours, where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs on weekdays and between 07:00hrs and 14:00hrs on Saturdays.

However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e. concrete pours or to accommodate delivery of large turbine components along public routes), it may 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.

4.3 Construction Phase Traffic

4.3.1 Staff Levels

For the wind farm construction, a peak workforce of 40 persons are anticipated on the main Site. There will be peaks and troughs in the numbers, with the peak workforce during the general Site works.

In addition to the onsite construction workforce, additional construction staff will be required for the grid connection cable laying works. Two gangs will be required for the grid connection. A maximum of 20 construction staff are anticipated. Thus, up to 60 workers could be employed at peak times between the wind farm and grid connection.

4.3.2 Staff Traffic Generations

The 60 workers will generally travel to the Site via light vehicle (LV) (i.e. car or small van) assuming 1 person per vehicle, or 60 trips to and 60 trips from the site per day. This is made up of:

- 40 trips each way to/from wind farm Site.
- 20 trips each way to/from grid construction works.

4.3.3 Construction Vehicles

The construction phase for the proposed Development will result in additional traffic on the roads in the vicinity of the Development. The proposed HGVs 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).
- HGVs carrying conventional earthworks equipment such as an excavator, a roller, stone crusher, forklifts, etc.
- Forestry felling machinery and timber transportation trucks.
- 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. electrical components, bricks, concrete, rebar, fencing, etc.
 - Drainage infrastructure i.e. culverts, clear span bridge, tanks, etc.
 - Met mast, electric cabling, transformers and electrical equipment for the on-site substation.

The main 38/20kV transformer for the substation and the wind turbine components will be abnormal loads. An assessment of these loads have been made based on the details in the EIAR Chapter 15, Section 15.5.1 pending confirmation of the specification during procurement at Construction Stage. The contractor will be responsible for obtaining all associated licenses from the Local Authority or Gardai during construction for the abnormal loads.

4.3.4 Summary of Peak Additional Traffic Movements on Roads during Construction Phase and Likely Impacts

Section 15.5.1 of the EIAR presents an analysis of the HGV and abnormal loads associated with each of the construction elements.

Referring to Table 15.24 of the EIAR (within Section 15.5.1), the peak times for HGV deliveries will be in months 5 to 11 when the turbine foundations will be constructed, hardstands and Site tracks will be finished in imported stone and the grid connection works will be ongoing. This is estimated to result in a maximum of 485 trips each month with an average of 22 HGV trips per day in this period. Peak deliveries are expected to be during the period of concrete pours for turbine foundations when there will be approximately 140 loads per turbine foundation. If one foundation is poured per month, then the balance of the loads in the busiest month would be 335 loads or 16 loads per day over the remaining days of the month.

The predicted impacts of the additional traffic on roads during the construction phase are discussed in Section 15.5.3 of the EIAR.

Table 4.1 below (Table 15.26 from the EIAR) presents a summary of the peak traffic movements per day on each of the road elements. The various nodes are shown on **Figure 4.1**.

Table 4.1: Summary of Peak Additional Construction Traffic Movements on Roads

Node	Road	Total No. Of Deliveries	Peak Deliveries/ Month	Peak Deliveries/ Day	Staff	Peak Traffic Movements/ Day
Ringaskiddy to A	Ringaskiddy Port to Coolcour Junction of New N22 Macroom By-Pass	212	45	5	0	10
B to A	Existing N22 between R584 Junction and Coolcour Junction with New N22 By-Pass	2,949	480	150	40	380
Keim to C	Keim to Gurteenroe Junction on New N22 By-Pass	2,949	480	150	40	380
A to C	New N22 By-Pass between Coolcour Junction and Gurteenroe junction	3,161	485	150	60	420

Node	Road	Total No. Of Deliveries	Peak Deliveries/ Month	Peak Deliveries/ Day	Staff	Peak Traffic Movements/ Day
C to D	New N22 By-Pass between Gurteenroe Junction and Ballyvourney Junction	3,161	485	150	60	420
D to E	Existing N22 between Ballyvourney Junction of New N22 By-Pass and L Forest Access at Derryreag	3,161	485	150	60	420
E to F	Existing N22 between Forest Access at Derryreag and Grid Entrance at Cummeenavrick	3,161	485	150	60	420
F to G	Forest Track	944			20	60

The numbers of HGVs generated by the Development (420 movements per day at peak) could be considered as a significant increase on the numbers of HGVs which are predicted to use the existing N22 in 2026 (510) (see Section 15.3.6). However, the construction stage traffic movements between Ringaskiddy Port and Macroom (N28, N40 and N22 to Macroom) will be low at 10 movements (5 deliveries) per day. Assuming that the majority of the route between Ringaskiddy and Macroom has a capacity of 11,600 AADT, the change would be 0.1%. The magnitude of change is considered as being “Very Low” (see **Section 15.2.9 of EIAR**).

