

APPENDIX 3

AMENDED CONSTRUCTION TRAFFIC MANAGEMENT PLAN



PINNACLE

CONSULTING ENGINEERS

**ØRSTED, OATFIELD
WINDFARM, Co. CLARE.**

PIN-RP-00-C002-V4

OUTLINE CONSTRUCTION TRAFFIC MANAGEMENT PLAN

- BUILDING INFORMATION MODELLING (BIM)
- CIVIL DESIGN & ENGINEERING
- DUE DILIGENCE
- OFFSHORE & ONSHORE ENGINEERING
- PRE-DEVELOPMENT
- STRUCTURAL ENGINEERING
- TRANSPORTATION & HIGHWAYS

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Pinnacle Engineering Consultants

Outline Construction Traffic Management Plan

Version No – 4

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1 Introduction

1.1 Introduction

This Construction Traffic Management Plan (CTMP) has been prepared in consultation with Ørsted. It is a key construction document, the implementation of which aims to reduce possible traffic impacts that may occur during the construction of the proposed development consisting of a 11-turbine wind farm and associated grid connection.

Ørsted will be responsible for ensuring construction activities are managed in accordance with this CTMP.

Objectives and measures are also included for the management, design and construction of the project to control the traffic impacts of construction insofar as it may affect the environment, local residents and the public in the vicinity of the construction works.

1.2 Implementation

Key to the implementation of this CTMP is the appointment of on-site construction manager who will regularly liaise with and update Ørsted and associated team on all environmental and construction programming issues relating to the site. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of the site's CTMP.

1.3 Scope

A CTMP and Traffic Management Plan (TMP) are two separate documents.

A CTMP details how construction traffic will access and egress this development. It will also address the impact of construction related traffic on the surrounding road network during the construction stage.

A TMP details what traffic control measures that are required for scenarios where normal vehicle and pedestrian traffic flow is interrupted by construction activities.

The objective of this CTMP is to ensure that the residual impacts to the public road network during the construction phase of the project which have been identified in the application documentation are minimised and that transport related activities are carried out as safely as possible and with minimum disruption to other road users.

The CTMP has also been prepared for the purpose of identifying appropriate and safe methods of access for construction traffic to the proposed development. This CTMP describes the traffic management for the transportation of materials, equipment and personnel along the public road network to facilitate the construction of the proposed development. Light vehicles, such as cars and vans, will be used by site operatives travelling to and from the site. For the sake of clarity Heavy Construction Vehicles/Heavy Goods Vehicles will be referred to as HGVs. These will be required to deliver general construction materials, such as concrete, to the site.

This CTMP remains a live document that will be reviewed by the Main Contractor and expanded upon, where necessary, throughout the construction phase of the project. However, this version is considered to be wholly relevant for the expected works.

Temporary Traffic Management (TTM) is to be utilised at work sites on public roads to warn, instruct and guide road users in a safe progression through or around a work site. It also describes

the signs to be used at roadworks. It will be complied by the Main Contractor carrying out works on the public highway.

1.4 Consultation

The measures contained in this CTMP are subject to detailed design and the appointment of a Main Contractor.

This document will form part of the tender discussions that will be held with shortlisted Main Contractors. Feedback from these Main Contractors will be captured and included in an updated document to ensure that a holistic approach has been taken when the appointed Main Contractor drafts the final CTMP.

2 PROJECT DESCRIPTION

2.1 Introduction

The Proposed Development comprises:

- 11 no. three-blade wind turbines with an overall ground to blade tip height in the range of 176.5m to 180m, a rotor diameter in the range of 133m to 150m and a hub height in the range of 105m to 110m across the Eastern DA and the Western DA;
- Construction of associated reinforced concrete foundations, crane pad hard-standing areas, associated drainage infrastructure and associated plant/switching gear;
- Construction of new permanent site tracks and associated drainage infrastructure;
- Upgrading of existing tracks and associated drainage infrastructure;
- 2 no. temporary spoil storage areas;
- Erection of 1 no. permanent meteorological mast with a height of 100 m above existing ground levels
- Provision of underground interconnecting 33kV cabling and underground cable joint bays every 1000m (joining Eastern and Western DAs) within the local public road network
- Provision of 1 no. 110kV onsite substation and parking in the Western DA, along with associated control and switchgear building, associated electrical plant and equipment, associated security fencing, external lighting and lightening protection and telecommunications masts, security cameras and all associated infrastructure;
- All works associated with the connection of the proposed wind farm to the national electricity grid via double circuit 110kV underground cabling Two Options are proposed as follows:
 - Option A (loop-in to Ardnacrusha to Ennis 110kV Overhead Line via 3.83km of double circuit underground cables and joint bays every 700 m from the onsite 110kV substation to new Loop-in masts located in the townland of Ballycar North.
 - Option B (loop-in to Ardnacrusha to Ennis 110kV Overhead Line via 4.16km of double circuit underground cables and joint bays every 700 m from the onsite 110kV substation to new Loop-in masts located in the townland of Ballycar North.
- 10 no. Site access entrances from the local road network running north of the R471 and R471a;
- Tree felling to accommodate the construction and operation of the proposed development. 2 nos. temporary construction compounds, including offices/meeting rooms, parking and transformer;
- All site drainage works including the installation of an on-site Sustainable Drainage System (SuDS);
- Accommodation works along the Turbine Delivery Route
- All associated site development works including Construction, Operation and Decommissioning stage site lighting, fencing and signage;

Table 1 outlines the turbine equipment schedule.

Turbine Type	Output (MW)	Hub Height	Rotor Diameter	Tip Height	Ground Clearance
Nordex N149	5.7	105	149	179.5	30.5
Vestas V150	6.0	105	150	180	30
Nordex N133	4.8	110	133	176.5	43.5

Table 1 Turbine equipment schedule

The site layout plan of the proposed development for which planning permission is sought is shown in in EIAR Chapter 05. This is replicated in the figure below.



Figure 1 Site Layout

2.2 Construction Programme

The construction of the project in its entirety is expected to take approximately 18 months.

There are a number of items which will be conducted in parallel, but the basis of the construction programme will involve site establishment, site access road and drainage construction, hardstanding construction and substation works.

The grid connection works are likely to be done in parallel with the site works and the turbine installation works will be completed before commissioning, reinstatement and landscaping.

However, it is also possible that the grid route could commence prior to the on-site infrastructure or after the construction of the on-site infrastructure. Programming of these works will be essential to avoid buildup of construction traffic especially on section close to the site.

An indicative construction programme upon which vehicle trip distribution calculations are based is shown in the figure below.

Activity	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Mobilisation and site setup																		
Site Clearance, Tree Felling and Fencing																		
Internal Access Tracks and Drainage																		
Turbine Hard Standings																		
Turbine / Metmast Foundation																		
Onsite Substation																		
On-site Cable Installation																		
Grid Route cable works (off site section only)																		
Turbine / Metmast Installation																		
Energisation, Commissioning & Testing																		
Biodiversity Enhancement																		
Landscaping, Fencing, Reinstatement, Demobilisation																		

Figure 2 Indicative Construction Programme

2.3 Site Access

Oatfield Wind Farm will have two permanent site entrances, which will be used for both operation and maintenance.

The location of this site entrance is shown on Figure 3 and Figure 4.

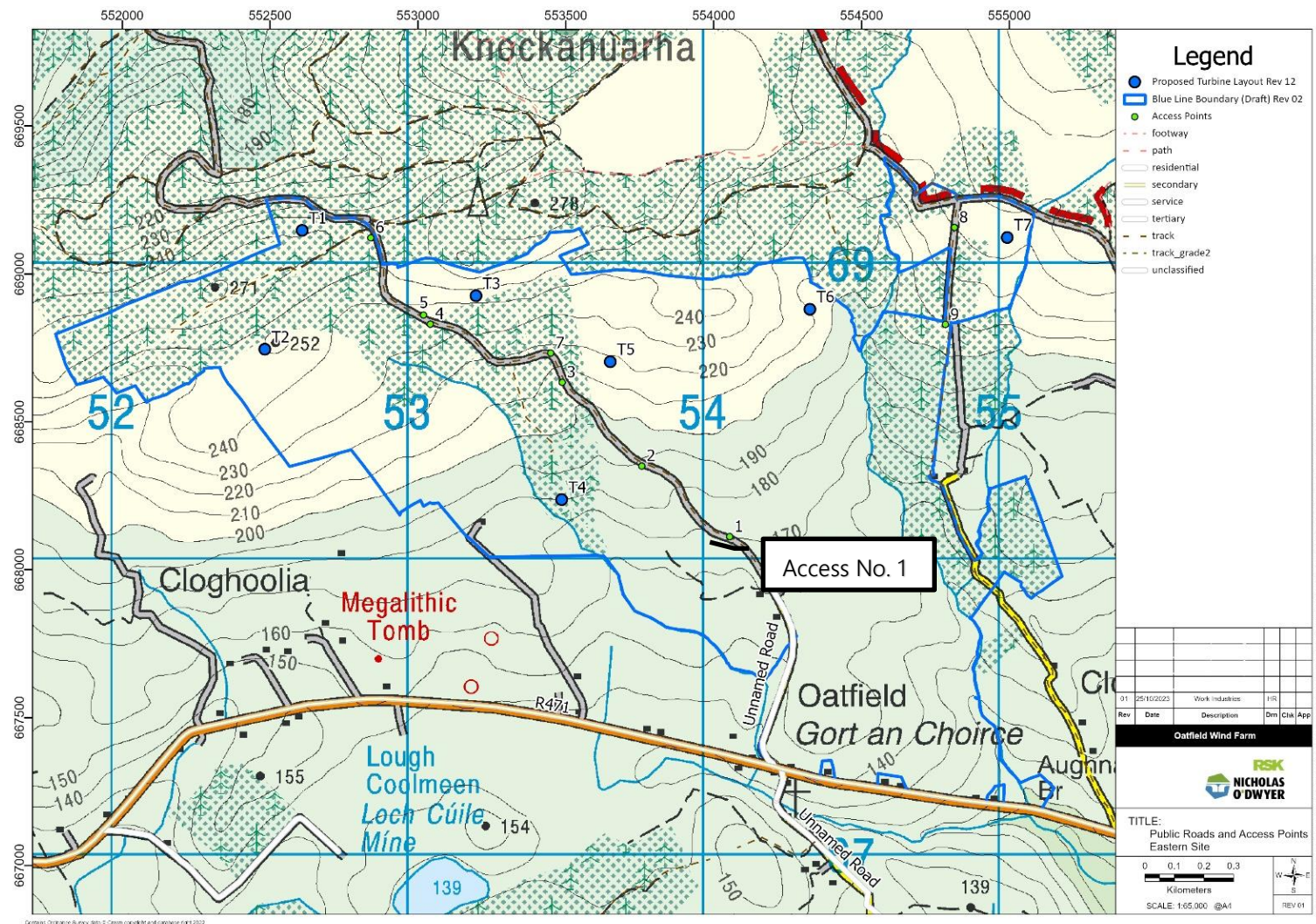


Figure 3 Public Road and Local Track leading with access points to the Western DA elements

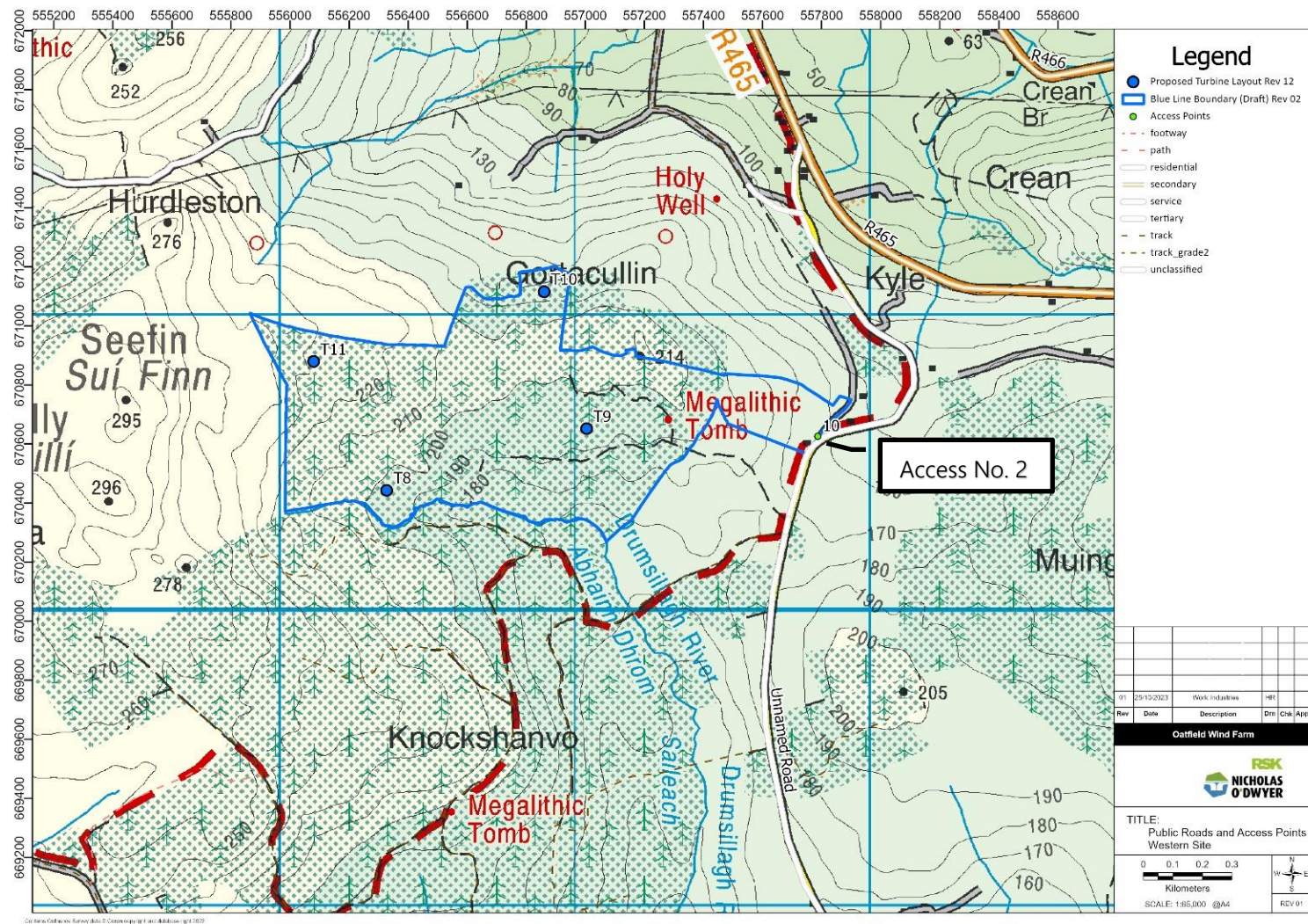


Figure 4 Public Road and Local Track leading with access points to the Eastern DA elements

Both the permanent and temporary site entrances will be designed in accordance with TII design guidelines DN-GEO-03060.

Orsted proposes to connect the Proposed Development into the Ennis to Ardnacrusha 110kV Overhead Line. The method of connection will be via a substation/CSE towers at the identified loop in area. The grid connection from the wind farm substation to the loop-in substation/CSE towers will be over approximately 3.3km via a 110kV cable which will be underground and constructed primarily within the existing road corridor. The design of the grid connection into the 110kV over headline will comply with ESBN / EirGrid specifications and technical and operational requirements.

