

# Appendix 3-4

# Traffic Management Plan

## **Carrownagowan Wind Farm**

### **Traffic Management Plan**





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## 1 INTRODUCTION

It is proposed that two separate planning applications will be made by Coillte to An Bord Pleanála, in respect of the proposed wind energy project as set out below:

1. Application for the Carrownagowan Wind Farm (proposed development) , including substation, met mast, access tracks, borrow pits, works on the turbine delivery route; and
2. Application for the Grid Connection, which is the underground cable to provide a connection to the national grid from the Carrownagowan Wind Farm.

For the purposes of the development described, the ‘project’ includes both the proposed development and the Grid Connection. The current planning application relates to the proposed development, as outlined in Item 1 only.

This traffic management plan outlines the procedures to be implemented during the construction of the project for both the Carrownagowan Wind Farm and the underground grid connection route. Prior to the project commencing, a detailed traffic management plan will be produced by the appointed contractor.

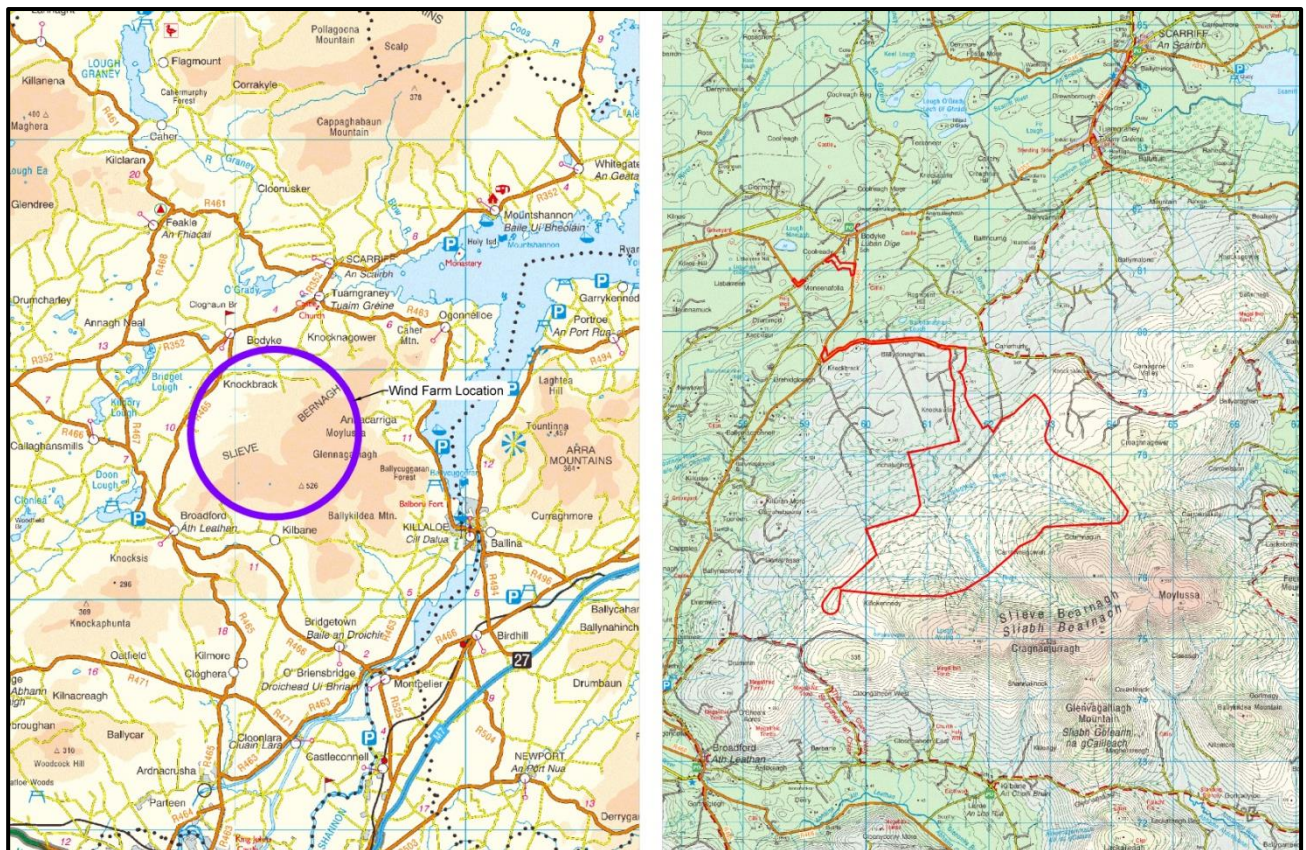


Figure 1-1 Site Location



## 2 TRANSPORT MANAGEMENT PRINCIPLES

The two core principles for planning, developing and implementing transport management proposals are:

- To maximise the safety of the workforce and the travelling public.
- To keep traffic flowing as freely as possible and reduce the impact of the construction traffic and road works to a minimum.

For the purposes of the works to be carried out in order to ensure that there is minimal effect on the commercial and socio-economic life of the surrounding areas, the appointed contractor will have regard to the above principles. The appointed contractor shall endeavour to meet these objectives by proper planning of the project and by compliance with the relevant procedures as outlined in Section 5.2. Against this background, and in the context of the construction of the wind farm and grid connection cable route, the appointed contractor shall properly plan and manage the project to ensure that:

- Works within the road network do not result in a safety hazard to road users or the workforce involved in the project.
- Any resulting increase in traffic delays and congestion are minimised.

The appointed contractor will liaise with An Garda Síochána and Clare County Council in the event of other planned construction schemes in the area. The appointed contractor will recognise that other external factors such as severe weather events can affect traffic flow close to the project and will endeavour to minimise the effect of the works on traffic in the planning and programming of the works at construction stage.

### **3 CONSTRUCTION WORKS**

#### **3.1 WIND FARM**

Carrownagowan Wind Farm is located within the townlands of Caherhurly, Carrownagowan, Coumnagun, Inchalughoge and Ballydonaghan near Broadford in County Clare. The proposed development consists of 19 no. wind turbines and all associated infrastructure including crane hardstands, access roads, a permanent meteorological mast, 2 no. temporary site construction compounds, underground cables etc.

Construction of this wind farm will result in an increase in traffic on the L-8221 Local road as all traffic entering and exiting the site will do so via an existing site entrance to the wind farm. The site is connected to the R455 Regional road via the L-8221 Local road. The site will also be accessed via two new access junctions from the L-8218 Local Road which runs through the site.