For the existing N22 near Macroom between the R584 and the Coolcour Junction of the new N22 Macroom By-Pass (Nodes B to A), an additional 380 traffic movements per day will arise during concreting of turbine foundations. The predicted flows (see **Section 15.3.6 of EIAR**) for the N22 for 2027 would be 8,900 – 9,500 AADT around Macroom. Assuming a guidance capacity of 11,600 AADT, adding a further 380 traffic movements would increase flows to 9,280 – 9,880 which would still be within the guidance capacity of 11,600 AADT. The flows would increase by 4.1% which, in terms of magnitude, are considered as being “Very Low” (see **Section 15.2.9 of EIAR**).

For the new N22 Macroom By-Pass, the peak additional 420 traffic movements per day will arise during concreting of turbine foundations. The predicted flows for the new N22 Macroom By-Pass for 2027 are 11,100 to 11,200 AADT (see **Section 15.3.6**). This is 56% of the guidance capacity of 20,000 AADT. Adding a further 420 movements would increase the 2027 flows to 11,490 to 11,590 which is still well within the guidance capacity of 20,000.

The flows would increase by 3.8% which, in terms of magnitude, are considered as being “Very Low” (See **Section 15.2.9 of EIAR**).

From the analysis above, the significance of the impacts are assessed (with reference to **Table 15.6 of EIAR**) and are presented in **Table 15.24 of EIAR**. The significance of the impacts are “Negligible” to “Minor” on the N22 (existing and new Macroom By-Pass).

5 CONSTRUCTION PHASE TRAFFIC MANAGEMENT PLAN

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

- General Provisions
- Site Access & 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.

5.1 Consents, Licences, Notifications and Permissions

The key consents, licences, notifications and permissions likely to be required for the 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, foundations in the public roadway etc.
- Approval of temporary traffic management plans.
- Road closures and diversions.
- Permission for works outside of standard construction operation hours agreed with Kerry County Council and Cork County Council.
- Permission from the Motorway Maintenance and Renewal Contractor (MMaRC) / Public Private Partnership Contractor (PPP) on the relevant national roads.

The above list is non-exhaustive but identifies the key consents, licenses, notifications and permissions required for the 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.

5.2 General Provisions

The construction traffic impacts of the proposed Development have been identified as being temporary in nature. It is important that any impact caused by the proposed Development 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 Kerry County Council and with Cork County Council.
- HGV movements will be restricted during peak road network hours (including morning school hours) from 08.30 – 09.30 and 17.00 - 18.00 Monday to Friday, unless otherwise agreed in writing with Kerry County Council and with Cork County Council.
- No parking shall 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 HGVs will be provided within the site (i.e. one-way internal access track loop system and passing bays).
- Wheel wash equipment will be used on site to prevent mud and stones being transferred from 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 site, where required. Other measures are outlined in the CEMP.
- Clear construction warning signs will be placed on the public road network to provide advance warning to road users to the presence of the construction site and slower moving vehicles making turning manoeuvres.
- Access to the construction site will be controlled by on site personnel and all visitors will be asked to sign in and out of the site by security / site personnel 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.
- Passing bays located within the main Wind Farm site will have dimensions of 5.0m x 50m long.
- Compound locations have been identified for storage, site offices and welfare facilities.

The final TMP will also include provision by the appointed Contractor, for details of 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 project and this person will be the main point of contact for all matters relating to traffic management.
- Delivery Programme – a programme of deliveries will be submitted to Cork County Council in advance of the delivery of the turbine components to site.
- Information to locals – local residents in the area will be informed of any upcoming traffic related matters, e.g. temporary lane/road closures (if required) or any night deliveries of turbine components, via letter drops and posters in public places. Information will include the contact details of the Developer's representative (Community Liaison Officer), 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-condition survey of roads on approach to the site (N22 between Cummeenrick and Ballyvourney Junction of Macroom By-Pass) will be carried out prior to construction commencement to record the condition of the road.
 - A post construction survey will be carried out after works are completed.

- Impacts on the road condition as a result of the proposed Development will be rectified and the road condition returned at least to its original condition.
- The timing of these surveys will be agreed with Kerry County Council and Cork County Council.
- Liaison with Local Authorities – liaison with Kerry County Council, Cork County Council and other Local Authorities, including the roads and transport section, through which the delivery route traverses and An Garda Síochána, during the delivery phase of the abnormal loads, 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 all site access points during peak delivery times.
- Delivery Times of Large Turbine Components – The Turbine Supply Contractor will include the option to deliver the larger wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.
- All vehicles using or while operating within the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.

The Traffic Management Plan (TMP) will be updated by the Contractors (on appointment) and agreed with the Planning Authorities prior to commencement of development in the event of a grant of permission.

5.3 Site Access and Egress

At the proposed access points to the proposed Development, visibility splays shall be provided and maintained in accordance with the TII guidelines of a 2.4m setback over a length of 160m in both directions. To ensure a safe working access for all construction vehicles on the Wind Farm, these works will be required to be undertaken in advance of all other activities on the site utilising this access.