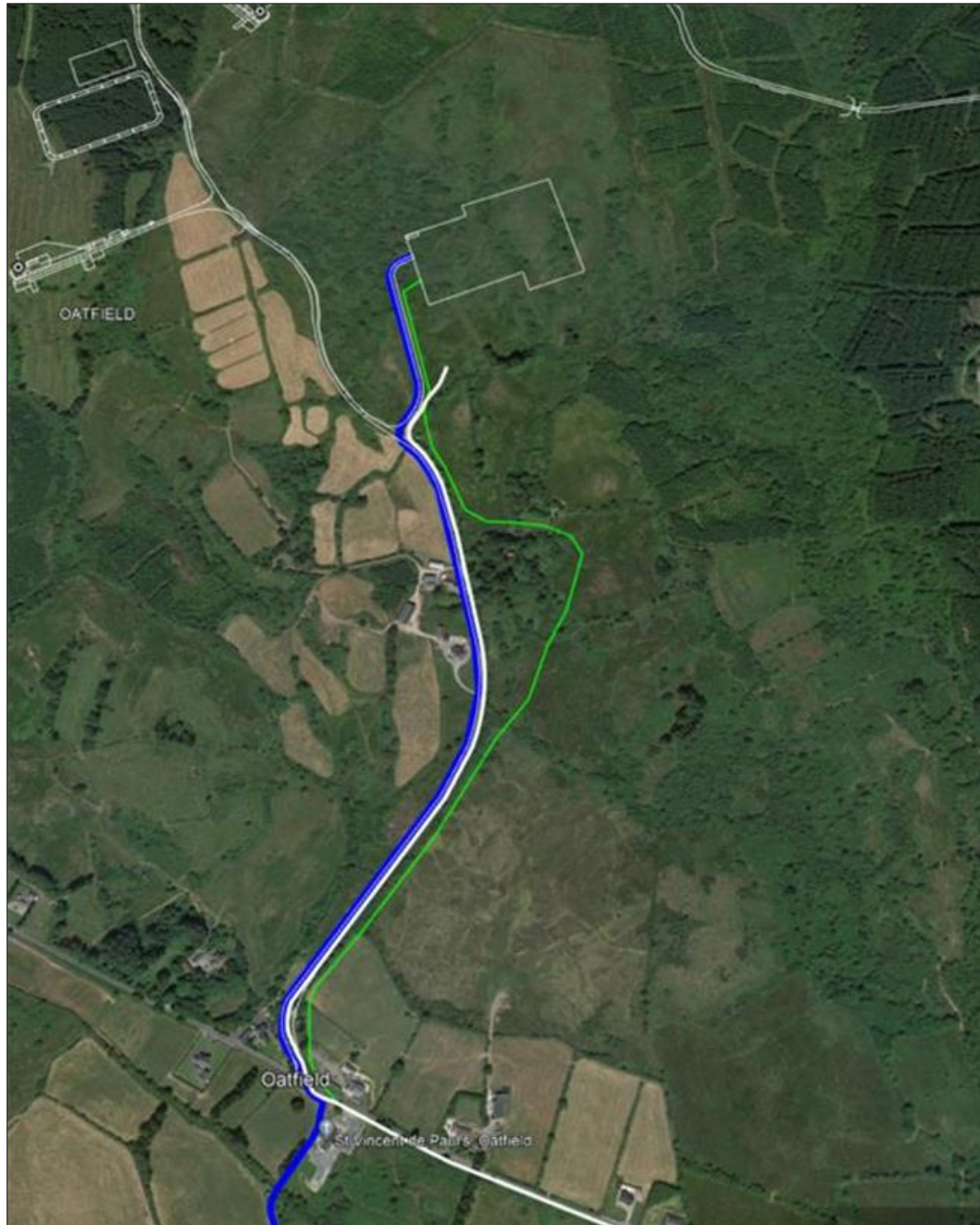


Figure 5 Proposed 33kV Route from R471 to the 110kV Substation

Underground grid route connection works to on-site substation will involve the installation of ducting, joint bays, drainage and ancillary infrastructure and the subsequent running of cables predominantly along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches.

On public roads, it is expected that full road closures will be put in place to facilitate cabling works in combination with lane closures, partial road closures and stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time especially in built up areas.

These works shall be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section.

It is anticipated that there will be two cables laid in parallel in one trench in some areas.

There will be no overlap of the cable works in the public road with the turbine deliveries or construction of onsite infrastructure.

The minimum road width requirement for 2 lane traffic is between 4.8m and 6.0m meters depending on vehicle mix. Using a minimum of 3.0m for a lane, there will sections of the route that will require lane closure to allow for passing traffic. This is like to be done using a stop/go system along the works area.

The proposed grid connection trench will be 600 mm wide and 1200 mm deep. Where the proposed grid connection cable route encounters minor culverts, the ducts will be installed above or below the culvert depending on its depth in accordance with current construction methodologies.

2.4 Overview

The construction site will be organised so that, where possible, vehicles and pedestrians using site routes are segregated and can move around safely. The access routes need to be suitable for the persons or vehicles using them, in suitable positions and sufficient in number and size, this is so that incidents can be prevented by the effective management of transport operations throughout the construction process.

Pedestrians and vehicles can be kept apart by management of the following:

- Entrances and exits - provide separate entry and exit gateways for pedestrians and vehicles.
- Walkways - provide firm, level, well-drained pedestrian walkways that take a direct route where possible.
- Crossings - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly.
- Visibility - make sure drivers driving out onto public roads can see both ways along the footway before they move on to it; the existing entrance has a visibility splay to enable this.
- Obstructions – do not block walkways so that pedestrians have to step onto the vehicle route; and
- Barriers – Barriers will be installed between the roadway and walkway.

Vehicle movement will need to be minimised on site due to the restricted areas in which the Main Contractor will have to work. This can be minimised by management of the following:

- Provide car and van parking for the workforce and visitors away from the work area within the site compound.
- Control entry to the work area.
- Plan storage areas so that delivery vehicles do not have to cross the site within the site compound.
- People who direct vehicle movements (banksmen) must be trained and authorised to do so.
- Make sure that all drivers and pedestrians know and understand the routes and traffic rules on site.
- Use standard road signs where appropriate.
- Provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit.

The safe movement on the construction site will be greatly assisted by utilising the following:

- Banksmen - who can be appointed to control manoeuvres and who are trained in the task.
- Clothing - pedestrians on site should wear high-visibility clothing as well as other relevant P.P.E.
- Gatekeeper- The site compound will be self-contained, and it is unlikely that a gate keeper be required. A site operative will be appointed to direct/summon banksmen should one be required.
- Speed limits- speed limits to be restricted on site for all vehicles.

3 ENVISAGED CONSTRUCTION TRAFFIC GENERATION

3.1 Introduction

There are multiple factors that influence the traffic generation as a result of construction activities. These factors include, but are not limited to:

- Market conditions
- Detailed design/final cut and fill models
- Program
- Availability of materials
- Availability of staff

Improvements in construction methodologies i.e., the use of soil stabilisation rather than the importation of suitable material.

An estimate of the construction traffic generation is outlined in Section 4.0 of this report. In the final CTMP, the traffic generation will be calculated based upon final scheme design and construction program. Staffing levels, material deliveries, envisaged plant requirements, and the associated access and traffic and transport impacts, will be calculated based on similar project activities.

3.2 Days and Hours of Construction/Deliveries

All deliveries will be notified to the Site Manager in advance with specific times identified. These will be collated and held in a diary by the Co-ordinator who will manage the deliveries on a daily basis. The Co-ordinator will highlight any clashes and anticipated busy periods to streamline the processing of deliveries.

On arrival to the site entrance drivers will contract the gatekeep and await instruction before moving onto site. They will then be escorted to the appropriate location for unloading by the Main Contractor's Banksman.

Unloading will be carried out at one of the material storage areas. All deliveries, where possible, must be able to be unloaded by forklift, teleporter or mechanical means.

Site development and building works shall be carried out only between the hours of 0700 to 1900 Mondays to Fridays inclusive, between 0800 to 1400 hours on Saturdays and not at all on Sundays and public holidays.

There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads e.g., turbine component deliveries are limited to road usage outside peak times. These will be kept to a minimum.

Turbine deliveries and other abnormal loads will be subject to abnormal load licenses.

All access roads used by Main Contractors will be monitored for mud and any construction materials and cleared using a shovel and broom and if required a mechanical road sweeper.

There will be 2 No. construction entrance proposed for the site during construction, one accessed via the L3016 on to the R471 as shown in Figure 7 and via an Unnamed Road on to the R471, as shown in Figure 8. These access points will also coincide with the permeable access routes. No

construction traffic or operative parking will be permitted along this route, to ensure the environment within the locality is not impacted by the construction works.



Figure 6 WDA Access Road



Figure 7 EDA Access Road

3.3 Public Transport Options for Site Operatives

3.3.1 Bus Services

There are no bus facilities located in the vicinity of the proposed development.

The nearest bus stops (Stop 609561 and Stop 336521) are located c. 8.1km from the development.

The 343 bus route services Sixmilebridge providing a service to/from Limerick and Ennis via Shannon. Up to four services per day operate during the morning and evening.

3.3.2 Rail Services

There are no rail facilities located in the vicinity of the proposed development.

The nearest train station is located c. 8.8km from the development at Sixmilebridge Train Station.

Sixmilebridge Train station is an unmanned station providing the following services:

- Dublin Heuston - Limerick and Ennis
- Galway - Limerick
- Galway - Limerick (Connections with Clare and Tralee)
- Waterford - Clonmel - Limerick Junction (Connections with Dublin, Clare, Limerick and Galway)

Clare County Council operate an 84 space car park at Sixmilebridge Train Station.

Sheltered bike parking is also available at Sixmilebirdge Train Station.

3.3.3 Summary

The site is not accessible by public transport.

3.4 Car pooling

It is well recognised that construction workers tend to make greater use of carpooling than traditional '9-5' workers, possibly due to shared accommodation and travelling from further afield/lower levels of car ownership, which results in a greater level of shared journeys.

Notwithstanding this it is proposed that within the site offices or on the staff welfare notice board there will be information on car sharing and a contact number for the Main Contractor welfare officer who will have a list of site operatives and their willingness to share journeys so that opportunities for car sharing can be maximised. In the event that a lift to work or home becomes unavailable a registered member of the scheme will be offered an alternative lift home or failing that a taxi/public transport ticket will be provided.

For staff that choose to travel to site using cars or other motorised vehicles, a vehicle a pooling system will be put in operation by the Main Contractor. Such measures shall be adopted in order to reduce traffic levels on the local road networks.

3.5 Construction Parking

It is not envisaged that works for this project will have a significant effect on any parking facilities in the surrounding area.

Due to the linear nature of wind farms, it is normal for operatives and plant operatives to drive and park up close to their work area within the site compound, at either the crane hardstands or on layby areas along the internal access roads.

In addition, sufficient parking facilities will be made available for operatives and visitors at the temporary site compounds within the site during the construction of the wind farm and at the substation compound.

Operatives will be prohibited from parking on any public road outside of the main windfarm site throughout the construction phase. However, set down areas/parking of construction vehicles will be required on public roads along the Grid Connection Route in order to facilitate the grid connection works.

Some parking restrictions may be required on public roads in order to facilitate the delivery of wind turbine components to site. These restrictions will be short in duration with appropriate notice given in advance.

During the construction of the Grid Connection Route, site compounds will be mobilised around the construction area. The site works area will be sized to accommodate the equipment to carry out the work and the vehicles required for transport of equipment and works personnel.

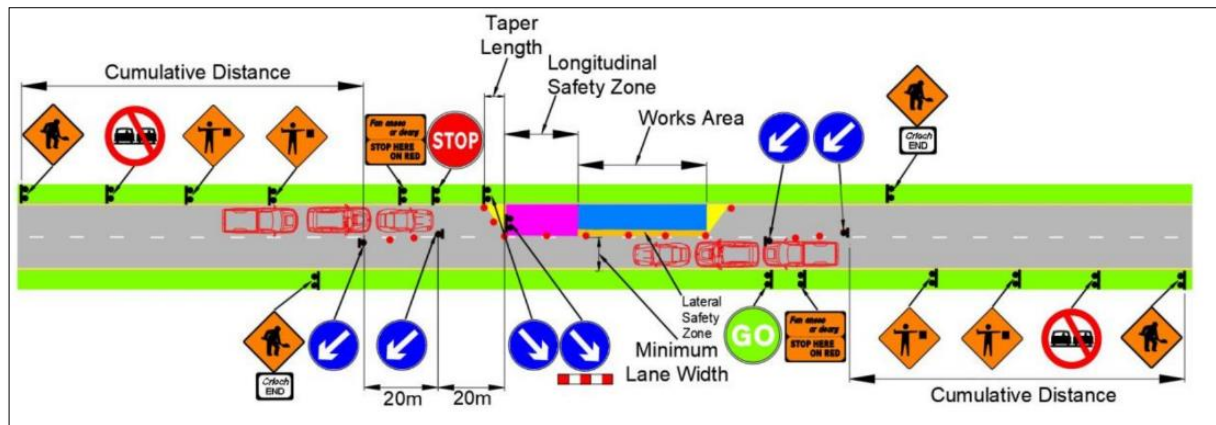


Figure 8 Works Area for GCR

3.6 Construction Haul Routes

3.6.1 Background

Materials such as steel and concrete required in the construction of the proposed development are likely to be sourced from manufacturers that are not situated within the immediate vicinity of the proposed development.

Where possible, and to avoid double handling, materials will be transported to their source destination e.g., steel deliveries will generally be dropped directly to the turbine hardstanding area.

The total number of vehicular traffic movements between site location will be determined by the Main Contractor based on the phasing of the proposed development. The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities.

Vehicles will access the road network from the site using L3016 via the R471 as illustrated in Figure 8.

3.6.2 Construction Source

In constructing the wind farm, materials and plant will need to be delivered to the site. The material haul routes will include some of the surrounding road network which will need to cater for the additional traffic associated with the project. Some of the expected haul routes are shown in Figure 10.

This is not an exhaustive list of potential haul routes as this will be determined by where materials are supplied from.

Traffic associated with the construction phase include:

- HGVs carrying turbine parts such as turbine blades, nacelles, etc.
- HGVs carrying aggregates, pipes and other materials associated with construction of the internal access tracks, hard standings and drainage infrastructure.
- HGVs (Concrete wagons) carrying concrete for turbine foundations and substation foundations.

- HGVs carrying building materials for the substation as well as electrical equipment and cabling.
- HGVs carrying plant and fuel.
- HGVs exporting site waste.
- Cranes and associated elements for erecting the turbines; and
- Private cars and vans for the commuting workforce.

Material required for the construction of the wind farm roads, crane hardstands, substation compound and grid connection options are expected to come from local quarries.

Material to be delivered to site will mainly consist of stone aggregate for the construction of access roads and hardstands, limestone capping material for roads and hardstands, and concrete for the construction of the 11 no. turbine bases and substation infrastructure.

There are number of local licenced quarries that may supply materials to the site. The surrounding quarries currently in operation have been identified shown in the figure below. The nearest supplier of quarry stone (TII Class 6 products):

- Roadstone - Ballyquinn
- Jim Bolton Sand & Stone Ltd.
- Bobby O'Connell & Sons Ltd.
- Roadstone – Bunratty
- Liam Lynch (Quarries) Ltd
- Joseph Tobin Gravel and Sand
- Rearcross Quarries Ltd.
- Dreen Sand & Gravel Ltd

The closest quarries/cement plants are shown in the image below.