##### **3.1.1 Mitigation Measures**

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 exit of the wind farm site as illustrated below in Figure 3-1. In addition to this a road sweeper will operate on the L-8221 and L-8218 Local roads 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 signage at all junctions and distances to passing areas clearly indicated along the L-8221 and L-8218 Local roads

##### **3.1.2 Road Safety and Courtesy Protocol**

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



**Figure 3-1 Typical wheel wash using the dry ramp system**

### **3.1.3 Construction Phasing**

The phases of the development can be broadly summarised in terms of traffic management in 3 steps:

1. Access road / crane hardstand / substation construction
2. Turbine base construction
3. Turbine erection

#### **3.1.3.1 Access Road / Crane Hardstand / Substation Construction**

All construction transport including deliveries of quarry and building materials, will use the L-8221 Local road as the designated delivery route for the wind farm. During the construction of the access roads, crane hardstands and substation buildings, a worst case scenario estimates that the maximum number of loads to be delivered to the wind farm work area would be approximately 8,655 (total for Civil & Electrical Works) as shown in Table 7—1. This includes loads of aggregate capping material, concrete, reinforcing steel, geotextiles, electrical cabling, switchgear and general building materials. Much of the stone for the access road construction within the wind farm will be sourced from the proposed 3 no. onsite borrow pits which will reduce the number of haulage deliveries required. It is proposed to source any imported capping aggregate from local quarries in the area.

Construction traffic will be limited to an appropriate speed limit to be set by the appointed contractor along local roads. As described in Section 3.1.2 a construction traffic safety and courtesy protocol will be implemented to manage the traffic for delivery of materials. A traffic coordinator will be employed full time during this construction period to implement speed limitations and construction traffic safety and courtesy protocol.

### **3.1.3.2 Turbine Base Construction**

A wind turbine with a ground bearing concrete foundation will require a concrete pour of circa 700m<sup>3</sup> during its construction. This volume of concrete will require between 85 and 90 loads of concrete in one day to complete. This is the same level of traffic use as a 35Ha silage harvest. There will be 19 of these pours within the wind farm. The pours would generally start early in the morning and be complete in early afternoon. Normal deliveries will be curtailed during concrete pours until the pour is completed. Concrete pours are weather dependant but are normally planned and scheduled in advance and written notice of each base pour can be hand posted to residents along the local access roads a day in advance. During pours a second escort vehicle will be utilised to maintain construction traffic safety and courtesy.

### **3.1.3.3 Turbine Erection**

#### **3.1.3.3.1 Turbine Delivery Route**

The components for the 19 no. turbines will be delivered by cargo ships to either Foynes Port in County Limerick or Galway Port in Galway City. The components for each turbine will be delivered in separate loads, some of which are abnormal in terms of their width and length. The components will be transported from either Foynes Port or Galway Port to the site along the Motorway, 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 use of the site, 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 road route for starting at Galway Port is as follows as shown in Figure 3-2:

- I. Starting at Galway Port;
- II. Lough Atalia Road to the R339 Regional road (Wellbrook Road);
- III. Wellbrook Road to the R336 Regional road (Tuam Road);
- IV. Tuam Road to the N6 National Primary road (Bóthar na dTreabh);
- V. Bóthar na dTreabh to the M6 Motorway;
- VI. M6 Motorway to the M6 / M18 Motorway interchange;
- VII. M6 / M18 Motorway interchange to Junction 18 on the M18 Motorway;
- VIII. Junction 18 on the M18 Motorway to Coolready on the R352 Regional road;
- IX. Coolready to the Junction of the R465 Regional road / L-8221 Local road;
- X. L-8221 Local road to the site entrance.



Alternatively the road route for starting at Foynes Port is as follows as shown in Figure 3-2:

- I. Starting at Foynes Port;
- II. N69 National Secondary road to Junction 2 on the N18 National Primary road;
- III. Junction 2 on the N18 National Primary road to Junction 18 on the M18 Motorway;
- IV. Junction 18 on the M18 Motorway to Coolready on the R352 Regional road;
- V. Coolready to the Junction of the R465 Regional road / L-8221 Local road;
- VI. L-8221 Local road to the site entrance.

The Limerick Tunnel on the N18 National Primary road has a height clearance of 4.65m and will accommodate the turbine blades and the upper tower sections on the route above. However, it may not be high enough for the bottom tower sections or the nacelles for the turbine types envisaged on this project. Therefore these turbine components will travel as follows:

- I. Starting at Foynes Port;
- II. N69 National Secondary road to Junction 2 on the N18 National Primary road;
- III. Junction 2 on the N18 National road to Shannon Bridge on the R510 Regional road;
- IV. Shannon Bridge to the Roundabout on the R527 Regional road / R857 Regional road;
- V. R857 Regional road to Junction 4 on the N18 National Primary road;
- VI. Junction 4 on the N18 National Primary road to Junction 18 on the M18 Motorway;
- VII. Junction 18 on the M18 Motorway to Coolready on the R352 Regional road;
- VIII. Coolready to the Junction of the R465 Regional road / L-8221 Local road;
- IX. L-8221 Local road to the site entrance.

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. As mentioned above deliveries are done under a permit system from An Garda Síochána and are fully escorted for the entire delivery. Turbine delivery normally consists of three trucks in convoy with their escorts. The convoy will proceed along the local access roads at speeds less than 25km/h but such that they will not cause any undue delay to any encountered resident.

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 residential property it passes.