At the forest junction at the N22 (wind farm access), bitumen macadam surface will be provided some 30m into the junction with room to park HGV's clear of the N22. The forest

access track will be regraded so as to reduce the gradient towards the N22. An "Aco" type drain shall be provided (near the joint with the hard shoulder of the N22) to intercept rainfall run-off. All the traffic to the wind farm site will approach from the east such that they turn left at the forest access. All traffic leaving the wind farm site will turn left only and, if required, can turn around at Cummeenavrack. Signage and road markings will be provided to facilitate/promote these manoeuvres.

The Contractors shall be required to utilise a safe system of traffic management, including the use of Traffic Management Operatives (TMOs) for the control of traffic during access / egress operations at the wind farm site access location during the peak construction activities (e.g. during the 6 days of delivery for the turbine foundation concrete pours).

5.4 Routing of Construction Phase Traffic

The proposed haul roads were identified based on review of existing quarry sources, principal road networks (i.e. national and regional) and consultation with the local authorities. The haul routes utilise the national and regional road network as much as feasible. All construction traffic to the wind farm site and grid connection will arrive via the N22. As detailed in Section 4.3.4, the majority of materials delivered to site will be delivered using maximum legal articulated lorries or smaller vehicles.

Project construction HGV 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.

Other Construction Materials such as stone fill required for internal access tracks, concrete, fencing materials and landscaping elements will be sourced by the relevant Contractors. Such material deliveries are envisaged to utilise one of the haul routes identified in **Figure 2.3**. The Contractors shall be required, in the further development of the TMP, to confirm the specific sources and proposed haul routes for all material supplies.

5.5 Site Specific Temporary Traffic Measures

The specific details of each temporary traffic measure shall be developed by the Contractor(s) for each site access 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.

Where reasonably practicable, consideration will be given to the scheduling of deliveries so as to avoid/consider:

- Particularly high traffic volumes due to sporting or other events
- Adverse weather conditions
- Emergency access

If the night-time or weekend Temporary Traffic Management (TTM) measures varies from daytime plan, a separate TTM will be prepared to be approved by the Roads Authority.

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.

5.5.1 Traffic Management Systems / Logistics

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

5.5.1.1 Traffic Management Operatives (TMOs)

No pinch points are present on the public road during the delivery of materials from the sources on the haul routes to the site access on the N22. It is not envisaged that TMOs would be required at the N22 access during average construction traffic volumes. They will be provided during concrete pours for turbine foundations. The road has adequate width for vehicles to turn into the site and advanced warning signage is proposed. During peak construction activities, the appointed Contractor may require TTM (i.e. stop / go system) at the site access to facilitate movement of construction vehicles off site if in convoy.

TMOs will be required within the wind farm site to manage the movement of HGVs within the internal layout, in particular during peak construction activities such as during concrete pours for turbine foundations.

The requirement for TMOs in conjunction with pilot vehicles for the wind turbine component delivery will be confirmed by the appointed Contractor in consultation with the specialised haulage provider, An Garda Síochána and the Local Authority.

5.5.1.2 Convoy System

A convoy system shall be employed by the Contractor, applied to HGVs departing the site, involving:

- Traffic management operatives at the proposed Development access / egress points. The TMOs shall restrict HGVs exiting the site, to facilitate the development of a convoy system (maximum 4 no. HGVs).
- Suitable spaces shall be made available within the site for queuing of HGVs (i.e. passing bays and at widened crossing points / site accesses).
- Traffic management operatives shall be stationed at the wind farm site entrance with suitable intercommunication system (i.e. radio) to control the release of the convoy system between the main site and the forestry access to the N22.
- The convoy shall have separation between convoys to facilitate use of the public road network in the absence of construction HGV movements.

5.5.2 Traffic Management Speed Limits

It shall be noted that where a temporary speed limit is deemed appropriate by the contractor(s) to facilitate the Construction Phase activities along the public roads serving the proposed Development, it shall be a requirement for the appointed Contractor to liaise with the relevant Roads Authority for the purpose of obtaining a temporary speed limit.

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and Contractors during induction training. In speed zones greater than 60km/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 shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

Within the wind farm site, the speed limit shall be 25km/h.

5.5.3 Traffic Management Signage

Signage for temporary traffic measures shall be provided in accordance with the Department of Transport's Traffic Signs Manual, August 2019 - Chapter 8 – Temporary Traffic Measures and Signs for Roadworks (or any subsequent update of the standards that will be in place at the time of construction).

Advanced warning signs will be used to alert drivers to the unexpected road layout. Clear construction warning signs shall be placed at adjacent roads and the entrances, 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.

Signage showing the route of the Bearna to Breiffne Way will be provided and maintained during the construction phase.

5.5.4 Timing of Material Deliveries

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

- Construction activities will be undertaken based on a six-day working week, with deliveries between 07:00-19:00 on weekdays and 07:00-14:00 on Saturdays.
- HGV deliveries shall avoid passing schools at opening and closing times where it is reasonably practical. Deliveries are restricted between the hours of 08:00 and 09:00hrs, the school morning peak and peak traffic on the road network.
- Construction activities and deliveries outside these hours shall be agreed with the Local Authorities in advance.
- The Contractors shall liaise with the management of other construction projects and the local authority to co-ordinate deliveries.
- The Contractors 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 in order to avoid conflicts between vehicles.
 - staggering the pouring of concrete on different days.
- HGV 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 cause larger than normal traffic volumes on the existing road network, in the vicinity of the works.
- The Contractor will be required to interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals.
- It is likely that some deliveries will be required to be undertaken outside these hours. For example, during large concrete pours or other essential continuous operation whereby the continuous delivery of material will be required. Such deliveries will be agreed in advance with Cork County Council and with Kerry County Council.