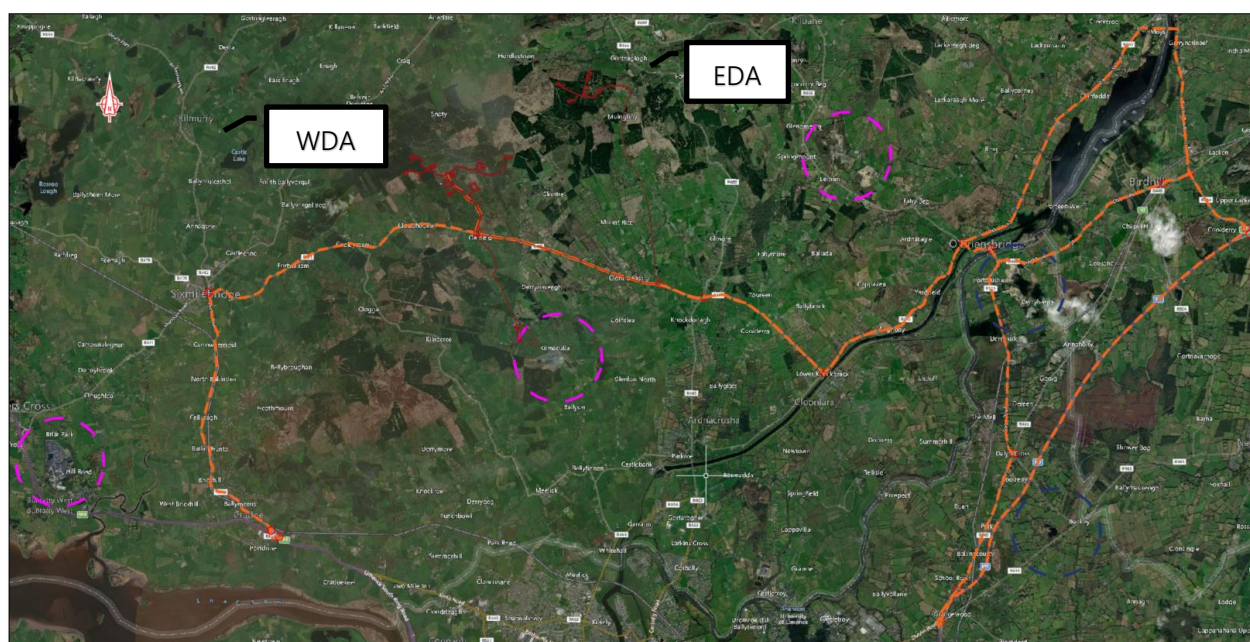


Figure 9 Local Quarries

Authorised waste management facilities have been identified in the greater County Clare area as listed on the Local Authority Waste Facility Register by the National Waste Collection Permit Office.

The authorised waste facilities utilised during the construction and decommissioning of the proposed project will depend on the Main Contractors appointed and will depend on the capacity of the various facilities at the time of construction and decommissioning. A list of existing licensed waste facilities in proximity to the wind farm site is presented in Table 1 below.

Authorisation Reference	Name	Trading As	Address
COR-CE-21-0007-01	Gerard Burke		Danganelly West Danganelly Cooraclare Co. Clare
COR-CE-21-0008-01	Kieran Kelly Haulage Ltd.		Mayfield Wood Road Cratloe Co. Clare
COR-CE-21-0009-01	Kieran Kelly Haulage Ltd		Culleen Drumline Co. Clare
COR-CE-21-0010-01	Kieran Kelly Haulage Ltd.		Woodmount Ennistymon Co. Clare
COR-CE-21-0011-01	Donal Ward		Coolderry Td. Ardnacrusha Co. Clare

COR-CE-21-0012-01	Glencore Construction Ltd.		Roslevan Tulla Road Ennis Co. Clare
COR-CE-21-0013-01	Kieran Kelly Haulage Ltd.		Ballynacragga Newmarket-on-Fergus Co. Clare
COR-CE-21-0014-01	Gerard Ryan		Aharinaghmore Clonlara Co. Clare
COR-CE-21-0015-01	Gerard Ryan		Ballybrach Clonlara Co. Clare
COR-CE-21-0016-01	Michael Begley		Trough Kilmore Co. Clare
COR-CE-21-0017-01	Martin Kelly	Doonbeg Plant Hire Ltd	Doonmore Doonbeg Co. Clare
COR-CE-12-0002-02	Michael King		Derrynalicka Kilmurry McMahon Kilrush Co Clare
COR-CE-18-0004-01	Michael Johnston		Muingboy Broadford Co Clare
COR-CE-22-0001-01	Kieran Kelly Haulage Ltd.	Kieran Kelly Haulage Ltd.	Cratloekeel Cratloe Co. Clare
WFP-CE-18-0002-01	Roadstone Ltd		Ballyquin More O'Brien's Bridge Co Clare V94 E0E7
WFP-CE-22-0003-01	Clare Drains Environmental Ltd.		Unit 10 Abbey Business Park Quin Road Business park Quin Road Ennis Co. Clare
WFP-CE-22-0004-01	Western Excavations & Groundworks Ltd.		Dough & Lahinch Co. Clare
WFP-CE-14-0001-02	IFF Plastics Ltd		Clonwhite North Cree Kilrush Co Clare V15 N276
WFP-CE-12-0003-03	Corofin Car Dismantlers Ltd		Roxton Corofin Co Clare V95 FX6W
WFP-CE-08-0003-04	Clean (Irl) Refuse & Recycling Co. Unlimited Company		Smithstown Industrial Estate Shannon Co Clare V14 HP89

COR-CE-23-0001-01	Kieran Kelly Haulage Ltd	Kieran Kelly Haulage Ltd	Knocklisheen Co. Clare
WFP-CE-08-0002-04	Clare Waste & Recycling Co Ltd		Raheen Tuamgraney Co Clare V94 WY67
COR-CE-23-0002-01	Ward & Ward Haulage		Sallybank TD, Traugh Kilmore Co. Clare
COR-CE-19-0001-01	Tom Marsh		Ballyquin Beg Kilbane Broadford Co Clare
WFP-CE-19-0001-01	Jim Bolton Sand and Gravel Ltd		Faheymore O'Briens Bridge Co Clare V94 F635
COR-CE-19-0002-01	Gerard Ryan		Ballybrack Clonlara Co Clare
WFP-CE-12-0002-02	Thomas Crowley		Breaghva Knock Kilrush Co Clare
COR-CE-14-0005-02	Bobby O'Connell & Sons Ltd	O'Connell Quarries	Ballycar South Kilmoculla Ardnacrusha Co Clare V94 XK85
WFP-CE-19-0003-01	Shannon Abrasives Ltd		Unit 10B Knockbeg Point Shannon Co Clare V14 X050
COR-CE-16-0003-02	Francis Queally	Inagh Co. Clare	Feromoyle, Eighteragh Inagh Ennis Co Clare
WFP-CE-19-0002-01	Kieran Kelly Haulage Ltd		Ballynacragga Newmarket-on-Fergus Co Clare
COR-CE-19-0004-01	Kieran Kelly Haulage Ltd		Lismulbreeda Darragh Ennis Co. Clare
COR-CE-19-0006-01	Thomas Crowley	Thomas Crowley Plant and Stone Limited	Drumline Td Newmarket-on-Fergus Co. Clare
WFP-CE-11-0003-02	Kevin Marsh		Barbane Broadford Co. Clare V94 D9EV
COR-CE-20-0002-01	Justin O'Grady		Ballyliddane West Sixmilebridge Co. Clare

COR-CE-20-0001-01	James Lynch		Cappa Lodge Td Sixmilebridge Co. Clare 086 8069385
COR-CE-20-0003-01	Clare Waste & Recycling Co. Ltd		Ballyvannan Tuamgraney Co. Clare
WFP-CE-15-0002-02	Roadstone Ltd.		Bunratty Newmarket on Fergus Co. Clare V95 D735
WFP-CE-10-0002-03	Eamon Conway	Conway Car Dismantlers	Clondanagh Tulla Co. Clare V95 T251
WFP-CE-20-0002-01	Lymar Contracts Ltd.		Caherea Lissycasey Ennis Co Clare
COR-CE-21-0001-01	Joe McMahon	Joe McMahon	Tullabrack Kilrush Co Clare
WFP-CE-11-0002-03	Tullagower Quarries Ltd.		Tullagower Kilrush Co. Clare V15 P589
COR-CE-21-0002-01	Kieran Kelly Haulage Ltd.		Ardnaculla Ennistymon Co. Clare
COR-CE-21-0003-01	Western Excavations and Groundworks Ltd.		Dough & Lehinch Co. Clare
COR-CE-21-0004-01	Michael King		Derrygeeha Kilmurry McMahon Kilrush Co. Clare

Table 2 Waste Management Facilities

3.6.3 Construction Haul Routes

The following roads will be used for the importation of construction material and the exportation construction waste from the construction site.

There may also be overlap with the Turbine Delivery Route. Refer to the Turbine Delivery Route Assessment for an overview of the Turbine Delivery Route.

Motorways

The nearest motorway to the site is the M20 and M7 which connects to the R471, R463 and R466. The M7 is the arterial route for traffic connecting Limerick to Dublin. The M20 is located approximately 15 km to the south of the wind farm site. As part of the turbine delivery route (Option 3a), it is proposed to utilise the M7 motorway for approximately 24 km.

National Primary Routes

The proposed turbine delivery route uses the N18 which is located Northeast of the site near Limerick, the delivery route continues from the N69 along the N18 for approximately 4 km before joining the M7.

The proposed turbine delivery route starts along the N69 and continues for approximately 30 km until it joins the N18.

Regional Roads

The closest regional road is the R471 which is located approximately 2.5 km to 4.0 Km to the south of the proposed wind farm site.

The R471 is a single carriageway road that links Sixmilebridge in the west to Cloonomra in the east.

Local Roads

There are several local roads in the vicinity of the proposed project. The proposed delivery route proposes the use of two of the local roads to the south and east of the site.

The western portion of the site will be accessed using the L3016 via the R471.

The L3016 is a narrow single track road providing access to agricultural lands and a number of standalone houses/farm yards.

It forms a priority-controlled junction with the R471 to the south and 'Crag' to the north.

The eastern portion of the site will be accessed using an Unnamed Road via the R471.

The Unnamed Road is a single carriageway road providing access to agricultural lands and a number of standalone houses/farm yards.

It forms a priority-controlled junction with the R471 to the south and 'Crag' to the north with various junctions with local farm tracks off it.

The proposed haulage route is shown in Figure 11.

Vehicles travelling from the west will access the site via Sixmilebridge.

Vehicles traveling from the south will access the site via the N18, M7, Killaloe (via the new by pass), and O'Briens Bridge.

Vehicles traveling from the north will access the site via the M18 and via Sixmilebridge.

Vehicles traveling from the east will access the site via the M7, Killaloe (via the new by pass), and O'Briens Bridge.

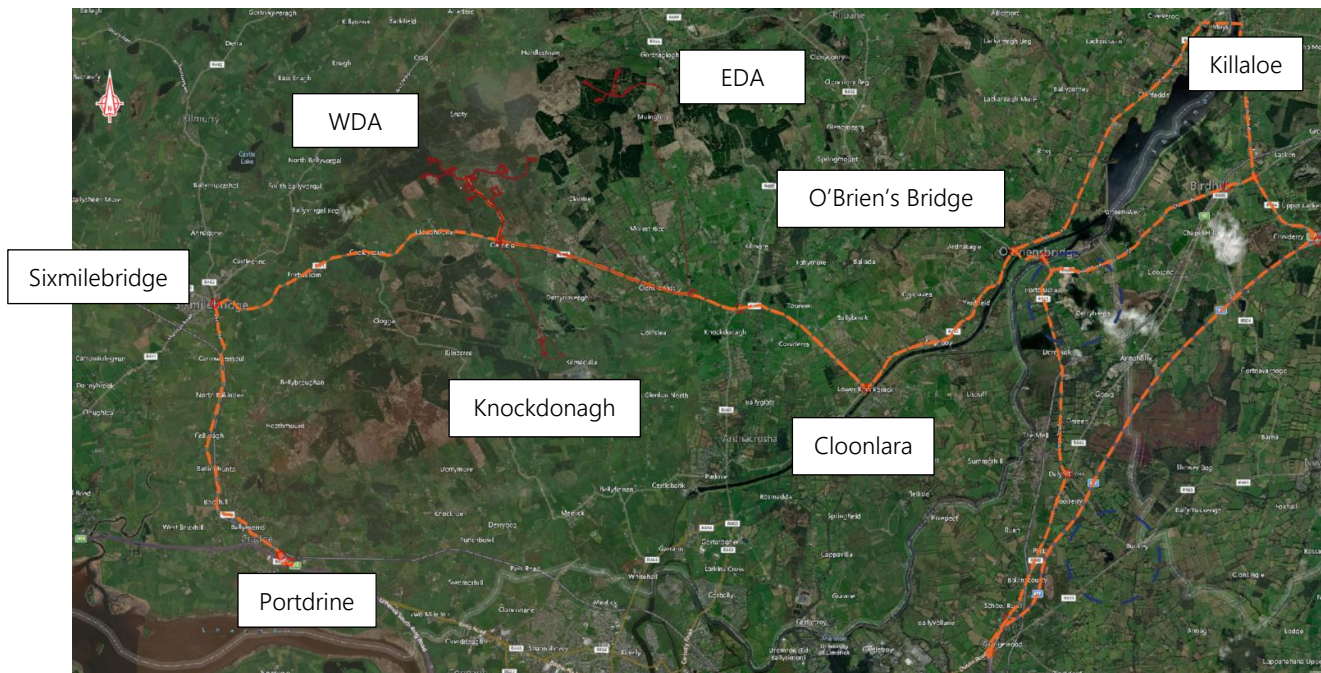


Figure 10 Access from the R471

Return trips will be in the opposite direction.

The proposed haul potential interacts with school traffic in Killaloe. HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practicable.

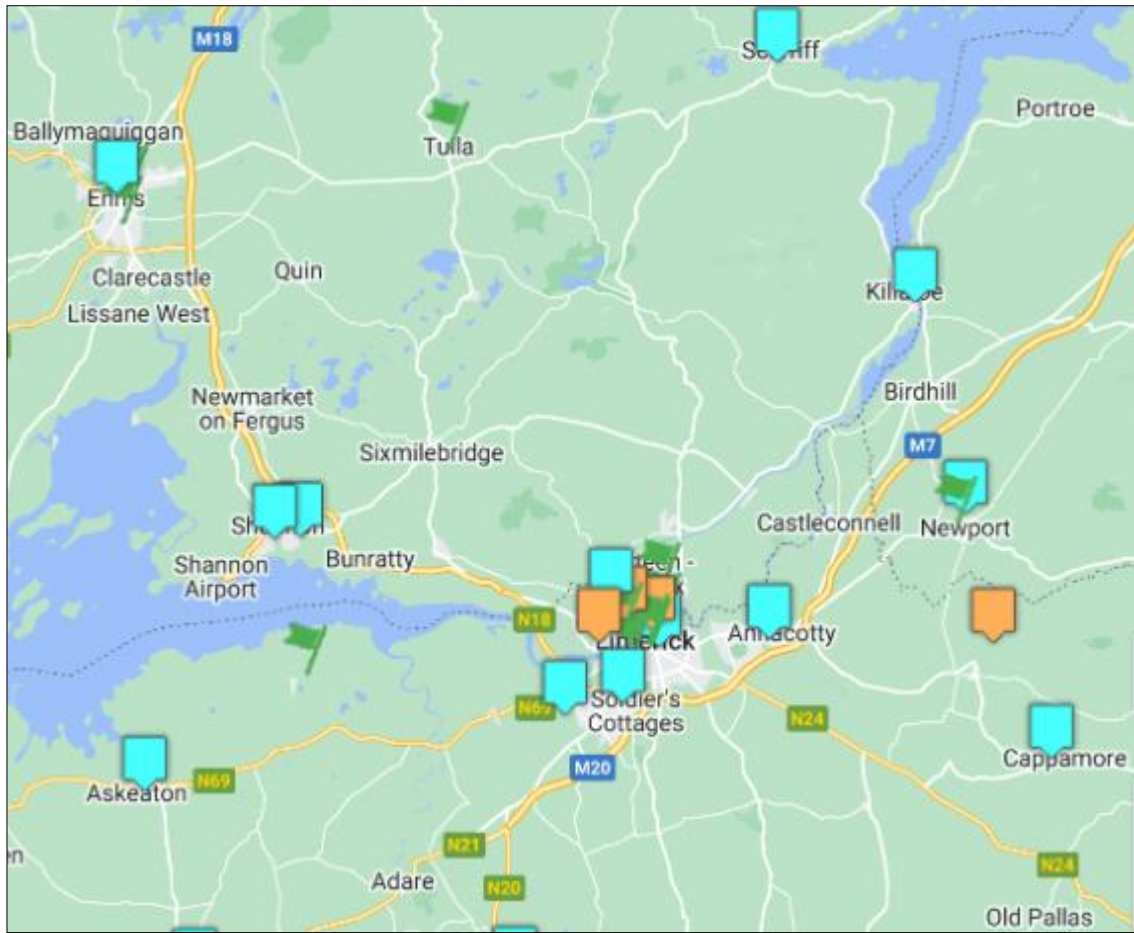


Figure 11 School Locations

Where reasonably practical, all construction traffic will be required to adhere to the haul routes identified in Figure 11. Advance notice will be given to Local Authorities, An Garda Síochána and other stakeholders if alterations to these routes are required.