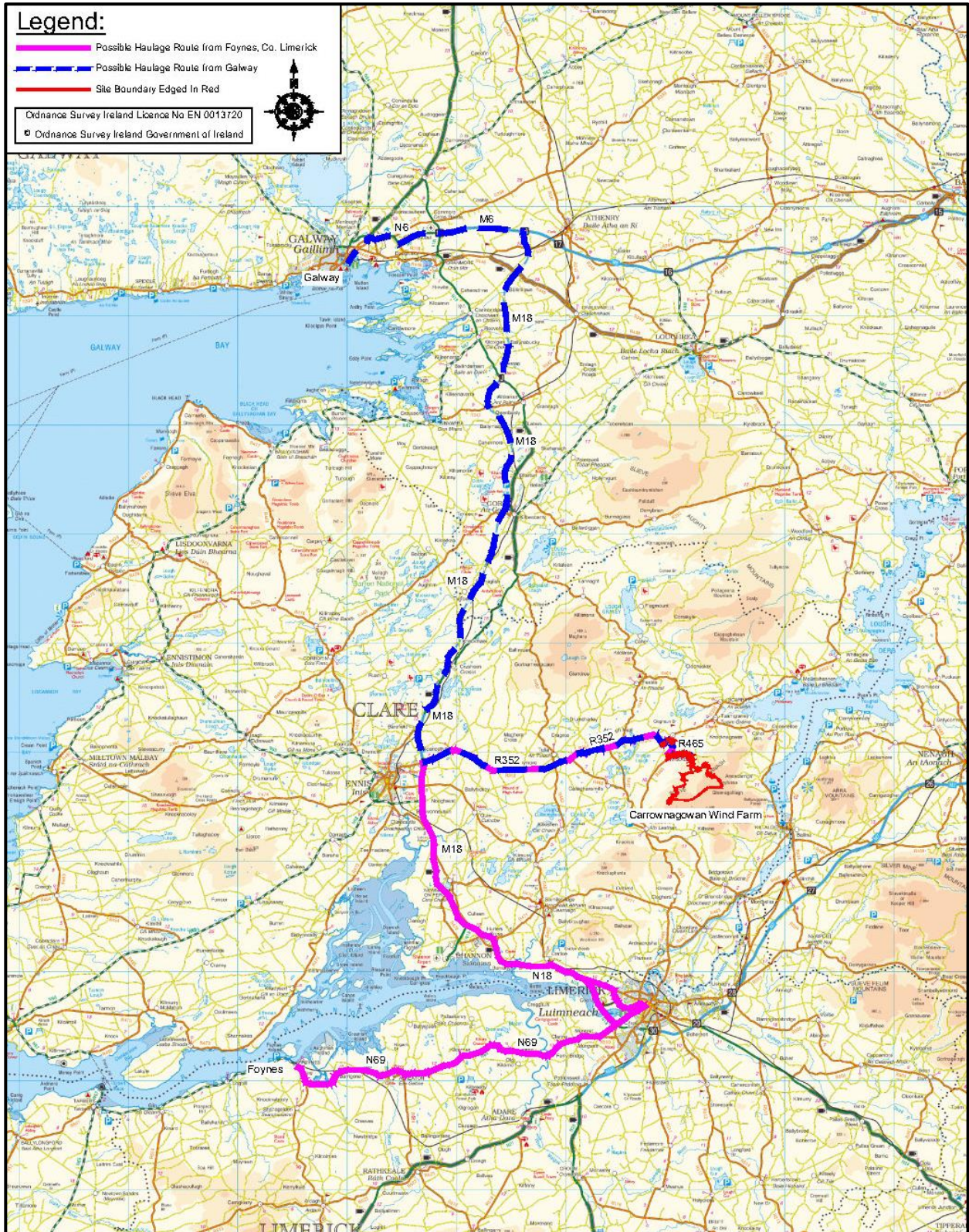


Figure 3-2 Turbine Delivery haulage Route Map



### **3.1.3.4 Public Road Works for Turbine Delivery**

On the Regional road network to the wind farm site, an existing 90 degree bend on the R352 Regional road at Coolready is unsuitable for transporting turbine blades and third party land will be required to facilitate widening on the northern side of the bend. The junction of the R352 and R465 Regional roads in Bodyke is not suitable for turbine delivery nor are deliveries feasible at the preceding bend on the R352 Regional road. Consequently, a new section of access road is required through third party land to the south of Bodyke at Coolready and Ballydonaghan in order to access the R465 Regional road from the R352 Regional road. Additionally, the existing junction of the R465 Regional road and L-8221 Local road at Drummod is bound on two sides by private houses and will require a new section of access road through third party lands for turbine deliveries to successfully turn onto the L-8221 Local road from the R465 Regional road. All material generated from the excavation works at these areas will be reused where possible or will be brought to an authorised waste facility. Any imported crushed stone and capping aggregate required for these works will be sourced from local quarries in the area where possible.

Widening of the Local road network to the wind farm site is envisaged along the L-8221 Local road from its junction with the R465 Regional road to Caherhurlly. This road has a paved width of between 3.0m to 3.5m between there and the site entrance for a distance of approximately 2.3km and will require widening to 5.0m to facilitate the delivery of turbine components. This increased width will allow for two cars or a car and a truck to pass by each other. This section of road will be strengthened by overlaying with 100mm of asphalt concrete on geogrid and sealed with double surface dressing. It is envisaged that the road widening and strengthening works will be carried out under a road opening licence from Clare County Council and that it will be funded by the developer. It is recommended that a reinforced concrete slab be installed above each of the identified structures along the L-8221 Local road to ensure that they have sufficient structural capacity to cater for the delivery of abnormal loads to the wind farm. The widening of the L-8221 Local road will be permanent and will be of long-term benefit to local road users. All material generated from the excavation works along the L-8221 Local road will be brought to an authorised waste facility

The existing site entrance to the wind farm on the L-8221 Local road will require widening on its eastern side to allow the long turbine component loads turn south at this point. The widened area of the junction will be cordoned off to a radius of 10m for normal traffic and the space will only be made available specifically for turbine delivery. Following completion of the project the widened area will remain in place by cordoning off the area with a permanent fence installed to a 12m junction radius. This area will only be made available for any replacement turbine component deliveries. The design of the widened junction for the turning movement of the longest load, which is the turbine blade truck, has been verified using swept path analysis software.

There is already a substantial network of existing access roads within the Coillte site. One of these roads includes the L-8218 Local road which will be utilised in providing access to the western side of the site. The L-8218 will be widened to a drivable width of 5.0m over a length of 0.7km. This section of road will be strengthened by overlaying with asphalt concrete or double surface dressing as agreed with Clare County Council. It is envisaged that Clare County Council will carry out the road widening and strengthening works on this road and that it will be funded by the developer. Two new junctions will be constructed on the L-8218 Local road so that access can be provided from the main site entrance on the L-8221 Local road to the rest of the wind farm. Each junction will have widened splays on their western side in order for turbine deliveries to turn and manoeuvre successfully. Following completion of the project these widened splays will be cordoned off to a radius of 10m for normal traffic and the space will only be made available specifically for replacement turbine component deliveries.

Permanent access to the wind farm during the operational phase will only be from the L-8221 and L-8218 Local road entrances. Operational access from the L-8221 and L-8218 Local roads will be limited to cars and light goods vehicles. The L-30302 Local road to the south of the site will not be used for access to the wind farm and does not require any widening or strengthening works.