The scheduling of material deliveries is required in order to facilitate the implementation of traffic management activities at the site and the works zones within the site. It will also impact on the offsite works locations for the abnormal loads advanced works. A convoy

system shall be employed for HGVs departing the proposed Development to reduce the frequency of isolated HGV movements on the public road network as much as practicable.

5.5.5 Abnormal Loads for Turbine Components

A total of 107 no. abnormal loads for turbine components are anticipated to be transported to the site along the abnormal loads haul route identified in **Figure 2.2** associated with the delivery of anchor cages, tower sections, nacelles, blades, transformers, panels and cabling, crane establishment and removal. It is envisaged that these loads will be moved outside of normal hours as night-time works in convoys. A maximum of 3 turbines (i.e. all tower, nacelle and blades) will be delivered to site per month. The convoys are anticipated to have 3 or 5 no. abnormal loads per convoy with deliveries over a maximum of 17 days or a minimum of 10 days.

The Contractor shall ensure that the haulage of these abnormal loads 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.

5.5.6 Road Closures

In order to facilitate the grid connection of the proposed wind farm to the national grid, a connection between the proposed site and Ballyvouskil Substation is required, see **Figure 2.5**. This requires a crossing of the N22. The N22 cable laying crossing will be by hydraulic directional drilling.

No Road closures are required.

5.5.7 Road Cleaning

Regular visual surveys of the road network in the vicinity of the sites will be carried out. Where identified / required, the Contractor shall carry out road sweeping operations, employing a suction sweeper to remove any 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. In addition, the cleaning of delivery lorries such as concrete delivery lorries shall be carried out at the material storage yard as outlined in the CEMP.

5.6 Enforcement of Traffic Management Plan

The appointed Contractor will further develop this TMP in consultation with the Road Authorities. The Contractor will, during the development and adoption of the TMP, agree and implement an appropriate way of monitoring the effectiveness of the plan.

All project staff and material suppliers will be required to adhere to the Traffic Management Plan. Inspections / spot checks will also be carried out by the Contractor(s) to ensure that all project staff and material supplies follow the agreed measures adopted in the Traffic Management Plan.

5.7 Emergency Procedures during the Construction

In the case of an emergency, the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112.
- Exact details of the emergency/ incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner.
- Follow the instructions of the Local Authorities and An Garda Síochána.
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer.
- Where required, appointed site first aiders will attend the emergency immediately.
- 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 any of the sites, priority access to and from these sites will be given to ambulance or fire tenders.

6 OPERATIONAL AND DECOMMISSIONING PHASES

6.1 Operational Phase

On completion of the construction works, and when the wind farm is operational, the majority of the traffic generated for the operation of the site will be for routine maintenance by a small van or four by four. The access to the wind farm site will not be via the forest junction of the N22 at Derryreag which was the main construction haul route.

The site will be regularly accessed for forestry purposes similar to the existing background traffic generated.

All vehicles using the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.

A speed limit of 25km/h shall apply to all vehicles within the wind farm site.

Internal wind farm signage shall be maintained throughout the operational period.

Road surfaces shall be inspected on a quarterly basis and any maintenance work identified shall be completed within one month of the inspection.

Overall, due to the relatively low operational and recreational traffic, it is envisaged that the operational impacts of the proposed Development will be slight when compared to the existing background traffic.

As the site accesses for construction have been designed as new or upgraded in accordance with the TII DN-GEO-03060 (Geometric Design of Junctions), adequate visibility splays are available from the accesses in both directions. Minor maintenance of hedgerows and vegetation to maintain the required visibility shall be required.

The arrangements for access/egress at the junction will be reviewed every two years to confirm or otherwise if the entry from the east only and exit to west only will apply.

6.2 Decommission Phase

The wind turbines proposed as part of the proposed Development are expected to have a lifespan of up to 35 years. Following the end of their useful life, the wind turbines may be

replaced with a new set of machines, subject to planning permission being obtained, or the site may be decommissioned fully, with the exception of the electricity substation.

Upon decommissioning of the proposed wind farm, the wind turbines will be disassembled in reverse order to how they were erected. All above ground turbine components will be separated and removed off-site for recycling. Turbine foundations will remain in place underground and will be covered with earth and allowed to revegetate or reseeded as appropriate. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in potentially significant environment nuisances such as noise, dust and/or vibration. The site roadways will be in use for additional purposes to the operation of the wind farm (e.g. for forestry and recreational use) by the time the decommissioning of the project is to be considered, and therefore the site roads will remain in situ for future use. If it were to be confirmed that the roads were not required in the future for any other useful purpose, they could be removed.