For details of the Turbine Delivery Route, refer to the Turbine Delivery and Grid Connection Route Assessment.

4 Traffic Generation

4.1 General

It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered this level of traffic would result in any operational problems on the local road network.

Where impacted by construction activities i.e., during turbine delivery or whilst constructing the grid connection, care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided within the site for Main Contractor's vehicles. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure.

The envisaged traffic generated during construction will depend on the phasing which will be determined by Ørsted.

The majority of traffic generated delivering materials during the project are envisaged to occur during the following construction elements:

- HGVs carrying turbine parts such as turbine blades, nacelles, etc.
- HGVs carrying aggregates, pipes and other materials associated with construction of the internal access tracks, hard standings and drainage infrastructure.
- HGVs (Concrete wagons) carrying concrete for turbine foundations and substation foundations.
- HGVs carrying building materials for the substation as well as electrical equipment and cabling.
- HGVs carrying plant and fuel.
- HGVs exporting site waste.
- Cranes and associated elements for erecting the turbines; and
- Private cars and vans for the commuting workforce.

For the construction of the proposed development, it will be necessary to transport the construction materials, equipment and personnel to and from the work sites.

This includes (but is not limited to):

- Establishing the construction site compounds.
- The importation of relevant construction materials and equipment.
- The exportation of C&D Waste and C&D Waste Demolition.
- Transportation of workers to and from the site.

4.2 Background

It is estimated that construction of this will start in 2027/2028.

A number of the construction traffic movements will be undertaken by heavy goods vehicles, though there will also be vehicle movements associated with the appointed Main Contractors and their staff. The proposed development will have a dedicated loading and unloading area within the curtilage of the site.

Excavated material generated from the construction activities will be removed from site if no use is found for it on site. This spoil will be mounded to create a berm and in turn will allow for the material to be deposited onto the Lorries by excavator should there be a need to export it off site.

The Lorries will only drive onto site to a hard-standing area, receive the load and leave site. This negates the need for vehicles to drive into site to the dig site and receive the load from the point of excavation and in turn reduce unnecessary spoil being brought onto the public road. The haulage Main Contractor will be required to organise the lorries in an efficient manner to prevent the build-up of vehicles waiting outside the curtilage of the site.

The road marshal appointed will be responsible to ensure that there is no disruption to traffic or pedestrians and that roadways and paths are kept clean and free of debris.

4.3 Construction Activities

The following construction activities are included within this Construction Traffic Management Plan.

4.3.1 On Site Wind Measurement Mast

1 no. permanent meteorological (Met) mast will be erected on site. The mast will consist of a 100m high free standing lattice steel mast with a shallow concrete foundation. The mast will include a concrete base measuring 8m by 8m and will be up to 1.5m in depth.

The mast will be accessed from the south of the site via the new construction site entrance. A section of new track will lead from the existing agricultural track to the met mast location. A turning head will be constructed adjacent the mast site. The met mast access track will be 3.5m in width and will include drainage.

4.3.2 Turbine Erection

The components for the 11 no. turbines will be delivered by cargo ships to Foynes Port in County Limerick.

A Turbine Delivery and Grid Connection Route Assessment was carried out to identify the optimum delivery route to site and is presented as an Appendix of this report.

Large components associated with the wind farm construction will be transported to site via the identified turbine delivery route (TDR). The proposed access route to site is as follows:

- Loads will depart Foynes Port and travel West-East via the N69 for approximately 30km until it joins the N18.

- Loads will travel east along the N18 for approximately 4km before exiting onto the M7
- Loads will continue west on the M7 and then join the R494 at exit 27.
- Loads will continue to travel north towards Killaloe where it will cross the River Shannon using the Killaloe (currently under construction)
- From here it will travel south along the R463 towards O'Briens Bridge.
- Loads will travel eastwards on the R471 at Cloonlara

The components for each turbine will be delivered in separate loads, some of which will be abnormal in terms of their width and length.

The components will be transported from Foynes Port to the site along the National, Regional and Local Road network.

Pre- and post-construction surveys will be carried out to ensure the structural integrity of the selected haulage route.

Repairs will be carried out on the public road network, as necessary, during the construction phase, to ensure that the condition does not deteriorate below a standard that could affect the driver or Vulnerable Road User (VRU) safety, as required.

Following completion of construction, the condition of the public road network will be of at least the same standard as it was prior to commencement of construction.

A permit for moving abnormal loads to the wind farm site will be sought from An Garda Síochána and the applicable local authorities on the selected haulage route with a transportation plan for the time of deliveries established at construction stage.

The delivery of turbine components normally takes place overnight due to the oversize nature of some of the components such as tower sections and blades. Haulage vehicles will be escorted by An Garda Síochán during these operations.

Turbine delivery normally consists of three trucks in convoy with their escorts. The convoy will proceed along the local access roads at speeds approximate to conditions encountered along the route but such that they will not cause any undue delay to local traffic.

Turbine erection is entirely weather dependant with the scheduling of component delivery being entirely subject to wind conditions. Advance notice of delivery to residents is difficult in this circumstance but component delivery is a highly controlled low impact activity of very short duration to any local traffic.

All temporary accommodation works associated with the project shall be fully reinstated following the construction stage.

Where necessary, overhead utilities and obstructions will need to be removed at several locations to provide adequate overhead clearance. The removal of overhead utilities will involve temporary disconnections. Such works will be carried out by the utility providers in advance of turbine delivery to site.

Temporary accommodation works will only be required during the operational phase in the unlikely event of a major turbine component replacement. It is expected that these temporary accommodation works will not be required for the decommissioning phase as turbine components can be decommissioned on site and removed using standard HGVs.

4.3.3 Grid Connection

Orsted proposes to connect the Proposed Development into the Ennis to Ardnacrusha 110kV Overhead Line. The method of connection will be via a substation/CSE towers at the identified loop in area. The grid connection from the wind farm substation to the loop-in substation/CSE towers will be over approximately 3.3km via a 110kV cable which will be underground and constructed primarily within the existing road corridor. The design of the grid connection into the 110kV over headline will comply with ESBN / EirGrid specifications and technical and operational requirements.

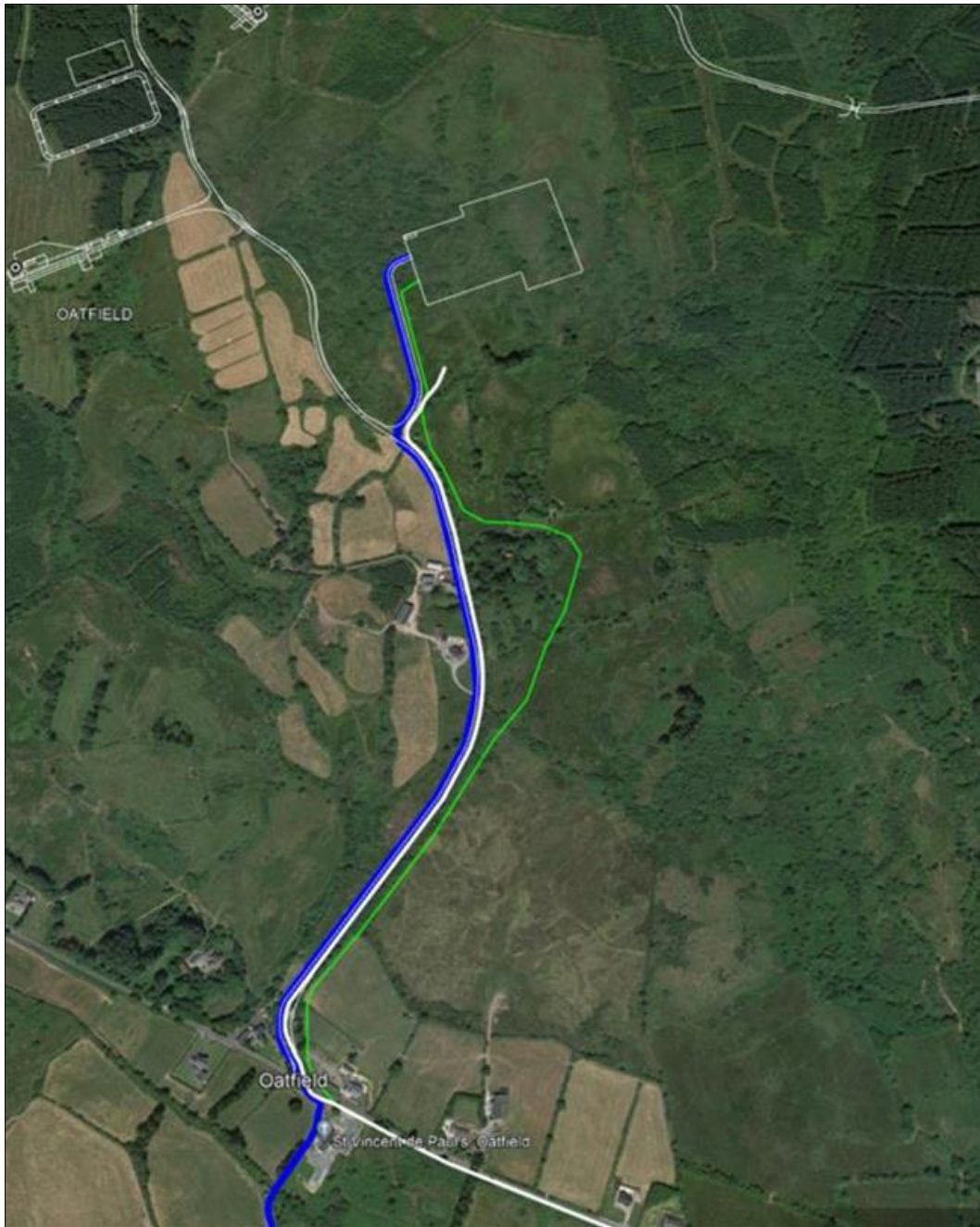


Figure 12 Proposed 33kV Route from R471 to the 110kV Substation

Underground grid route connection works to on-site substation will involve the installation of ducting, joint bays, drainage and ancillary infrastructure and the subsequent running of cables predominantly along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches.

On public roads, it is expected that full road closures will be put in place to facilitate cabling works in combination with lane closures, partial road closures and stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time especially in built up areas.

These works shall be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section.

It is anticipated that there will be two cables laid in parallel in one trench in some areas.

There will be no overlap of the cable works in the public road with the turbine deliveries or construction of onsite infrastructure.

The minimum road width requirement for 2 lane traffic is between 4.8m and 6.0m meters depending on vehicle mix. Using a minimum of 3.0m for a lane, there will sections of the route that will require lane closure to allow for passing traffic. This is like to be done using a stop/go system along the works area.

The proposed grid connection trench will be 600 mm wide and 1200 mm deep. Where the proposed grid connection cable route encounters minor culverts, the ducts will be installed above or below the culvert depending on its depth in accordance with current construction methodologies.

4.4 Construction Workers

An average workforce of up to 30 persons is anticipated, increasing to 40 persons during peak periods. This will vary over the lifetime of the project.

Again, a number of the construction traffic movements will be undertaken by heavy goods vehicles, though there will also be vehicle movements associated with the appointed Main Contractors and their staff.

Arrivals and departures to the sites are to be carried out in as few vehicle movements as possible to minimise parking requirements and potential impacts on the local road network.

Depending on the works area, construction workers will access the site via the WDA Access Road to the west or the EDA Access Road to the east. .

Where possible. construction traffic will be encouraged to use the most direct route to site avoiding sensitive nodes such as schools, where possible.

Material scheduling will dictate the timely delivery of supplies to site during off peak periods when traffic flow has eased, and pedestrian numbers are lower.

All offloading of deliveries to site will occur within the curtilage of the site boundaries and no roadside offloading will be permitted.

All scheduled deliveries will be supplied with the appropriate site location details in advance to prevent wandering in the locality. A dedicated gate keeper will be appointed to ensure that delivery vehicles securely access and vacate the site. The site marshal shall also be responsible to ensure that clean road and pathway conditions are maintained for the public users.

4.5 Traffic Generation

4.5.1 Background

The construction phase traffic generated by the project on the surrounding road network has been calculated by estimating the number of vehicles required during the construction phase.

This assessment was completed by estimating the amount of traffic, in the form of heavy goods vehicles (HGV) and light goods vehicles (LGV) that will be generated during the construction phase and then distributing it over the duration of the construction programme. Some key assumptions taken when preparing the trip generation estimates include:

- An average ready mix concrete truck carries a load of approximately 8-10m³ of concrete.
- An average tipper truck carries approximately 13 m³ of soil/rock/aggregate.
- A construction period of 18 months is expected based on the nature and scale of the proposed works.
- It has also been assumed that cable trenching works associated with the construction of the grid connection, which is expected to take 5 months to complete, it is expected that there will be no overlap with the cable works in the public road with the turbine deliveries or construction of onsite infrastructure except on the access road close to the site entrance.

It is expected following intrusive site investigations that site won material from the site will provide sufficient aggregates for general and engineering fill purposes and that surface course stone shall be imported from local quarries.

Project related traffic will vary over the course of the construction programme. Activities can be broken up into the following main categories:

- Mobilisation and site setup
- Site clearance and felling
- Internal access tracks
- Turbine hard standing.
- Turbine foundations
- Turbine Installation
- Onsite substation
- Grid connection cable works
- Private electrical network.
- Landscaping, reinstatement, demobilisation.

Figure 14 illustrates the anticipated average daily trips of the 18-month construction period.

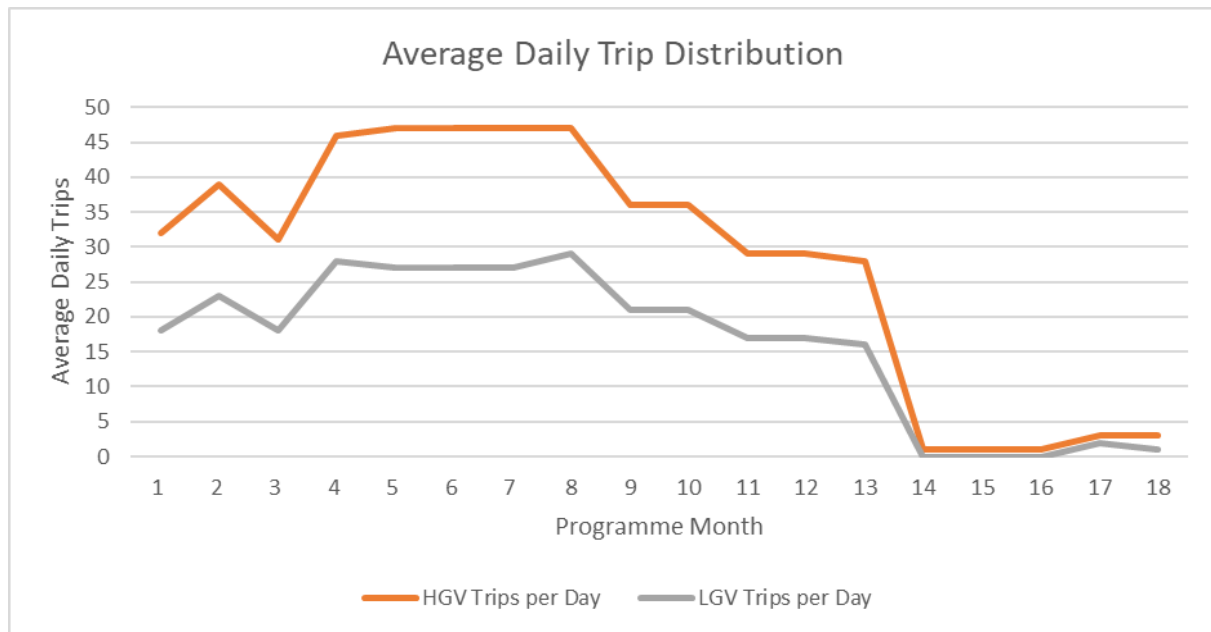


Figure 13 Average Daily Trips

The construction phase for the entire project will lead to 18,392 additional LGV & HGV trips (two-way) over the duration of the construction works. This consists of 12,684 HGV trips and 5,708 LGV trips. This results in an average increase of 44 vehicles per day with a maximum increase of 76 vehicles during the busiest month.