The majority of the turbine delivery route will follow Motorway, National Primary and Regional roads as described in Section 3.1.3.3.1. As such, it is not anticipated that any significant widening or strengthening of roads will be required along the transport routes apart from the works described above. There may be a requirement, pending final confirmation of the transport delivery configuration at construction stage, for the temporary removal of road signage and/or temporary widening of grass road verges in order to cater for the swept path of these abnormal delivery vehicles. The developer shall consult with the Road / Area Engineers of the relevant local authorities to temporarily remove any road signage and provide temporary grass verge widening where this may be required.

### 3.1.4 Schedule of Wind Farm Construction Works / Construction Schedule

The proposed duration for the wind farm works would be of the order of 18 months. The construction work will be phased as outline in Table 3—1 below. A number of these phases will however run concurrently as follows.

- As the internal site access roads are constructed up to each turbine, hardstand areas for the crane, turbine foundations will be prepared.
- Once the roads are completed, the trenching and laying of underground cables adjacent to the roads will begin.
- Construction of the site substation compound and substation buildings will commence so that they will be ready to export power as turbines are commissioned.

Phase	Activity
Phase 1	Prepare site, Pre-construction activities, Site entrance
Phase 2	Access Road Construction + Drainage Plan Implementation
Phase 3	Crane Hardstand Construction
Phase 4	Turbine Foundation Construction
Phase 5	Substation Construction
Phase 6	Internal Trenching and Ducting
Phase 7	Turbine Delivery
Phase 8	Turbine Erection
Phase 9	Permanent Meteorological Mast Erection
Phase 10	Wind Farm Commissioning

**Table 3—1 Typical Development Phasing**



### 3.2 UNDERGROUND GRID CONNECTION

As part of the project the Carrownagowan Wind Farm will be connected via an underground grid connection cable to the existing ESB Networks owned 110kV substation at Ardnacrusha, County Clare which will allow the electrical energy generated from the wind farm to be exported onto the national grid.

The grid connection route between the Carrownagowan Wind Farm and the existing 110kV substation in Ardnacrusha begins at the proposed wind farm substation within the townland of Caherhurly. It will travel underground along the L-8218 Local road for a distance of 0.7km and along proposed internal wind farm roads within the townlands of Killokennedy and Cloongaheen West before emerging onto the L-30302 Local road. From here the grid connection route will travel in a southern direction along the L-30302 Local road through the townland of Cloongaheen West for a distance of 2.5km until it reaches the L-7004 Local road. At this point the route will travel east along the L-7004 Local road through the townlands of Cloongaheen East and Kilbane for a distance of 2.3km until it reaches the village of Kilbane. The route will continue past the village of Kilbane along the L-3022 Local road through the townlands of Killeagy (Goonan), Ballymoloney, Cloonygonry Beg and Ballyquin More for a distance of 2.4km until it reaches the R466 Regional road. After this point the grid connection route will travel in a southwest direction along the R466 Regional road for a distance of 0.9km until it reaches the L-3044 Local road. From here the grid connection route will travel along the L-3044 Local road through the townlands of Springmount, Leitrim, Fahy More (South), Aharinaghmore and Ballybrack for a distance of 4.2km until it reaches Harols Cross Roads which is located on the R471 Regional road.

At Harols Cross Roads the grid connection route will travel west along the R471 Regional road through the townlands of Tooreen, Aharinaghbeg and Cloghera for a distance of 2.6km before turning south onto the L-70661 Local road. The route will travel in a southern direction along the L-70661 Local road for a distance of 1.3km through the townlands of Cloghera and Trough until it reaches the L-7066 Local road. From here the grid connection route travels along the L-7066 Local road for a distance of 0.7km through the townlands of Knockdonagh and Roo West until it reaches the L-3054 Local road. At this point the grid connection route continues to travel in a southern direction along the L-3054 Local road for a distance of 2.1km through the townlands of Lakyle and Glenlon South until it reaches the L-3056 Local road. Upon reaching this point the grid connection route will travel west for a short distance of 0.2km along the L-3056 Local road before turning south into the ESB Networks owned Ardnacrusha 110kV Substation located within the townlands of Castlebank and Ardnacrusha. The full length of the Carrownagowan Wind Farm grid connection route is approximately 25km.

The goal of a traffic management plan is to provide a safe working environment for cable workers and efficient passage of traffic and other road users through the cable works site. The procedures to be implemented by the appointed contractor will include the provision of facilities for the safe passage of pedestrian and vehicular traffic and measures to separate them from the construction work.

The appointed 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*.

This traffic management plan is for planning purposes only and a final traffic management plan will be produced at construction stage by the appointed contractor.

### 3.2.1 Construction Programme

The active construction area along the grid connection route will generally be only along a 100-200m stretch of any roadway at any one time. The works for the grid connection route are estimated to take approximately 10 months. During the first 5 months the cable trenches will be constructed. The second 5 months will involve sequentially opening up all joint bays (these are pre-cast concrete chambers that will be required along the grid connection route over its entire length) and pulling electrical cables pulled through ducts and then joining each cable together. There is anticipated to be 35 joint bays with 2-3 days' work involved at each. Construction activities along the grid connection route would operate between the hours 8:00 a.m. and 8:00 p.m., Monday to Friday, and between the hours 8:00 a.m. to 6:00 p.m. on Saturday (if required), which equates to a 70 hour week of operation. Any deviations to these times will be agreed in advance with Clare County Council. It is expected that the civil works for the grid connection route will require at least 10 personnel to complete the works. The electrical works will require less heavy machinery but more labour personnel.

### 3.2.2 Description of Works for Construction of Grid Connection Cable Route

The installation of the grid connection 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 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 suitability 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 grid connection route and associated road areas will receive a new permanent macadam finish as agreed with Clare County Council.
- Joint bays are to be installed where required along the grid connection route in the public road or along the grass margin of the public road. Once installed they are temporarily reinstated until they are opened

again to allow for pulling cables through the ducts and jointing the cables afterwards. The joint bays will then be permanently backfilled and reinstated to the satisfaction of Clare County Council.

- Directional drilling will be used where there is insufficient cover on a bridge crossing to allow the grid connection route pass over the crossing in a standard trefoil formation. The launch and reception pits to be made in the public road or grass margin will be permanently backfilled and reinstated to the satisfaction of 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 grid connection route, both pre and post construction. This will include a video survey of the road extent with any significant dilapidations further recorded by photography and local surveying as required.

## 4 EXISTING ROAD NETWORK

The road network for the wind farm site and grid connection cable route is shown in Figure 4-1. A summary of works for the wind farm and grid connection cable route on the public road for each type of road network is described below.

### 4.1.1 Motorway Network

There are no Motorways directly affected by the wind farm and grid connection cable route works.

### 4.1.2 National Primary Road Network

There are no National Primary Roads directly affected by the wind farm and grid connection cable route works.