The turbine blades can be cut into manageable lengths on decommissioning reduces the requirement for adjustments to signage and sheet furniture for decommissioning.

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 30-40 years. It is envisaged that a Traffic Management Plan will be developed for the decommissioning phase.

Nevertheless, the following traffic management measures are likely to be required:

- Signage will be erected at the site entrance and on the N22 approaching the site.
- Construction traffic associated with decommissioning will be scheduled so as to avoid school drop off and collection times.
- All vehicles using or while in operation at the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.
- A speed limit of 25km/h shall apply to all vehicles within the wind farm site.

7 CONCLUSION

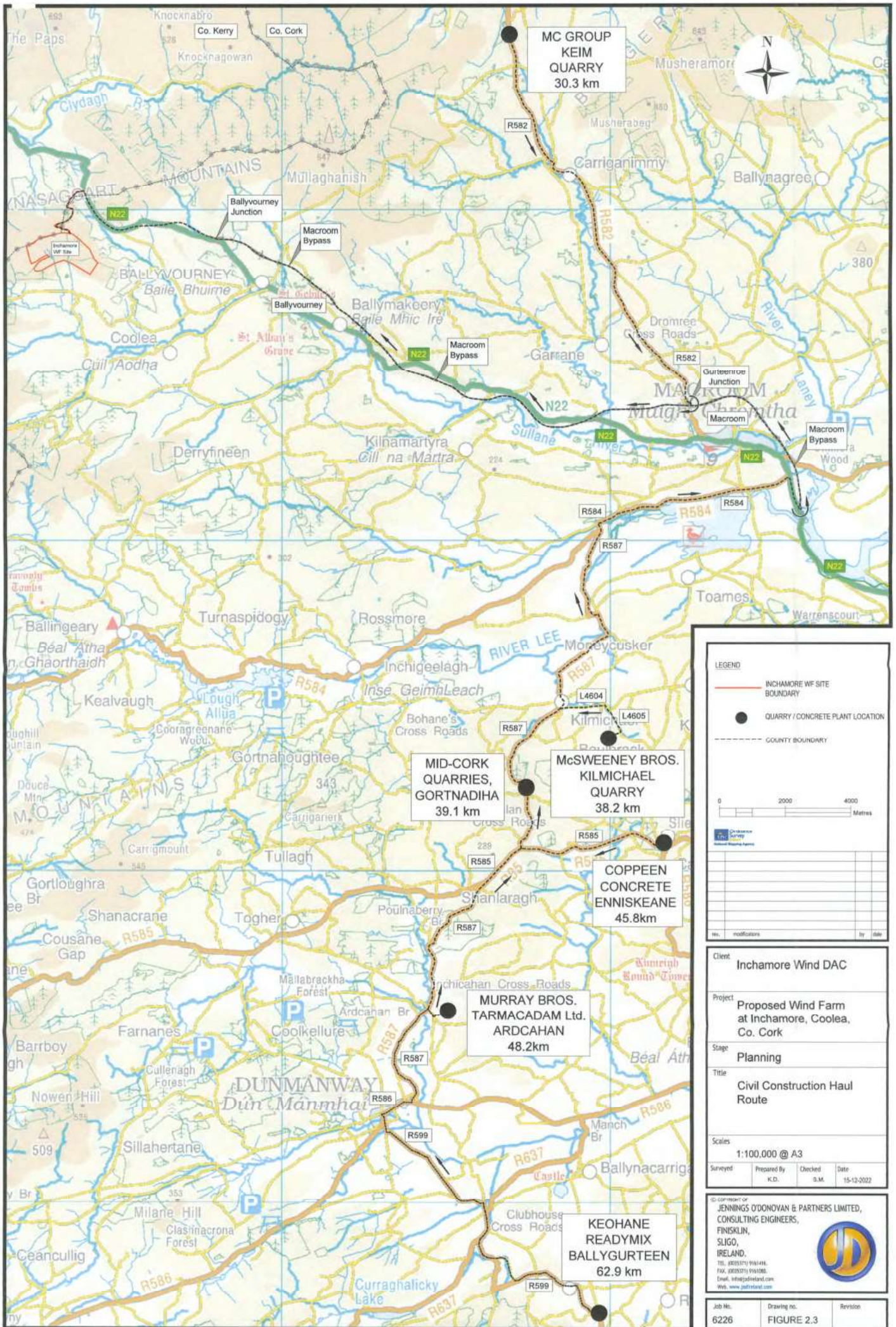
The TMP is a living document and shall be developed through the Detailed Design and Construction phases with ongoing consultation with the Local Authority, An Garda Síochána, Emergency Services and other stakeholders.

This TMP has thus far been developed to 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 in close proximity to the Development.