Calculations of HGV movements associated with the construction of the project indicate an average daily increase of 28 HGV trips per day over a construction period of 18 months. This increases to an average of 47 HGV trips per day during the peak month which occurs in Month 8 of the programme for HGV traffic.

Calculations of LGV movements associated with the construction of the project indicate an average daily increase of 16 LGV trips per day over a construction period of 18 months. This increases to an average of 20 LGV trips per day during the peak month which occurs in Month 8. of the programme for LGV traffic.

4.5.2 Turbine Delivery Route

The use of Turbine Delivery Route is dependent on completion of the Killaloe By-Pass. This is expected to be finished prior to transport. At the time of writing, it is anticipated that the Killaloe By-Pass will be open in March 2025.

Wind turbine import trip generation	
Component	No.
Number of HGV to carry Wind Turbine Blades	33
Number of HGV to carry Wind Turbine Drive Train	11
Number of HGV to carry Wind Turbine Nacelle with Transport Frames	11
Number of HGV to carry Wind Turbine Hub	11
Number of HGV to carry Wind Turbine Tower sections	33
Various other parts	11
Total Number of HGV to carry Wind Turbine Parts to site	110

Table 3 Wind turbine import trip generation

A total of 110 movements (220 two-way movement) is attributed to the import of wind turbine competent to the development site over the 18-month construction program.

These movements have been included in the assessment presented Figure 15.

5 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

5.1 Introduction

Upon appointment of the Main Contractor, the Main Contractor shall adopt this plan and associated monitoring measures based on the following headings:

- Site Access & Egress.
- Traffic Management Signage.
- Routing of Construction Traffic / Road Closures.
- Timings of Component and Material Deliveries to Site.
- Traffic Management Speed Limits.
- Road Cleaning.
- Road Condition.
- Road Closures.
- Enforcement of Construction Traffic Management Plan
- Details of Working Hours and Days.
- Details of Emergency plan.
- Communication.
- Construction Methodologies; and
- Particular Construction Impacts

These items are explained in detail in the remainder of this section of the report.

5.2 Site Access and Egress

Site access will be provided on R471. These will coincide with the future development accesses.

An access gate will be provided during the construction state of the Western Development Area as Western Development Area is accessible by public road. The Eastern Development Area can only be accessed via a private road and not access gate will be provided.

The contractor shall provide advanced warning signs, in accordance with Chapter 8 of the Department of the Environment's Traffic Signs Manual 2019, on the approach to proposed site access locations a minimum of one week prior to construction works commencing at the site.

There will be heras fencing secured to a minimum height of 2 metres alongside the construction compound areas or solid panel hoarding in areas with high/low viewing panels to help reduce unauthorised access to the construction compound.

This fence will be checked daily and maintained as necessary and it will be the responsibility of the Site Manager to open and lock the gates each working day to ensure the site is not left open and unattended at any time.

Access to the construction site will be limited to authorised persons. The site will be secured at all times with security being employed by the main contractors to ensure no unauthorised access.

Where possible, construction traffic and non-construction traffic will be separated for all modes of transport. Where the construction programme requires mixing of traffic, additional temporary traffic management measures will be put in place.

5.3 National Road Network

Access to the site along the National Road Network will be via the N67, N18 and M7.

Vehicles travelling from the west will access the site via Sixmilebridge.

Vehicles traveling from the south will access the site via the N18, M7, Killaloe (via the new by pass), and O'Briens Bridge.

Vehicles traveling from the north will access the site via the M18 and via Sixmilebridge.

Vehicles traveling from the east will access the site via the M7, Killaloe (via the new by pass), and O'Briens Bridge.

5.4 Regional & Local Road Network

Oatfield Wind Farm will have two permanent site entrance, which will be used for both operation and maintenance.

The location of this site entrance is shown on Figure 3.

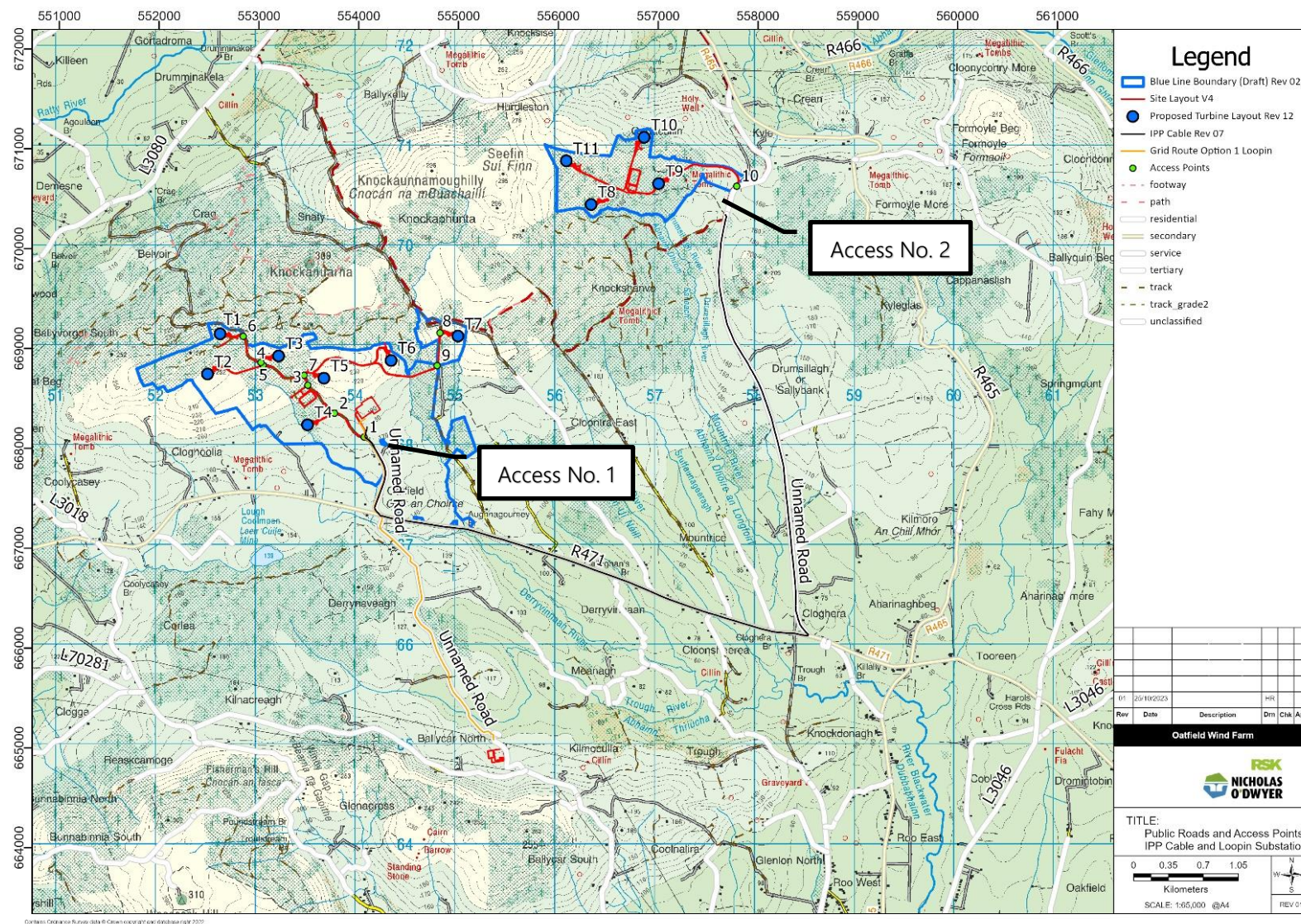


Figure 14 Site Location

Sight lines appropriate to local speed limits will be provided to allow safe access to/from the site.

For the grid connection works multiple work zones will be mobilised/demolished on the local road network. To mitigate against possible restrictions in visibility requirements, it is proposed that the Main Contractor shall use a safe system of permanent flag men for the control of traffic during all access / egress operations at these work zones, if required.

5.5 Local Schools.

There is a single school that is located along the potential haul routes as follows:

1. St Anne's Community College, Killaloe Co Clare

5.6 Traffic Management

5.6.1 Signage

The Main Contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site.

Proposed signage may include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Department of Transport's Traffic Signs Manual, Chapter 8 – Temporary Traffic Measures and Signs for Roadworks (2019).

5.6.2 Traffic management for road works.

In accordance with plans and drawings submitted to the planning authority, and in agreement with the Roads and Transport Department of the Clare County Council, road works are required to facilitate the construction of the site access, remedial works to accommodate Turbine Delivery Route and works required to accommodate the Grid Connection Route

If work has to be done in the Public Highway (i.e., in relation to utility services or drainage), a road opening licence will be requested from Clare County Council. The Main Contractor will procure street works accredited and approved Main Contractors to carry out any utility works.

A specific Traffic Management Plan (TMP) will be required by the Local authority in conjunction with the application for a road opening licence, in advance of carrying out these road works. The TMP design and service will be provided by an independent specialist and will deal with the efficient management of traffic and pedestrians, mitigating all potential safety risks to users, whilst maintaining effective operation of the carriage way.

5.6.3 Pedestrians

There are no local pedestrian facilities located adjacent to the main site access. The Main Contractor will take care to ensure that the existing carriageway is maintained to ensure that local pedestrian activity can continue uninterrupted manor.

For the TDR, remedial works required to accommodate the delivery of turbines may impact pedestrian facilities/routes. This may require pedestrians to divert around the works. Such works will be temporary in nature and will return to their original status when no longer needed.

For the GCR, pedestrians will be directed around the work zones in accordance with Chapter 8 of the Traffic Signs Manual.

5.7 Recommended Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and Main Contractors during induction training.

Drivers of construction vehicles / HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. An additional special speed limit of 25km/h will be applicable to abnormal load deliveries.

Such recommended speed limits will only apply to construction 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.

5.8 Spoil

A Spoil Management Plan has been prepared which deals with how spoil will be managed on site. This includes the management of vegetation and tress that will be removed during construction.

Demolition and construction waste will be brought off site by a licenced waste contractor.

5.9 Road Condition

The extent of the heavy vehicle traffic movements and the nature of the payload may create problems of:

- Fugitive losses from wheels, trailers or tailgates; and
- Localised areas of subgrade and wearing surface failure.
- The Main Contractor shall ensure that:
 - Demolition and construction waste leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
 - The haulage contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:
 - Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss; and
 - Utilisation of enclosed units to prevent loss.
- The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.
- In addition, the Main Contractor shall, in conjunction with the local authority:
- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.
- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to

commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.

- Where requested by the local authority prior to the commencement of construction operations, pavement condition surveys will also be carried along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the proposed development, on-going visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant local authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

Pavement Condition Surveys will be carried out in accordance with Machine Road Condition Survey Specification for Regional and Local Roads as specified by the Road Management Office.

In addition to the Pavement Condition Surveys, Structural Bridge Surveys will be carried out to confirm any bridge used as part of the Haul Route or Turbine Delivery Route has sufficient structural to accommodate anticipate loads. These surveys will be carried by a suitable qualified structural engineer. All surveys will be carried out in accordance with The Assessment of Road Bridges and Structures (including Erratum No. 1, dated December 2014) AM-STR-06026 June 2014 as specified by Transport Infrastructure Ireland.

Should the bridge be deemed not suitable to accommodate the Haul Route or Turbine Delivery Route, a replacement bridge will be installed. This maybe be done for structural reasons but also for geometric reasons i.e. bridge widening.

Upon completion of the construction of the proposed development, the surveys carried out at preconstruction phase shall be repeated and a comparison of the pre and post construction surveys carried out. Where such comparative assessments identify a section of road as having been damaged or as having deteriorated as a result of construction traffic, the construction related damage will be repaired..

5.10 Vehicles

The following is a non-exhaustive list of possible vehicles that will be used:

- Abnormal Load Vehicle
- 4x4 Pick up.
- HGV
- Rigid Truck
- Box Van
- Panel Van
- Concrete Truck
- Concrete Pump Truck

- Mobile Crane (various sizes)
- JCB (various sizes)
- Excavators (various sizes)
- Dump Truck
- Specialist vehicles maybe required on occasion e.g., abnormal load vehicle.

Details of size and weights of vehicles will be confirmed on appointment of a Main Contractor.

5.11 Dust and Dirt Control

The contractor will be obliged to implement the mitigation measures outlined in the EIAR Chapter 17: Air Quality Chapter of EIAR in respect of dust / dirt control.

5.12 Noise Control

The contractor will be obliged to implement the mitigation measures outlined in the EIAR Chapter 13: Noise and Vibration Chapter of EIAR in respect of noise control.

5.13 Protection of Surface Waters

The contractor will be obliged to implement the mitigation measures outlined in the Hydrology Chapter of EIAR in respect of the protection of the surface water.

5.14 Refuelling

Construction plant and equipment will only be parked over-night within the site compound. Construction plant and equipment will be checked daily for any visual signs of oil or fuel leakage, as well as wear and tear.

Fuel will be stored on site for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. For any liquid other than water, this will include storage in suitable tanks and containers which will be housed in the designated area surrounded by bund wall of sufficient height and construction so as to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded areas will be impervious of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund.

Where Main Contractor is required to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent escape of fluids to the river. No refuelling is permitted on site, i.e., within the river or adjacent due to risk of spillage.

The local authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase.

All small plant such as generators and pumps bunded and stood in drip trays capable of holding 110% of their tank contents,

Waste oils, empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996.

5.15 Monitoring, Inspection and Record Keeping

The contractor will be obliged to implement the mitigation measures outlined in the Construction and Environmental Management Plan and the Construction Traffic Management Plan with respect to monitoring, inspections and record keeping .

5.16 Road Closures

Should road closures be required the following will apply.

The appointed Main Contractor will ensure traffic management controls are in accordance with Chapter 8 of the Traffic Signs Manual 2019 and the Temporary Traffic Management Design Guidance, Third Edition 2019.

All road works will be subject to a road opening licence. It is anticipated that the cable installation along local roads will be advanced using a combination of rolling lane closures and temporary road closures where the existing road width is insufficient to accommodate an open lane for traffic to pass the works area.

The active construction area along the underground grid connection route option will generally be minimal as the cables only need to cross the road perpendicularly at one point and/or laid parallel to the road in rolling sections. During the first stage of works the cable trenches will be constructed. The second stage of works will involve sequentially pulling electrical cables through ducts and then joining each cable together.

These works will lead to additional traffic associated with the cable route construction.

The construction activities associated with the grid connection works will generate construction related traffic on the existing public road network while the grid connection works are ongoing. These impacts will include:

- Heavy Goods Vehicles (HGVs) transporting materials to and from the main site, including road making materials for reinstatement works, drainage/ducting materials, cabling, electrical components and excavated material.
- Light Goods Vehicles (LGVs) such as cars, 4x4s and vans used by the workers and supervisory staff involved in the grid connection works.
- There will be construction traffic throughout the Grid connection works between the main site and working area involving the transport of materials when required.

The grid connection cable works by its nature will be isolated to a relatively small works area which will move on a daily basis. Impacts associated with the works will be experienced on the road network in the immediate vicinity to the works area.

Where lane closures are implemented, the traffic will be allowed to travel in both directions. A stop/go system will be used to control the flow of traffic passing the works. This will have a temporary negative effect on road users in the form of a disruption to normal traffic flows.

During the first stage of works the cable trenches will be constructed. The second stage of works will involve sequentially pulling electrical cables through ducts and then joining each cable together.

Construction activities along the underground route option would operate between the hours 7:00 a.m. and 7:00 p.m., Monday to Friday, and between the hours 7:00 a.m. to 2:00 p.m. on

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Saturday (if required). Any deviations to these times will be agreed in advance with Clare County Council. It is expected that the civil works for the underground grid connection option will require at least 10 personnel to complete the works. The electrical works will require less heavy machinery but more labour personnel.