### 4.1.3 National Secondary Road Network

There are no National Secondary Roads directly affected by the wind farm and grid connection cable route works.

### 4.1.4 Regional Road Network

The following regional roads in County Clare will only be affected by the grid connection cable route works over the approximate lengths shown:

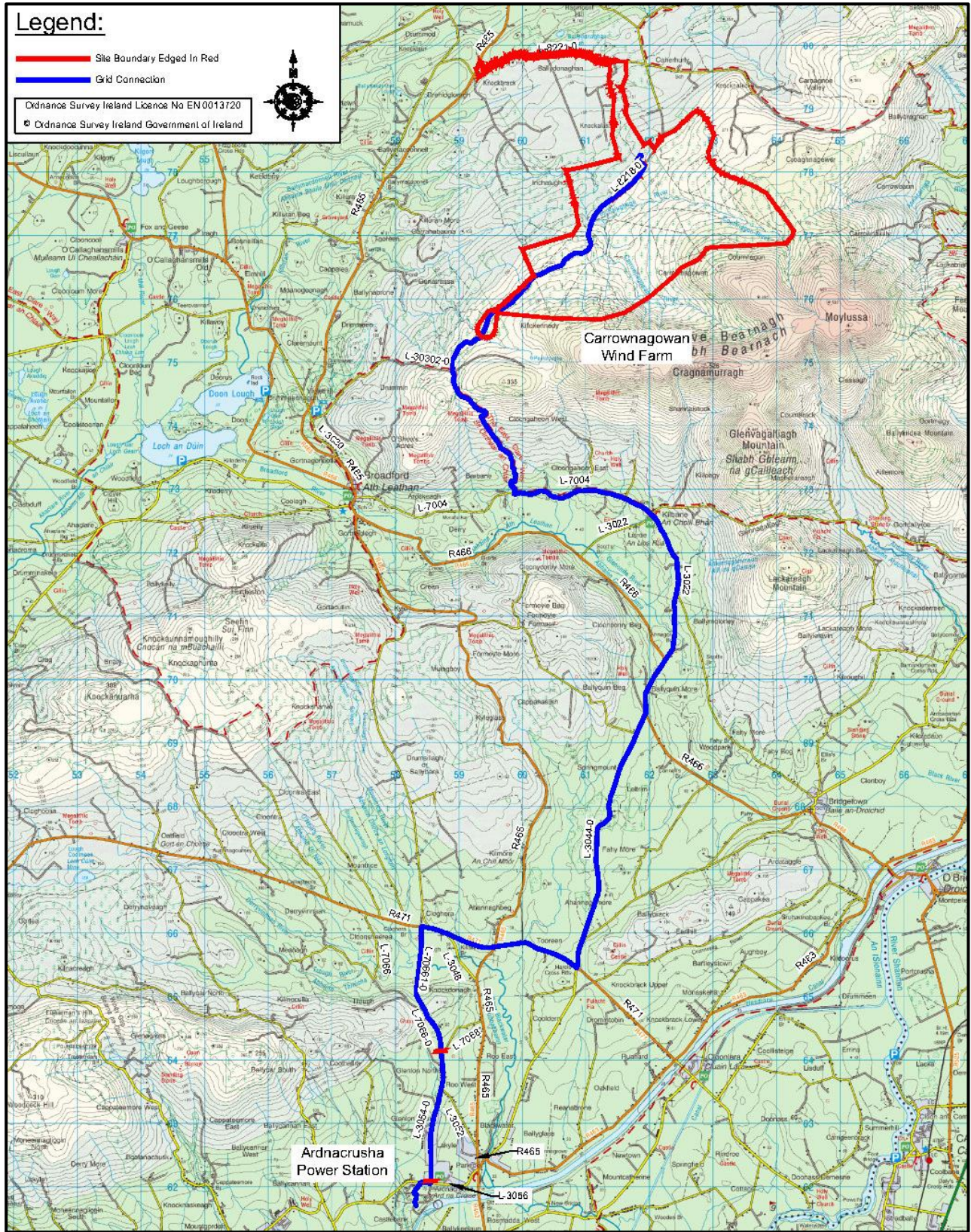
- R466: The L-3022 / R466 junction at Ballyquin Beg to the R466 / L-3044 junction at Springmount (900 metres)
- R471: Harols Cross Roads to the R466 / L-70661 junction at Cloghera (2.6 kilometres)

### 4.1.5 Local Road Network

The following local roads in County Clare will be affected by the wind farm and grid connection cable route works over the approximate lengths shown:

- L-8221-0: The R465 / L-8221 junction at Drummod to the proposed wind farm entrance at Caherhurly (2.3 kilometres)
- L-8218-0: Caherhurly to Killokennedy (700 metres)
- L-30302-0: Killokennedy to the L-30302 / L-7004 junction at Cloongaheen West (2.5 kilometres)
- L-7004-17: The L-30302 / L-7004 junction at Cloongaheen West to Kilbane (2.3 kilometres)
- L-3022-8: Kilbane to the L-3022 / R466 junction at Ballyquin Beg (2.4 kilometres)
- L-3044-0: The R466 / L-3044 junction at Springmount to Harols Cross Roads (4.2 kilometres)
- L-70661-0: The R466 / L-70661 junction at Cloghera to the L-70661 / L-7066 junction at Trough (1.3 kilometres)
- L-7066-0: The L-70661 / L-7066 junction at Trough to Roo West (700 metres)
- L-3054-0: Roo West to the L-3054 / L-3056 junction at Lakyle (2.1 kilometres)
- L-3056-0: L-3054 / L-3056 junction at Lakyle to Ardnacrushna Power Station at Castlebank (200 metres)







## 5 TRAFFIC MANAGEMENT PLAN

### 5.1 DUTIES AND RESPONSIBILITIES

The following parties will have an input into traffic management and will be kept informed by the appointed contractor of developments in relation to traffic management:

- Appointed Contractor
- Project Supervisor Construction Stage (PSCS)
- Project Supervisor Design Process (PSDP)
- An Garda Síochána
- Road Engineers for Local Authority (Clare County Council)
- Emergency Services

#### 5.1.1 Appointed Contractor

The appointed contractor shall consult with An Garda Síochána, the emergency services and all other relevant parties listed above during the preparation of any traffic management proposals. The appointed contractor whether as their role as PSCS will co-ordinate the implementation of the developed traffic management. Where any issues arise with the traffic management plan, they shall consult with the relevant parties to revise or modify the traffic management plan to each parties satisfaction.