Client: *Inchamore Wind DAC*
Project Title: *Inchamore Wind Farm*
Document Title: *CEMP – Traffic Management Plan*

Date: *May 2023*
Project No: *6226*
Document Issue: *Final*

FIGURES



**MC GROUP
KEIM
QUARRY
30.3 km**

**MID-CORK
QUARRIES,
GORTNADIHA
39.1 km**

**McSWEENEY BROS.
KILMICHAEL
QUARRY
38.2 km**

**COPPEEN
CONCRETE
ENNISKEANE
45.8km**

**MURRAY BROS.
TARMACADAM Ltd.
ARDCAHAN
48.2km**

**KEOHANE
READYMIX
BALLYGURTEEN
62.9 km**

LEGEND

- INCHAMORE WF SITE BOUNDARY
- QUARRY / CONCRETE PLANT LOCATION
- COUNTY BOUNDARY

0 2000 4000 Metres

Client Survey
The National Mapping Agency

Rev.	Modification	By	Date

Client: Inchamore Wind DAC

Project: Proposed Wind Farm at Inchamore, Coolea, Co. Cork

Stage: Planning

Title: Civil Construction Haul Route

Scales: 1:100,000 @ A3

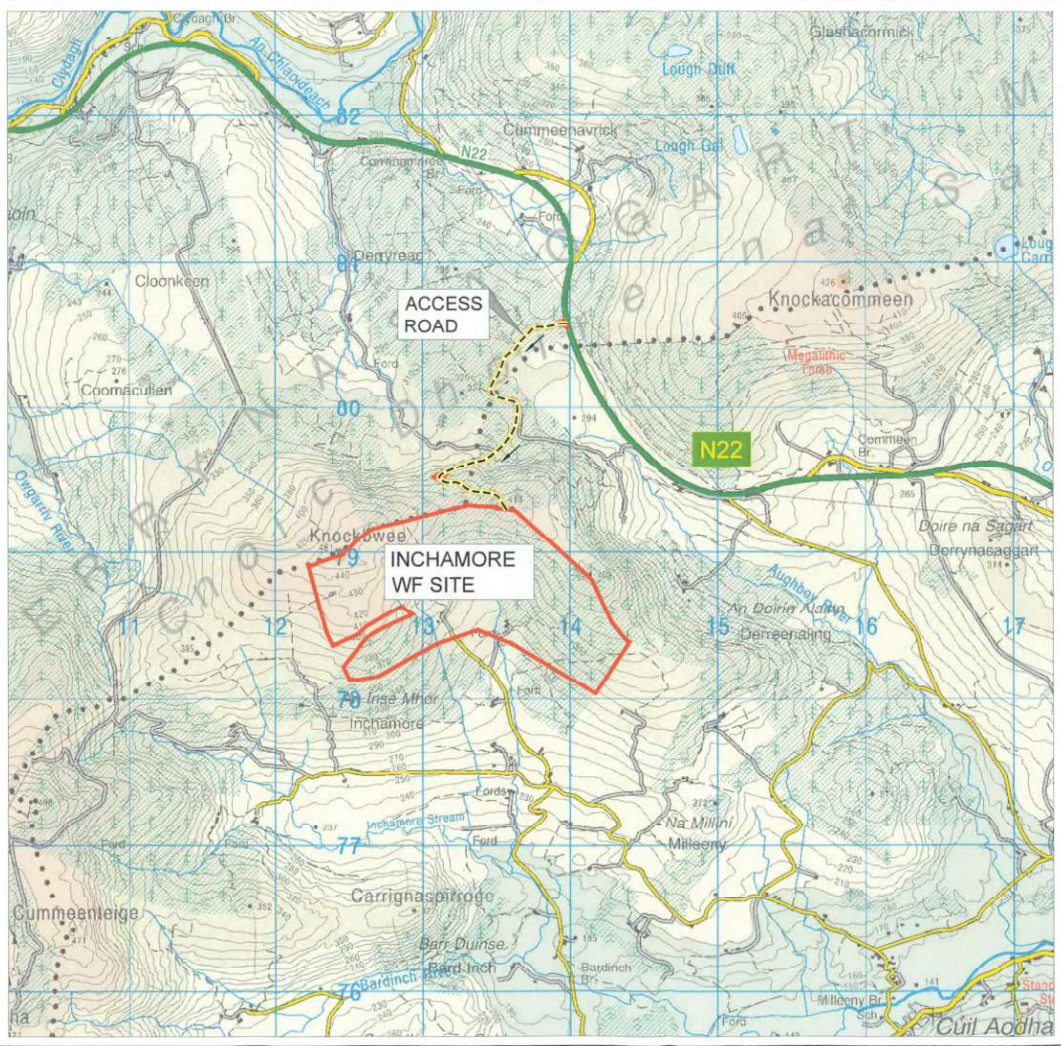
Surveyed	Prepared By	Checked	Date
	K.D.	B.M.	15-12-2022

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CONSULTING ENGINEERS,
FINISKILIN,
SLIGO,
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Tel: 00353(71) 994146
Fax: 00353(71) 994186
Email: info@jodpartners.com
Web: www.jodpartners.com



Job No.	Drawing no.	Revision
6226	FIGURE 2.3	



LEGEND

- INCHAMORE WF SITE BOUNDARY
- INCHAMORE WF SITE HAUL ROUTE

OS SHEETS : 6234, 6235, 6235-A, 6369, 6370, 6370-B, 6278, 6278-B.