5.17 Underground Grid Connection

The installation of the underground grid connection option along the public roads will involve the following process:

- Prior to works commencing the area where excavations are planned will be surveyed and all existing services will be identified. All relevant bodies i.e., ESB Networks, EirGrid, Gas Networks Ireland, Eir, Clare County Council etc. will be contacted and drawings for all existing services sought. A road opening licence will be obtained where required from Clare County Council for the relevant road sections. All plant operators and general operatives will be inducted and informed as to the location of any services.
- Prior to works commencing a dilapidation survey will be carried out photographing and noting any existing damage or defects to structures or road surfaces. A copy of this survey will be submitted to Clare County Council prior to works commencing.
- Prior to works commencing the route will be inspected and marked out on the ground. Standard good practice preparatory measures are then put in place along the extent of the route. This would include any required warning notices, temporary barriers, etc.
- Prior to works commencing a detailed traffic management plan will be prepared by the appointed Main Contractor and agreed with Clare County Council.
- During construction works, the trench will be excavated down through the existing stone in the road using an excavator machine. As stone fill is removed it is temporarily stockpiled adjacent to the trench for re-use in backfilling. In some instances, some soil or unsuitable material may be encountered in the trench, and this is removed from site and brought to an appropriate licensed facility for disposal.
- The trench is then prepared to receive concrete bedding and surround for the ducts. The ducts are surrounded by concrete with adequate cover over the duct.
- Once the concrete is suitably set, appropriate imported stone material is placed over the concrete surround and filled back up to the top of trench. Suitable warning tapes will also be installed in the trench. Once the trench is filled, the trenching and ducting process will move along the road in planned stages.
- The trench surface receives a temporary surface dressing of either spray and chip or macadam. Once the overall scheme is completed, the underground grid connection route and associated road areas will receive a new permanent macadam finish as agreed with Clare County Council.
- The as-built location of the ducting will be surveyed using a total station / GPS. Marker posts will be installed along the grid connection route to also denote the location of ducting on the ground.

- A condition survey will be carried out on the roads impacted by the underground grid connection route, both pre and post construction. This will include a video survey of the road extent.

5.18 Emergency Procedures During Construction

The Main Contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The Main Contractor shall provide to the local authorities and emergency services, contact details of the Main Contractor 's personnel responsible for construction traffic management. 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.
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer; All construction traffic shall be notified of the incident (where such occurs off site).
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en-route. This is further detailed in the Health and Safety Plan.

5.19 Complaints Handling

The purpose of this OCTMP is to minimise the impact that construction activities have on the local road network. Should a member of the public raise a complaint about the implementation of the OCTMP, they can raise a complaint.

The Main Contractor will maintain a log of site complaints detailing:

- Name and address of complainant
- Time and date complaint was made.
- Date, time and nature of complaint
- Characteristics, of complaint such as noise rumble, dirty roads, etc
- Likely cause or source of nuisance
- Weather conditions,
- Investigative and follow -up actions.

The Main Contractor will appointment a Liaison Officer as a single point of contact to engage with the local community and respond to concerns. It will be the role of the Liaison Officer to keep local residents and businesses informed of progress and timing of particular construction activities that may impact on them.

A sample complaints form is contained in Appendix A.

5.20 Communication

The Main Contractor shall ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval.
- On-going reporting relating to the condition of the road network and updates to construction programming; and
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The Main Contractor shall also ensure that the local community is informed of proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures.

5.21 Considerate Constructors Policy

It is the Orsted's intention to develop, in conjunction with the Main Contractor, a 'Considerate Constructors Policy' whose aim is to ensure that construction vehicles share the roads safely with local traffic and vulnerable road users such as pedestrians, cyclists and horse riders.

The Main Contractor will conduct regular toolbox talks with the contractors to ensure they are fully aware of the requirements which will help foster a culture of road safety.

The practical implications of delivering to the site will be highlighted when approaching suppliers and will be included in the final contractor for the delivery of materials and equipment. This includes the mitigation measures contained with the Construction Traffic Management Plan.

Disciplinary action will be taken with any contractor who does not comply with the procedures.

Disciplinary action will be taken with any contractor who does not comply with the procedures. This may result in a yellow card being issued and possibly a red card depending on the severity of the offence. A red card meaning that they will no longer be able to deliver to the site in future.

5.22 Particular Construction Impacts

5.22.1 Concrete Pours

It is anticipated that the development will be constructed using concrete. This will require concrete pours. Given the size and nature of the development this may require large pours and require a continuous stream of concrete trucks to/from the development.

The majority of concrete used on this project will be supplied by ready mix concrete lorries.

Concrete deliveries will be programmed in advance of works commencing. Given the size of the area, it is not anticipated that number of lorries arriving on site will result in a queue along L3016 and/or the Unnamed Road. The site is large enough to allow staging of concrete lorries within the site area.

5.23 Mitigation Measure

The construction phase of the wind farm will require the delivery of turbine components, concrete, steel and aggregate to the site via the public road network. The key timing periods when use of the public road network will be at its peak for residents is between 8.30am and 10am when school and commuter related traffic is at its peak.

It is proposed to allow routine deliveries such as aggregate into the site between 8.00am and 8.30am. The initial early morning delivery trucks will exit the wind farm site empty with the run of traffic, but they will be prohibited from delivering again until 10am.

The nuisance of dirt on the local road network during wet weather and dust during dry weather is an area of identified concern where the primary mitigation measure for this impact will be in the form of a proprietary wheel wash facility to be installed on the exits of the wind farm site as illustrated in Figure 4-2.

In addition to this a road sweeper will operate on the EDR and WDR on a full-time basis for the duration of the importation of aggregates and concrete and at regular intervals for the duration of the project. A water bowser will be employed to spray the local roads with water during dry periods when there is a risk of dust nuisance.

Appropriate signage will be maintained for the duration of the project with clear warning signage on approach to the EDR and WDR.

A road safety and courtesy protocol will be implemented for the duration of the wind farm construction. All companies delivering to site will have to sign up to this protocol as part of their supply contract. The protocol will consist of restricted delivery hours and speed limits along public roads and within the wind farm site. This is outlined further in Section 6 of this report.

Fundamental to the protocol is courtesy for other road users. In these vehicles will always give way to oncoming residential traffic and will always slow down or stop as appropriate for pedestrians and cyclists.

6 SERVICE & DELIVERY MANAGEMENT PLAN

6.1 Service & Delivery Management Plan

A Service & Delivery Management Plan is designed to provide a framework to improve the management of all delivery and servicing vehicle movements at the proposed development, to and from the site.

A Service & Delivery Management Plan, is prepared to encourage efficient and sustainable movements, in this case in relation to goods and deliveries, rather than people. The Service & Delivery Management Plan is therefore an important tool for managing transport impacts.

6.2 Service and Delivery Plan Benefits

The Service and Delivery Management Plan can have benefits for several parties, including businesses, freight operators, Local Authorities and residents. These are:

- Saving time and money
 - Lower operating costs, less deliveries
 - Saving staff time spend receiving goods and related procurement activities, such as processing invoices
- Improve reliability
 - Improved supply chain efficiency
 - Avoiding disruption
- Improve safety
 - Fewer deliveries, reduction of the risk of accidents on-site
- Reduce impact on the environment
 - Fewer journeys, less harmful emissions
 - Better manage freight activity
 - Pleasant environment (improved air quality and reduced noise)

6.3 Service and Delivery Management Plan Objectives

This section of the Construction Traffic Management Plan seeks to achieve the following objectives

1. To minimise the impacts of delivery and service movements, particularly at peak times
2. To facilitate sustainable delivery and service travel
3. To promote smart operations to reduce demand for delivery and service travel
4. To encourage the use of sustainable vehicles for delivery, including the user of greener vehicles
5. To manage the timing of deliveries to reduce the impact in peak periods, and
6. To ensure appropriate routing strategies are in place for travel.

6.4 Objectives

A Service and Delivery Management Plan should reduce delivery trips to ensure the availability and use of safe and legal loading facilities and select appropriate delivery companies who are committed to best practice.

Service Delivery Plans encourage working with neighbouring business and residents, procurement, suppliers and contractors to embed sustainable freight practices within the procurement process; changing behaviour within a business towards frequency of orders; co-ordinating and managing delivering and servicing activities more efficiently; encouraging safe and lawful loading and transport practices; and employing sustainable freight operators.

Managing Freight Effectively

The 'Managing Freight Effectively: Delivery and Servicing Plans' document produced by TfL (2007) identifies the benefits of SDMPs to local authorities and residents, building developers and businesses and freight operators. In summary, SDMPs will:

- Help developers and local authority planning officials comply with the National Planning Policy Framework, which requires the promotion of more sustainable transport choices for moving freight, the Traffic Management Act, the London Plan and any borough-specific policies that cover issues such as road safety and air quality action plans.
- Demonstrate that goods and services can be delivered, and waste removed, in a safe, efficient and sustainable way.
- Identify deliveries that could be reduced, re-timed or consolidated, particularly during busy periods.
- Help cut congestion on London's roads and ease pressure on the environment.
- Improve the reliability and efficiency of deliveries to the site concerned.
- Reduce the operating costs for building occupants and freight companies.
- Reduce the impact of freight activity on residents.

6.5 Service Arrangements

It is anticipated that following non-car vehicle classes will require access to the development:

LGV (Light Goods Vehicle)

All car type delivery vans and those of the next larger carrying capacity such as transit vans. Included here are small pickups, ambulances which look like vans without windows and milk floats. Most of this group are delivery vans of one type or another and goods vehicles (middle-sized trucks) with single rear wheels. Also includes LGVs towing a trailer or caravan as one 'LGV'. If a vehicle has sideguards fitted between axles, or four wheels on the rear axle it should NOT be included in this category.

OGV 1 (Ordinary Goods Vehicle 1)

All larger rigid vehicles with two or three axles including larger ambulances with double rear wheels, tractors (without trailers), road rollers for tarmac pressing, box vans, similar large vans and middle-sized trucks which have double rear wheels (if the rear wheels are single, the vehicle should be classified as LGV).

OGV 2 (Ordinary Goods Vehicle 2)

Includes all rigid vehicles with four or more axles and all articulated vehicles. Also included in this class are OGV1 goods vehicles towing a caravan or trailer..

The servicing trip frequency varies from daily, weekly, bi-weekly and monthly or more trips. This wide range in frequency is conducive to reducing conflict of the servicing trips with the daily operations associated with the construction of the windfarm.

6.5.1 Vehicular Access

In accordance with policy and best practice guidance, the design and movement strategy for the site has been carefully prepared to ensure that the redevelopment facilitates the efficient movement of vehicles and delivery of goods and supplies.

This is to ensure that interruptions to traffic flows are minimised, and that no impacts are experienced on local roads and by local residents.

Access to the development will be via the WDA Access Road and EDA Access Road.



Figure 15 WDA Access Road



Figure 16 EDA Access Road

6.5.2 Delivery Arrangements

All servicing will occur from WDA Access Road and/or EDA Access Road.

It is anticipated that service-related vehicles seeking to deliver to these facilities would be articulated lorries, rigid trucks, and medium sized boxed vans. This will be in addition to the haulage vehicles used to transport the wind turbine components.

The intended facility will be used 07:00-19:00 hrs a day during the construction period.

Deliveries to the facility will be booked in with the security to ensure only 1 delivery is made at a time. This will reduce the impact on the local road network.

Small deliveries i.e., post, office supplies, etc. will also be booked with the security who will

Deliveries and other non-car based vehicular trip will be directed to the site via the haul routes presented earlier in this report.

Visitors are also pre-booked with security, this allows and ensures security to control the number of visitors to site.

6.6 Delivery And Servicing Plan Strategy

6.6.1 Introduction

Orsted intends to follow best practice when arranging deliveries to the site. The proposed best practice measures have been reviewed under these headings:

- Business Behaviour
- Delivery Management
- Reducing Servicing and Delivery Trips

6.6.2 Raising Awareness

All suppliers to the site will be informed about the Service and Delivery Management Plan in relation to its function, aims and objectives and what individual occupiers can go to help encourage the use of sustainable delivery and servicing practices on site, as well as to and from it.

6.6.3 Procurement and Best Practice Suppliers

The procurement process should show an awareness of all vehicles visiting the site. The process should also identify any impacts associated with the servicing and deliveries of the development during the construction phase and the adoption appropriate measures to mitigate them.

Through the adoption of the Service and Delivery Management Plan to the businesses, focus will specifically be given to raising awareness of schemes such as the Fleet Operator Recognition Scheme (FORS) FORS. FORS is a UK based organisation but with members from Ireland.

FORS is a voluntary accreditation scheme for fleet operators. Its aim is to raise the level of quality within fleet operations and the FORS community to demonstrate exemplary level of best practice in safety, efficiency and environmental protection.

FORS provides a quality and performance benchmark for van, HGV and PCV operators and offer a range of exclusive accreditation benefits. Where possible, the Orsted will contract suppliers registered with the FORS scheme, or similar, to minimise the impacts associated with the delivery journey to and from the development.

6.6.4 Delivery Schedule

A Delivery Schedule (DS) will be created for the site and will be used to regulate, control and monitor the servicing and deliveries of the proposed development. The DS provides a detailed plan of all scheduled deliveries by day. The DS will be maintained, and all service providers will agree to it. Scheduled deliveries would be, subject to any local highway conditions/ restrictions or logistical considerations.

Following the completion of the construction phase, the DS will be updated regularly and reviewed to monitor the timings of deliveries and servicing. Doing so will enable the DS to be reviewed so that clashes and / or opportunities for revising the schedule can be identified.

6.6.5 Routing of Deliveries

The Orsted will have various requirements for equipment, supplies, etc and are likely to be sourced from manufacturers and suppliers that are not situated within the immediate vicinity of the proposed development.

The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities.

The access route will be designed to ensure deliveries are brought to the site in the shortest route possible while avoiding as many schools as possible (primary, secondary and Third Level). This is outlined in Section 3.6.3 of this report.

This will ensure that HGVs and other larger delivery vehicles will spend a minimum amount of time on regional roads and local streets whilst avoiding schools.

6.6.6 Loading / Unloading

The offloading areas will be managed by the security manager and /or security supervisors. Every delivery that enters the site will have previously issued an offloading procedure for each load. The loads will have been assigned an offloading area.

The offloading procedures will be highlighted in the induction training. Disciplinary action will be taken with any contractor who does not comply with the procedures.

The delivery drivers will be given strict instructions by the logistics manager prior to offloading. The offloading area will be a no-go area for people not trained in the relevant loading/unloading and H&S procedures.

No persons will access the back of a lorry unless the full edge protection is in place or fall prevention measures are in place. The detail will be issued with delivery and offloading instructions. The vehicles must switch off their engines whilst offloading area, unless the vehicle assists in the offloading process, i.e., vehicles with large replacement equipment.

6.6.7 Reducing Servicing and Delivery Trips

The Applicant operates a just-in time supply chain.

A just-in-time supply chain is one that moves material just before it's needed in the supply chain process.

The technique reduces the need to store excessive levels of materials in on site, and it works best when each operation is closely synchronized with the subsequent operations.

Subject to the flexibility of suppliers, there is scope to employ a 'just in time' approach to deliveries. As well as the positive impact this can have on the local highway network in terms of reduced vehicle activity the use of the 'just in time' system can also have positive impact for businesses in terms of order processing, inventory management and waste management.

This will help reduce the number of deliveries to/from the development as suppliers only attend site when required.

6.6.8 Suppliers

Measures consisting of improving the management of relationships with suppliers are seen as either short term, as in the case of specific delivery times and specified loading location, or

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medium term, in terms of rationalisation of suppliers and / or servicing companies. Except for the practical measure of specified loading location, these measures are considered strategic. These measures include supplier rationalisation, consolidated deliveries and allocated servicing times.

As servicing and supplier contracts are agreed there is the opportunity to consolidate deliveries at source thus minimising the amount of service vehicles serving the site.