#### 5.1.2 An Garda Síochána

An Garda Síochána shall have final authority with regard to day-to-day traffic control. The appointed contractor will comply with all directions, instructions and requirements of An Garda Síochána.

#### 5.1.3 Road Engineers For Local Authority

Road Engineers for Clare County Council are primarily engaged in the maintenance and management of the road network and its services in the area of the wind farm and grid connection cable route. In respect of all works on, under, and above the road network, they are empowered as officers of the Road Authority to issue directions to undertakers of all works in relation to timing, the manner in which works are carried out, reinstatement and satisfactory completion. The appointed contractor will ensure to work with the Roads Department of Clare County Council at all times.

#### 5.1.4 Emergency Services

In relation to accidents occurring on or caused by the works, the appointed contractor will provide all necessary assistance to deal with any emergency to An Garda Síochána, Ambulance and Fire Brigade services. The appointed contractor will consult with the emergency services providers regarding the traffic proposals for work in public areas/on public roads.

In the event that emergency services need to travel past the works area where a road closure is not active, the existing traffic management system, be it stop/go or traffic lights, may need to be cancelled and priority given to the emergency vehicle.

Where a road closure is active, the emergency services will have been notified of suitable diversions. If the emergency is located along the works area, the appointed contractor will allow the emergency services to pass the works area by removing machinery from the road in an orderly fashion and allowing the emergency services pass under the supervision of the team leader. In the event of a road crossing, steel road plates will be available at the works area to span the trench in the event of an emergency.

## 5.2 TRAFFIC MANAGEMENT PROCEDURES

### 5.2.1 Traffic Control Tools

The appointed contractor will use a range of traffic control tools, including temporary road closures, temporary traffic lights, stop/go boards, two way radios, safety barriers, cones, signage etc. Each crew on site will have personnel on site trained in Signing Lighting and Guarding/Health and Safety at Road Works. Communication/Instruction of the Traffic Management Plan will come from the Project Manager and communicated to site personnel with the relevant training.

### 5.2.2 Road Closures

When a road closure is necessary to carry out works, the appointed contractor will seek a Temporary Closing of Roads Order. The appointed contractor will advise Clare County Council of the following:

- Name of the road to be closed.
- Location of closing points.
- Date and period of closure required.
- Reasons for closure.
- Details of alternative routes.
- Details of method of traffic management and maintenance of alternative routes, including sign posting and traffic control plans.

### 5.2.3 Traffic Diversions

Where traffic diversions are necessary due to temporary road closures associated with the wind farm and grid connection works, the appointed contractor will advise Clare County Council of the following details:

- Location of proposed diversion.
- Reasons for specific traffic diversion.
- Duration of proposed diversion.
- Plan of diversion routes.
- Details for management and control of proposed method of diversion route traffic, including sign posting layouts and locations.
- Details of proposed system of diversion route maintenance and repair, including existing carriageway and street furniture etc.
- Details of proposed system of public communications and public liaison.

Alternative routes where traffic is to be diverted on will require an inspection prior to diverting traffic. These will need to be inspected again closer to the time of the works to ensure no hazards have occurred since the traffic management plan was developed.

#### **5.2.4 Lane Width Restrictions**

Where lane width restrictions are necessary due to the construction of the grid connection cable route, the appointed contractor will advise Clare County Council of the following details:

- Reasons for lane width restrictions.
- Details of restricted width of traffic lane.
- Details of associated signage and warnings to motorists and pedestrians, including road markings.
- Details of proposed system of public communications and public liaison.
- Temporary footpaths.

#### **5.2.5 Public Notices**

Public notices in respect of road closures or other traffic management tools are the responsibility of the Roads Authority (Clare County Council) who will undertake to publish such notices.

#### **5.2.6 Communications**

The developer is committed to providing a high level of communication to the general public and business community regarding the extent and duration of the project. The appointed contractor will co-operate with the employer in this regard.

The employer / appointed contractor will advise to the public:

- Commencement and duration periods for the works
- Current and proposed road closures or other traffic management tools.
- Alternative routes.
- Provision for access / egress.

In the event of potential conflicts arising from construction activities, such conflicts shall be resolved, if possible, in consultation with Clare County Council, the appointed contractor and where necessary An Garda Síochána.



## 5.3 TRAFFIC MANAGEMENT AND CONTROL PROCEDURES

### 5.3.1 General

- Excavation, backfilling and reinstatement of trenches in roads will be completed within the shortest possible time frame.
- The planning of road closures and traffic diversions will ensure that reinstatement of the trenches, joint bays, launch and reception pits are completed and all temporary traffic measures (lane and road closures/diversions) are removed in progressive stages.

### 5.3.2 Access for Residents

- The appointed contractor shall make provision for safe access at all times to private residences in proximity to the construction works.
- Steel plates or stone will be made available to allow access to residential properties. This will be done in co-operation / communication with local residents in the area.
- The appointed contractor will inform local residents of the programme of works in their area and local access will be catered for where possible.

### 5.3.3 Access to Commercial / Business Properties

- The appointed contractor shall make provision for safe access to commercial and business premises for employees, customers, the general public and for deliveries.

### 5.3.4 Pedestrian Safety

- The appointed contractor shall ensure that throughout the course of the works its operations do not put pedestrians at any risk.
- Where the construction work necessitates the restriction or partial closure of a pedestrian walkway where they may exist, the appointed contractor shall provide adequate safety barriers, signposts, lighting and temporary surfacing (if applicable) to ensure safe passage for pedestrians.
- Where the construction work necessitates the closure of a pedestrian walkway, the appointed contractor shall provide a safe and reasonable alternative. The appointed contractor shall provide adequate safety barriers, signposts, and lighting (if applicable) to direct pedestrians and ensure their safe passage.
- With respect to pedestrians, the appointed contractor shall refer to and observe the requirements of the updated version of the *Traffic Signs Manual 2019* titled *Temporary Traffic Measures and Signs for Roadworks*.

### 5.3.5 Signage

- All sign faces are to be retro-reflective material to Class Ref 2 of EN 12899. The colours, chromaticity and luminance factors shall be as specified in Specification TS4.
- Signage shall be inspected at least twice daily by the appointed contractor so as to ensure that it is in place, secure and appropriately fitted with warning lights as required.

### 5.3.6 Cleanliness of Roads

- The appointed contractor will provide sufficient resources on site, including road sweeping equipment, to ensure the cleanliness of the adjacent road network.