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Client: Inchamore Wind DAC

Project: Proposed Wind Farm at Inchamore, Coolea, Co. Cork

Stage: Planning

Title: TURBINE COMPONENT HAUL ROUTE FROM N22

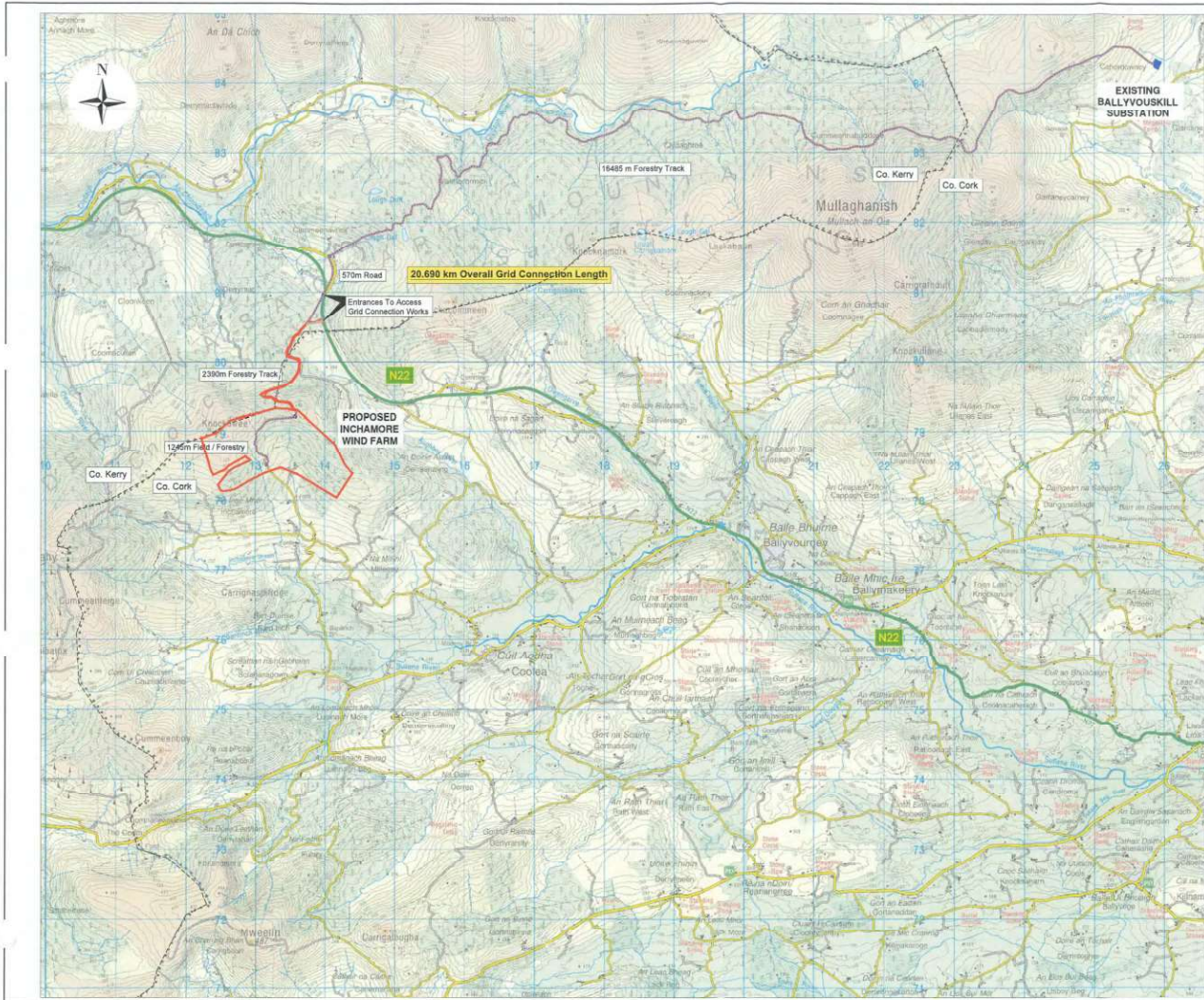
Scales: 1:200,000 @ A3

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	K.S.	S.M.	14-12-2022

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FAX: 0870371746
Email: info@jodp.ie
Web: www.jodp.ie