6.6.9 Delivery Times

Where possible, deliveries will be arranged to avoid peak times. Vehicles for the delivery of inventory will be on a "Just in Time" basis and will be met by a site operative on arrival at the site. Site staff will be on hand to receive the delivery immediately, meaning that no deliveries will be let idle on Priestley Way.

6.7 Action Plan

6.7.1 Introduction

In support of the overarching principles of this SDMP, specific objectives have been developed to ensure the end user is able to meet the requirements. This an Outline Service and Delivery Management Plan and all actions will need to be reviewed by the end user as the proposed scheme develops.

Several measures have been developed, each with the objective of delivering goods and services and removing waste in a safe, efficient and environmentally friendly way:

- Develop site specific guidance on the delivery and servicing plan, particularly in relation to the impact of procurement procedures.
- Investigate whether specifying suppliers' use of delivery companies committed to sustainable freight distribution schemes (such as Freight Operator Recognition Scheme FORS or ECOStars) is feasible without distorting or preventing competition.
- Develop business case and recommended procedures for the onsite management of deliveries
- Recommend, via action plan reviews, that teams identified in SDMP scoping review as responsible for regular significant deliveries, review efficiency of deliveries annually.
- Identify core processes that can be managed centrally to control the impact on the number of delivery and servicing events
- Develop business case and implementation plan for core processes to be corporately managed i.e., centralised stationery

6.7.2 Management Plan

Orsted will have the responsibility of co-ordinating servicing and delivery movements of the site.

Orsted management team will be responsible for co-ordinating with their suppliers to ensure that delivery drivers are aware of the delivery procedure.

Orsted will also be responsible for collecting waste and transferring bins to the waste store on waste collection days.

6.7.2.1 Monitoring & Review

Orsted team will be responsible for the monitoring, implementation and updating of the delivery schedule.

6.8 Summary

This document has outlined a strategy to encourage the adoption of sustainable practices regarding the management of servicing and deliveries at the site. The overarching aim of this process is to minimise the impact of these activities both on site and the surrounding highway network.

In developing the site's strategy, a detailed policy review has been undertaken. Due to the site's location and parking / loading restrictions, main consideration has been given to business behaviour, delivery management and reducing the overall number of trips in developing measures for the site.

7 HAUL ROUTE ASSESSMENT

7.1 Context

A desktop study has been undertaken to locate potential pinch points along the proposed haul route that may required mitigation measures.

The desktop study was based on available OS mapping and utilised AutoCad Vehicle Tracking to simulate two HGVs traveling in the opposite direction along the anticipated haulage route. This is likely to be the worse case scenario.

7.2 Findings

A number of pinch points were identified along the proposed haulage route. These pinch points are illustrated in Appendix C. A sample of these pinch points are replicated below.

The figure below shows a typical narrowing in the road where two vehicles may find it difficult to pass.



Figure 17 Pinch Point in Road

The figure below shows a sample of where the road narrows to a point where only one vehicle can pass at a time.

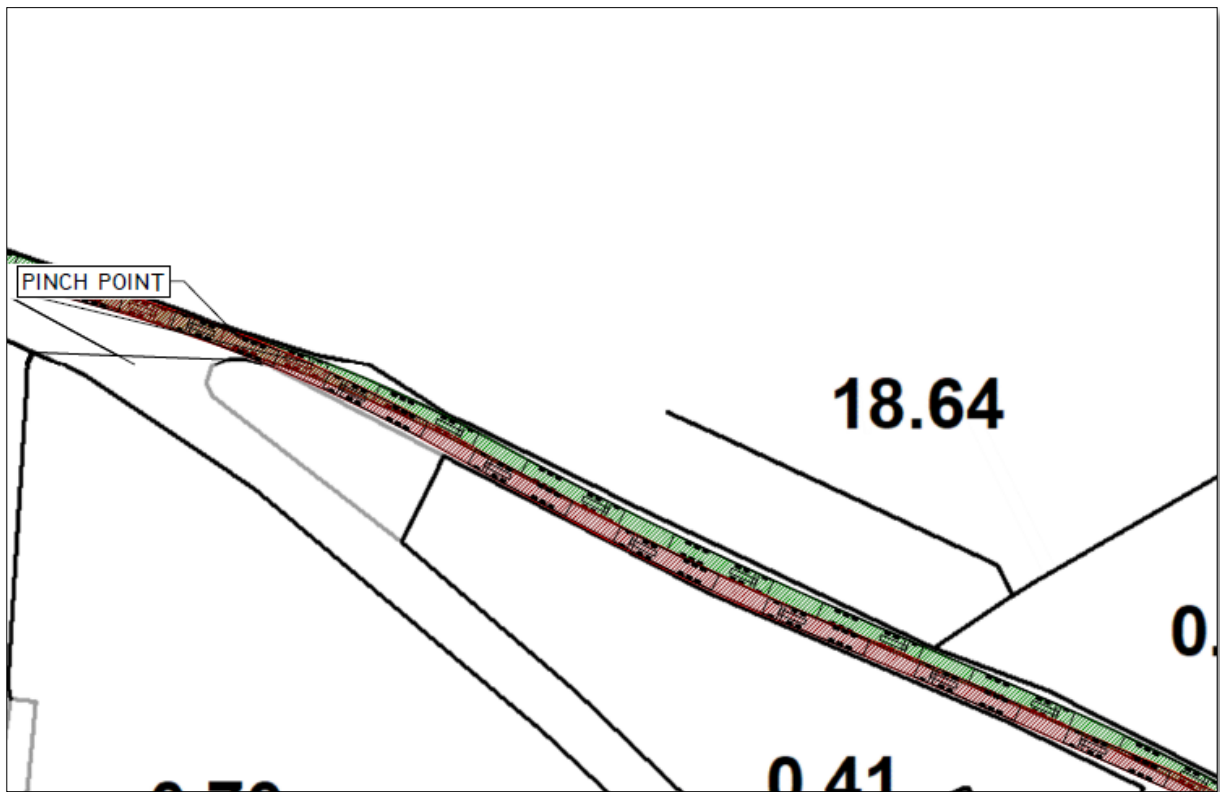


Figure 18 Narrowing in Road

The figure below shows a sample of where the road narrows to a point on approach to a bridge where only one vehicle can pass at a time.

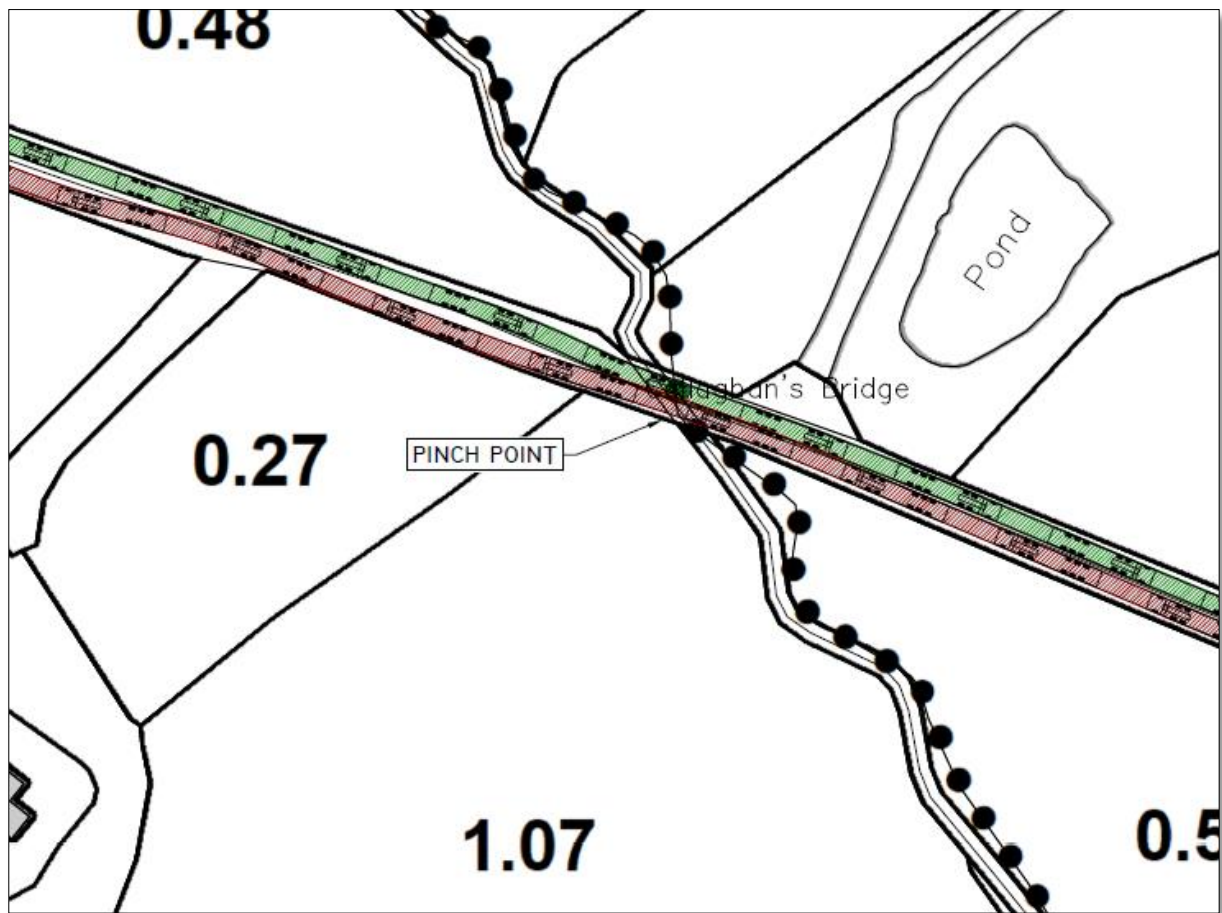


Figure 19 Narrow Bridge

7.3 Mitigation Measures

Where it is not possible for two HGVs to pass, a stop/yield system will be introduced. Based on a line of site, a vehicle must stop to allow an oncoming vehicle to pass where the road is not wide enough for two vehicles to pass.

This principle is illustrated below.

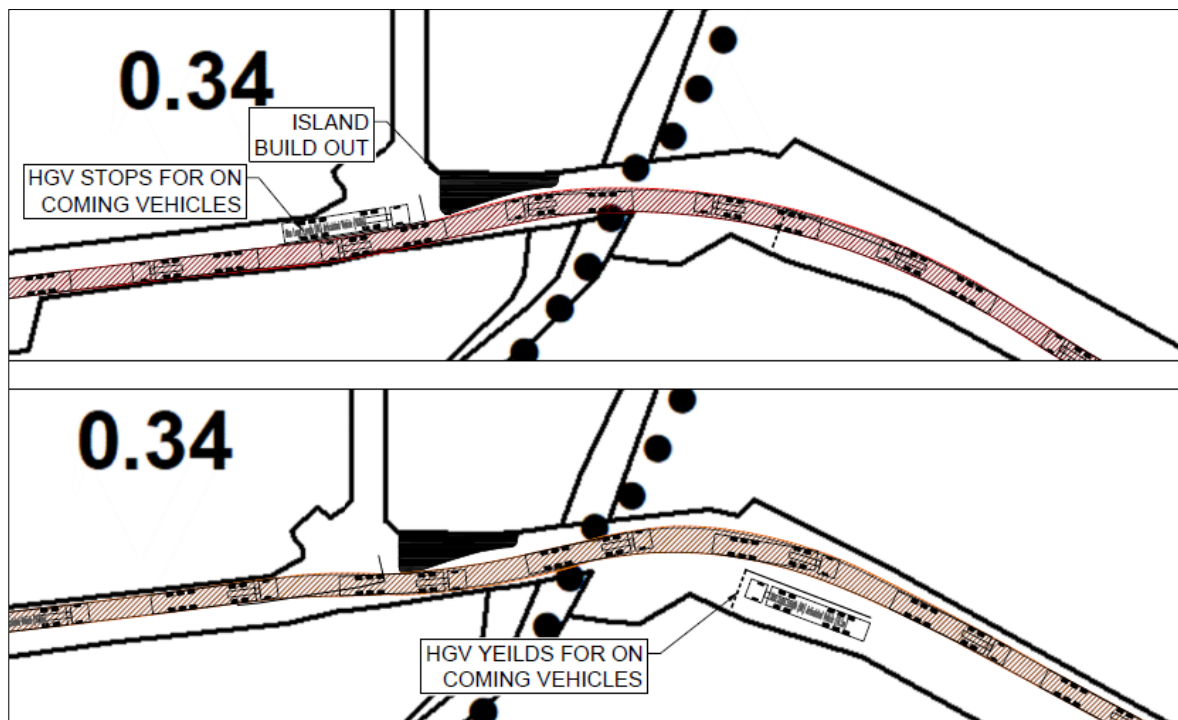


Figure 20 Stop/Yield System

7.4 Next Steps

Upon grant of planning, the haul routes will be agreed with the relevant Local Authorities. Once agreed, the haul routes will be subject to a topographical survey to identify potential pinch point in more detail.

Mitigation measures, as outlined in Section 7.3, will be agreed upon with the Local Authority.