### 5.3.7 Operator Training

- The appointed contractor will provide training to operatives in the traffic control systems being used on site. The importance of transport management, the safety of motorists, pedestrians and site staff shall be emphasised to all construction staff.
- There must be at least one competent person with a valid Construction Skills Registration Card on site at all times when work is being carried out on roads.

### 5.3.8 Emergency Crew

- The appointed contractor's emergency contact telephone number shall be displayed at the appointed contractor's site office and shall be notified to the, Local Authority Roads Engineer, Utility companies and the Emergency Services Providers. This telephone will be manned by the appointed contractor's Project Manager or by an authorised deputy capable of making decisions in an emergency situation.
- The appointed contractor shall set up an emergency crew, led by an experienced foreman or an engineer, for dealing with emergencies arising as a result of the works on roads outside of normal working hours. The emergency crew shall be available to respond to an event seven days a week.
- The appointed contractor will issue the emergency crew with contact details for the emergency services and the utility companies, in the event that they are required.

## 5.4 TRAFFIC MANAGEMENT PLAN FOR WIND FARM WORKS

It is envisaged that road closures will be implemented to facilitate widening to the local road network as outlined in Section 5.2 to allow for the delivery of wind turbine components to the wind farm site. Road closures will ensure that the required road widening works can be constructed safely to protect construction workers and members of the public.

The appointed contractor will apply to Clare County Council for a Road Opening Licence prior to works commencing and follow the relevant procedures as outlined in Section 5.2 of this document.

### 5.4.1 Road Closures

Roads closures will be implemented where there is insufficient space on the existing public roadway to implement a single lane closure. A road closure will be controlled by way of diversions but local access will be accommodated on the route where possible with all residents on the route informed of the programme for a road closure. The appointed contractor will ensure that procedures and works for closures are in accordance with Section 0.5.2.9 of the *Temporary Traffic Management Design Guidance, Third Edition 2019*. Temporary traffic management and roadwork signs will be to Chapter 8 of the *Traffic Signs Manual 2019*.

It will be envisaged, pending confirmation at construction stage, that the following roads will have road closures during the required widening works with approximate lengths shown:

#### Proposed Local Road Closures in County Clare

- L-8221-0: The R465 / L-8221 junction at Drummod to the L-8221 / L-8218 junction at Caherhurly (2.9 kilometres)
- L-8218-0: Caherhurly to Killokenedy (700 metres)

### 5.4.2 Diversions

Diversions will be implemented to provide an alternative route for road closures during construction. Road closures will be sequenced in order to prevent unnecessary delays to the public and allow the appointed contractor to achieve their construction timeline. Information and directional signage will be provided to inform the public of road closures and direct them along diversion routes. Local access will be maintained for residents where possible. The appointed contractor will ensure that procedures and works for diversions are in accordance with Section 0.5.2.9 of the *Temporary Traffic Management Design Guidance, Third Edition 2019*. Temporary traffic management and roadwork signs will be to Chapter 8 of the *Traffic Signs Manual 2019*.

It will be envisaged, pending confirmation at construction stage that the following roads will provide a diversion for the proposed road closures where approximate diversion lengths are shown. See Appendix 3 for preliminary drawings of proposed traffic diversions.

See Drawing 19107-5101 for map of below proposed traffic diversions.

- L-8221-0: Diversion to be made via the R465 Regional road, the R352 Regional road, the L-8214 Local road and the L-8218 Local road in County Clare (6.4 kilometres)
- L-8218-0: Diversion not required as section of the L-8218 Local road subject to a road closure is on a cul-de-sac

## 5.5 TRAFFIC MANAGEMENT PLAN FOR GRID CONNECTION WORKS

It is envisaged that a system of single lane and road closures will be implemented along the underground grid connection route in the public roadway. This is to ensure the cable route can be constructed safely to protect construction workers and members of the public.

The appointed contractor will apply to Clare County Council for a Road Opening Licence prior to works commencing and follow the relevant procedures as outlined in Section 5.2 of this document.

### 5.5.1 Single Lane Closures

Single lane closures will be implemented as the construction of the cable trench progresses along the cable route. It is envisaged that 100 - 200m of the cable route will be constructed each day and therefore single lane closures will move with the works. The single lane closure will be controlled by way of either a stop-go system, a priority yield system or by temporary traffic lights. The appointed contractor will ensure that procedures and works for single lane closures are in accordance with Section 0.5.2 of the *Temporary Traffic Management Design Guidance, Third Edition 2019*. Temporary traffic management and roadwork signs will be to Chapter 8 of the *Traffic Signs Manual 2019*.

It will be envisaged, pending confirmation at construction stage, that the following roads will have single lane closures during the construction of the cable route with approximate lengths shown:

#### Regional Roads in County Clare

- R466: The L-3022 / R466 junction at Ballyquin Beg to the R466 / L-3044 junction at Springmount (900 metres)
- R471: Harols Cross Roads to the R466 / L-70661 junction at Cloghera (1.8 kilometres)

#### Local Roads in County Clare

- L-3054-0: Glenlon South to the L-3054 / L-3056 junction at Lakyle (900 metres)
- L-3056-0: The L-3054 / L-3056 junction at Lakyle to the Ardnacrushna Power Station at Castlebank (200 metres)

### 5.5.2 Road Closures

Roads closures will be implemented where there is insufficient space on the existing public roadway to implement a single lane closure. A road closure will be controlled by way of diversions but local access will be accommodated on the route where possible with all residents on the route informed of the programme for a road closure. Road closures are to be planned on a rolling basis so when works on a section of the grid connection cable route are complete then roads will re-open. This will ensure roads are not closed for longer than necessary. The appointed contractor will ensure that procedures and works for closures are in accordance with Section 0.5.2.9 of the *Temporary Traffic Management Design Guidance, Third Edition 2019*. Temporary traffic management and roadwork signs will be to Chapter 8 of the *Traffic Signs Manual 2019*.