Job No.	Drawing no.	Revision
6296	FIGURE 2.2	



LEGEND

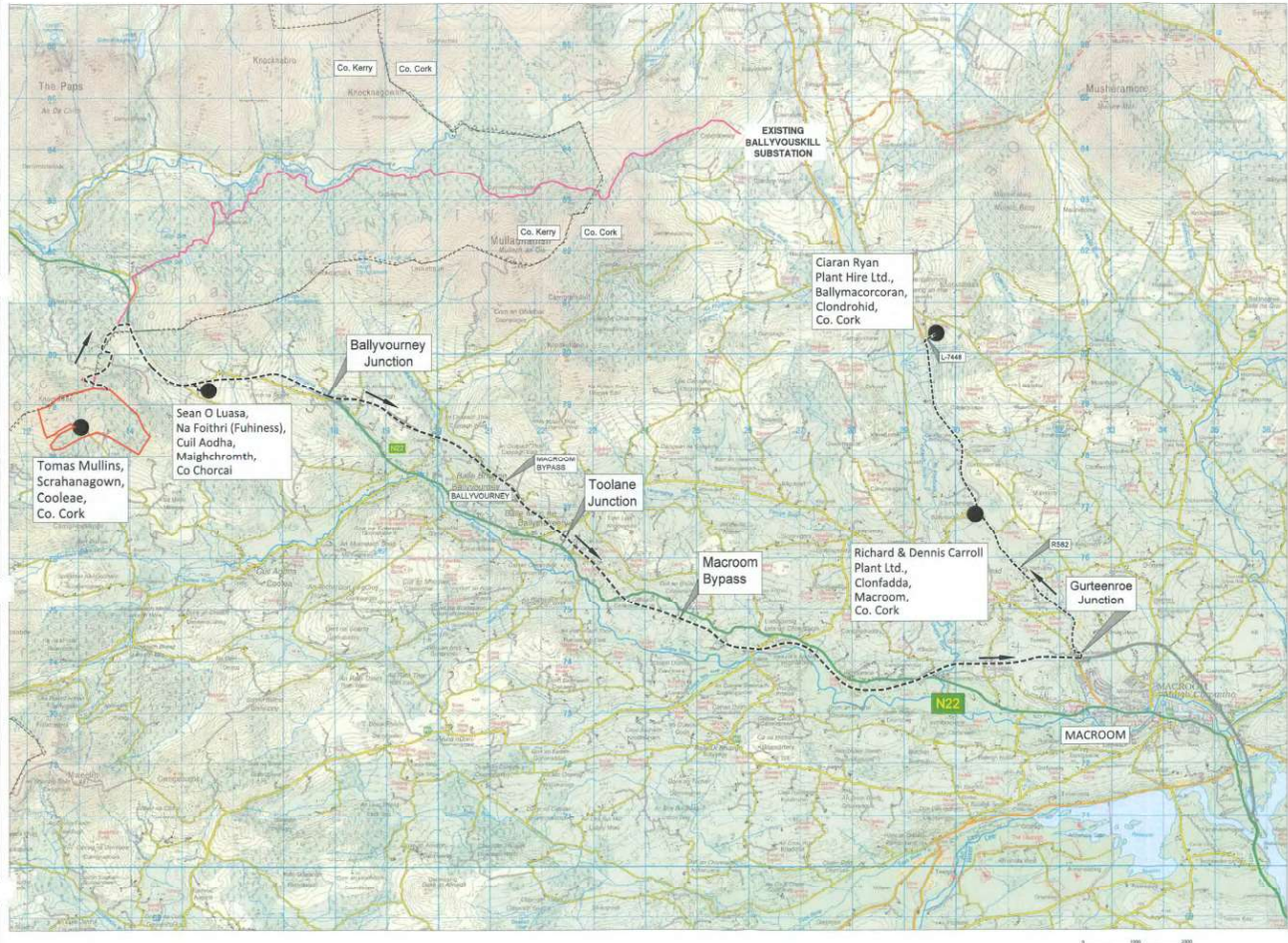
- EXISTING BALLYVOUSKILL 220-110KV GIS SUBSTATION
- PROPOSED INCHAMORE 110KV UNDERGROUND GRID CONNECTION ROUTE
- COUNTY BOUNDARY

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Client	Inchamore Wind DAC		
Project	Proposed Wind Farm at Inchamore, Coolea, Co. Cork		
Stage	Planning		
Title	Proposed Grid Connection Route		
Scales	1:50,000 (A1)		
Surgept	Prepared By	Checked	Date
		S.M.	15-12-2022

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CONSULTING ENGINEERS & PARTNERS LIMITED,
FINSKLIN,
SUJCO,
IRELAND.
TEL: 00353 (0)1 453 4100
FAX: 00353 (0)1 453 4101
Email: info@johndonovan.com
Web: www.johndonovan.com

Job No.	Drawing no.	Revision
6226	FIGURE 2.5	



LEGEND

- INCHAMORE WF SITE BOUNDARY
- STONE AND SOIL SPOIL DISPOSAL FROM THE GRID CONNECTION
- GRID CONNECTION
- CONSTRUCTION MATERIAL DELIVERY ROUTES
- COUNTY BOUNDARY

OS SHEETS: 1006, 1008, 1206, 1208

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Rev	Description	Date

Client: Inchamore Wind DAC

Project: Proposed Wind Farm at Inchamore, Coolea, Co. Cork

Stage: Planning

Title: Grid Connection Access Routes and Spoil Disposal Locations

Scales: Not To Scale

Surveyed	Prepared By	Checked	Date
	K.D.	S.M.	15-12-2022

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Job No. 6226 Drawing no. FIGURE 2.6 Revision