8 CONCLUSION

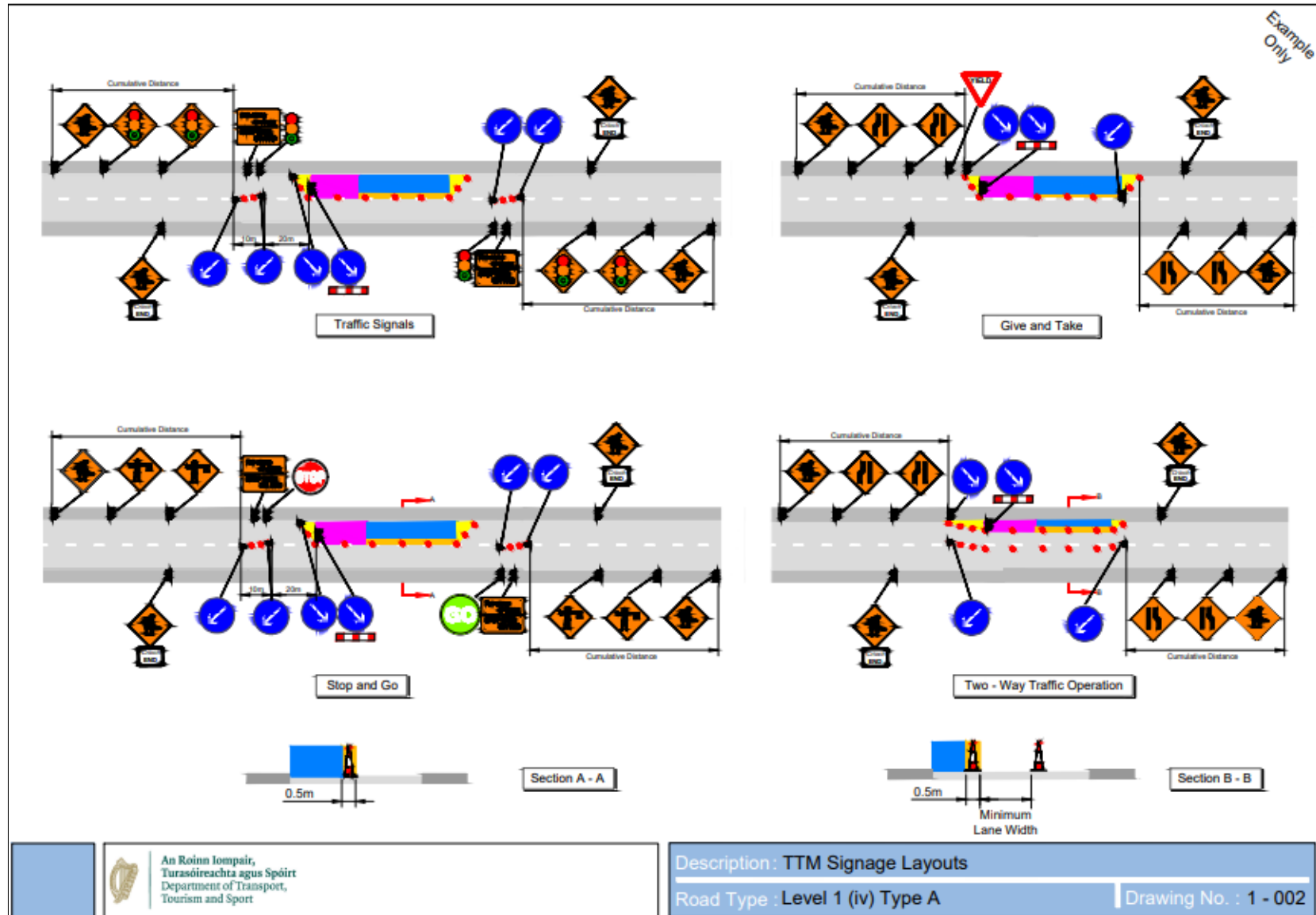
8.1 Conclusion

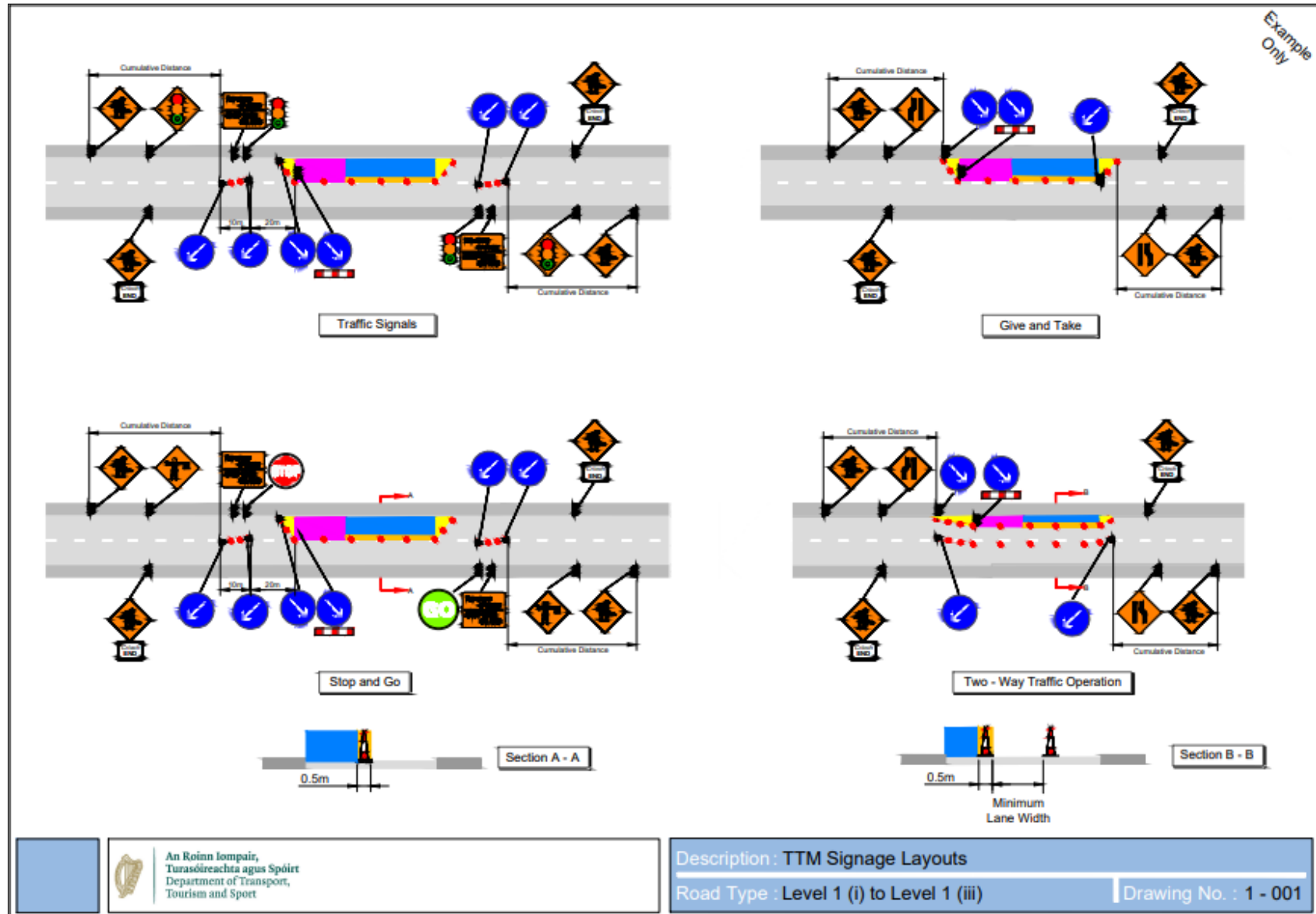
This Construction Traffic Management Plan will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

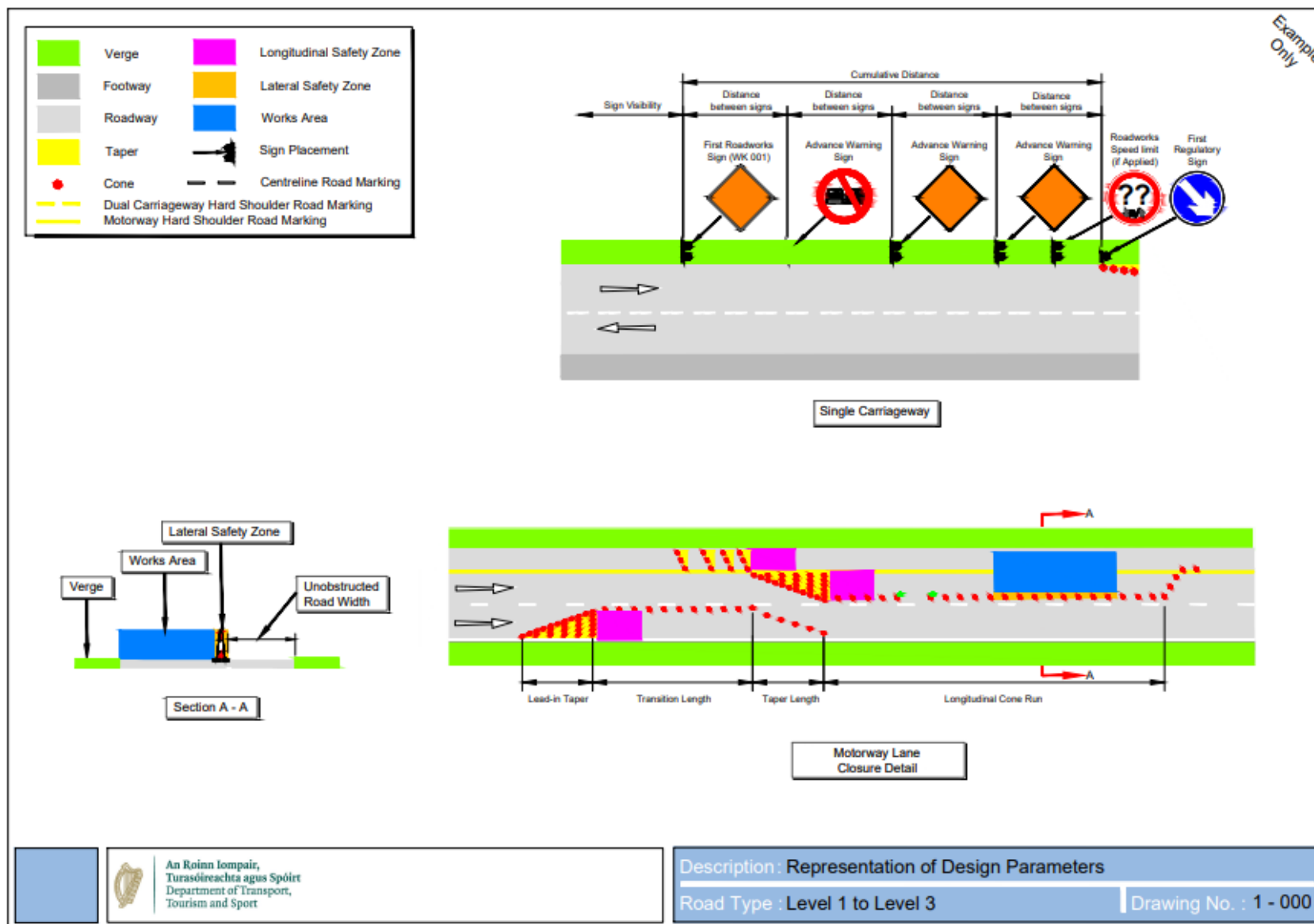
The outline Construction Traffic Management Plan shall be used by the appointed Main Contractor as a basis for the preparation of a final Construction Traffic Management Plan and shall detail, at a minimum, the items detailed in this outline Construction Traffic Management Plan and any subsequent requirements of the local authorities.

Ørsted shall be responsible for ensuring that the appointed Main Contractor manages the construction activities in accordance with this plan and shall ensure that any conditions of planning are incorporated into the final Construction Traffic Management Plan prepared by the appointed works Main Contractor.

Appendix A SAMPLE TEMPORARY TRAFFIC MANAGEMENT PLANS







Appendix B SAMPLE TEMPORARY TRAFFIC MANAGEMENT SIGNAGE



WK 001



WK 010



WK 011



WK 012



WK 013



WK 014



WK 014A



WK 015



WK 015A



WK 016



WK 017



WK 018



WK 019



WK 020



WK 021



WK 022



WK 023



WK 024



WK 030



WK 031



WK 032



WK 033



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WK 035



WK 040



WK 040A



WK 041



WK 041A

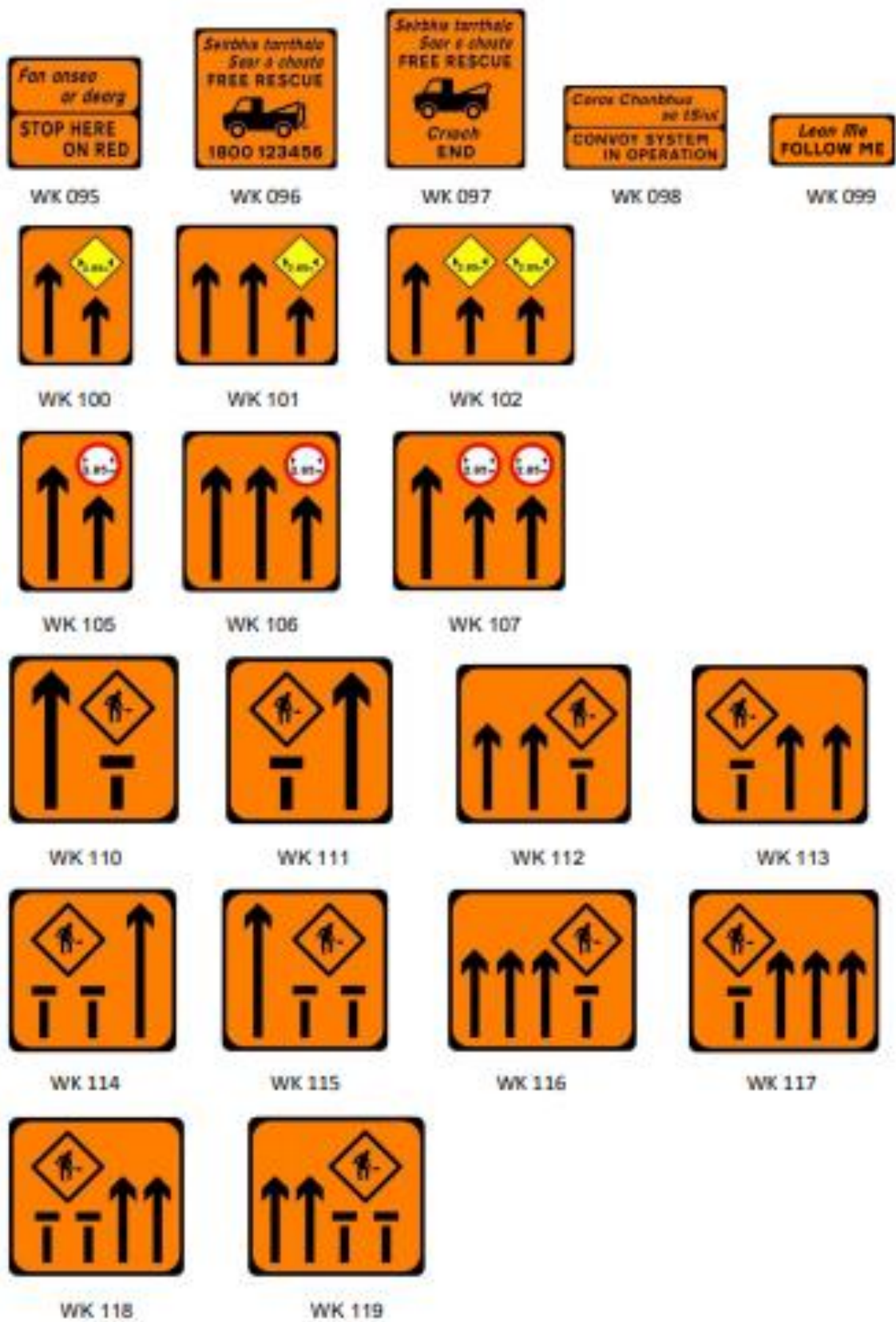


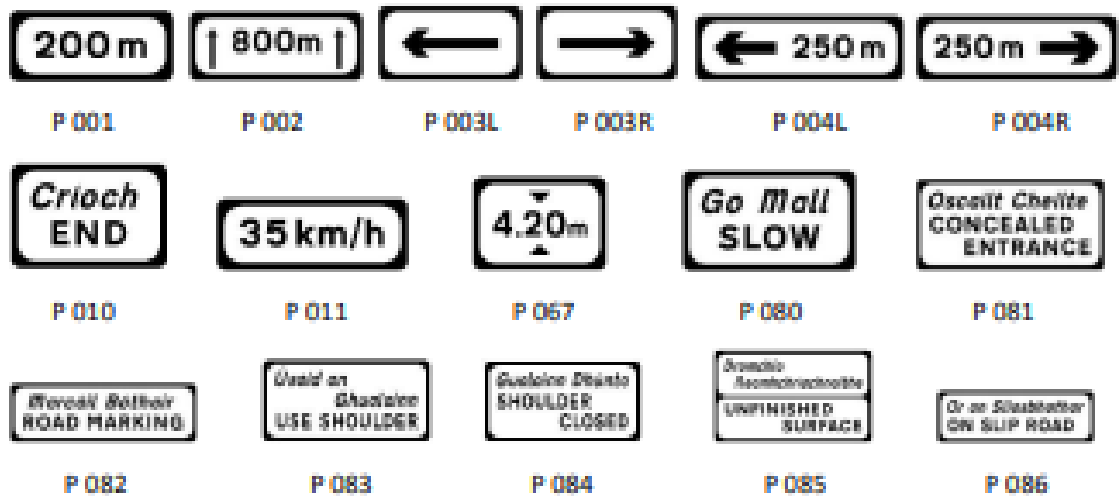
WK 042

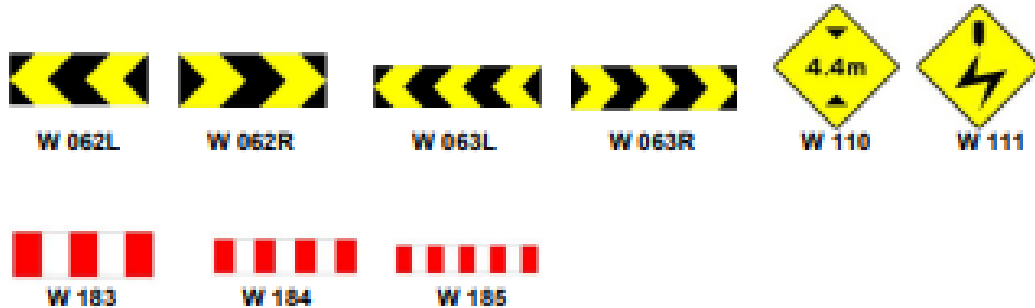


WK 042A









Regulatory Signs (See Chapter 5)



Information Signs (See Chapter 4)



Appendix C HAUL ROUTE TRACKING



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