It will be envisaged, pending confirmation at construction stage, that the following roads will have road closures during construction of the grid connection cable route with approximate lengths shown:

## Proposed Regional Road Closure in County Clare

- R471: R465 / R471 Junction to the R471 / L-3048 junction at Cloghera (800 metres)

## Proposed Local Road Closures in County Clare

- L-8218-0: Caherhurly to Killokennedy (700 metres)
- L-30302-0: The L-3030 / L-30302 junction at Violethill to the L-30302 / L-7004 junction at Cloongaheen West (5.0 kilometres)
- L-7004-17: The R465 / L-7004 junction at Broadford to Kilbane (5.0 kilometres)
- L-3022-8: Kilbane to the L-3022 / R466 junction at Ballyquin Beg (2.4 kilometres)
- L-3044-0: The R466 / L-3044 junction at Springmount to Harols Cross Roads (4.2 kilometres)
- L-70661-0: The R466 / L-70661 junction at Cloghera to the L-70661 / L-7066 junction at Trough (1.3 kilometres)
- L-7066-0: The L-70661 / L-7066 junction at Trough to the L-7066 / L-3054 junction at Roo West (700 metres)
- L-3054-0 (1st Section): The L-7066 / L-3054 junction to the L-3054 / L-3052 Junction at Roo West (600 metres)
- L-3054-0 (2nd Section): The L-3054 / L-3052 Junction at Roo West to Glenlon South (600 metres)

### 5.5.3 Diversions

Diversions will be implemented to provide an alternative route for road closures during construction. Road closures will be sequenced in order to prevent unnecessary delays to the public and allow the appointed contractor to achieve their construction timeline. Information and directional signage will be provided to inform the public of road closures and direct them along diversion routes. Local access will be maintained for residents where possible. The appointed contractor will ensure that procedures and works for diversions are in accordance with Section 0.5.2.9 of the *Temporary Traffic Management Design Guidance, Third Edition 2019*. Temporary traffic management and roadwork signs will be to Chapter 8 of the *Traffic Signs Manual 2019*.

It will be envisaged, pending confirmation at construction stage, that the following roads will provide a diversion for the proposed road closures where approximate diversion lengths are shown. See Appendix 3 for preliminary drawings of proposed traffic diversions.

See Drawings 19107-5101 to 5110 for map of below proposed traffic diversions.

- L-8218-0: Diversion not required as section of the L-8218 Local road subject to a road closure is on a cul-de-sac
- L-30302-0: Diversion to be made via the L-3030 Local road, the R465 Regional road and the L-7004 Local road in County Clare (4.2 kilometres)
- L-7004-17: Diversion to be made via the R465 Regional road, the R466 Regional road and the L-3022 Local road in County Clare (5.8 kilometres)
- L-3022-8: Diversion to be made via the L-3022 Local road and the R466 Regional road in County Clare (3.4 kilometres)
- L-3044-0: Diversion to be made via the R466 Regional road, the R463 Regional road and the R471 Regional road in County Clare (11.7 kilometres)



- R471: Diversion to be made via the R465 Regional road and the L-3048 Local road in County Clare (1.5 kilometres)
- L-70661-0: Diversion to be made via the R471 Regional road and the L-7066 Local road in County Clare (3.0 kilometres)
- L-7066-0: Diversion to be made via the L-70661 Local road, the R471 Regional road, the L-3048 Local road, the R465 Regional and the L-7068 Local road in County Clare (4.2 kilometres)
- L-3054-0 (1st Section): Diversion to be made via the L-7068 Local road, the R465 Regional road and the L-3052 Local road in County Clare (4.0 kilometres)
- L-3054-0 (2nd Section): Diversion to be made via the L-3052 Local road, the R465 Regional road, and the L-3056 Local road in County Clare (2.3 kilometres)

#### 5.5.4 Road Crossings

Where the grid connection cable route is planned to cross the public road, the appointed contractor will decide on the best method for controlling traffic. A single lane closure may be utilised, in accordance with Section 0.5.2 of the *Temporary Traffic Management Design Guidance, Third Edition 2019* where works are carried out and controlled by a stop-go system. The ducting shall cross the road in two phases. Phase one will construct the trench as far as the centre line of the carriageway and then have the road and trench temporarily reinstated.

Once the work has been completed on the closed lane, the area is inspected and traffic management procedures will switch to the opposite lane for phase two. An "All Stop" system, in accordance with Section 0.5.2.6 of the *Temporary Traffic Management Design Guidance, Third Edition 2019* may be used to control traffic and to allow the works commence on the other lane. Once the work has been fully complete, the trench and road can be temporarily reinstated.

#### 5.5.5 Joint Bays

It may be necessary that joint bays on the grid connection cable route are required to be left open overnight for pulling cables through the ducts and jointing the cables together. Joint bays will be individually assessed to determine what type of traffic management system will be required at each location. Safety barriers or fencing will be erected around each open joint bay with either a priority yield or temporary traffic light system utilised to safely navigate vehicles around.

The appointed 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*.

#### 5.5.6 Personnel Traffic

All traffic arising from personnel (appointed contractors, sub-appointed contractors, site operatives etc.) will park their vehicles at the appointed contractors main site compound within the wind farm site. This will be done so as to prevent traffic disruption to construction and to local residents by prohibiting personal vehicles being parked along the local road network.

## 6 DELIVERY ROUTE FOR MATERIALS

The majority of material required for the construction of the wind farm roads, crane hardstands and substation compound will come from stone aggregate extracted from three proposed on-site borrow pits. Material to be delivered to site will mainly consist of limestone capping material for roads and hardstands, and concrete for the construction of the 19 no. turbine bases and substation infrastructure. There are two quarries that are likely to supply these construction materials, the closest of which is McGraths quarry in Tulla. This is the most likely source to be used. The two quarries are shown in Figure 6-1. It is anticipated that a succession of 20T and/or 8m<sup>3</sup> trucks will transport the material at a peak frequency of 8 to 12 trucks/hour. Peaks in construction traffic are typically associated with the pouring of turbine foundations. Specialist vehicles will be used for the delivery of the wind turbine components and substation transformers.

During the construction of the grid connection route, deliveries of quarry and building materials to site will be made. All deliveries are expected to be on flatbed trucks (whether 40ft or smaller depending on size of deliveries) or concrete wagons. Materials such as aggregates and concrete will be sourced locally. Heavy vehicles would typically arrive and depart at a uniform rate throughout the day. The grid connection route site would operate for 12 hours per day during the construction period. However, hours of operation will be limited for HGV movements in order to allow for residents to avoid non-coinciding commuting during the morning and evening peak hours, in particular during local school start and finish times. Therefore the project would permit heavy vehicle movements access for approximately 10 hours per day during the construction period. It is anticipated that a succession of 8m<sup>3</sup> or 10m<sup>3</sup> trucks will transport the material at a peak frequency of 3 trucks/hour.

The vast majority of construction deliveries for the wind farm site, including all specialist delivery vehicles will be via the R352 and R465 Regional roads. The scale of the grid connection route will require deliveries to access various locations where the grid connection is to be constructed along the public roads. It is envisaged that deliveries will use the R465 and R466 Regional roads to access the northern section of the cable route and use the R465 and R471 Regional roads to access the southern section. (see Figure 6-2).



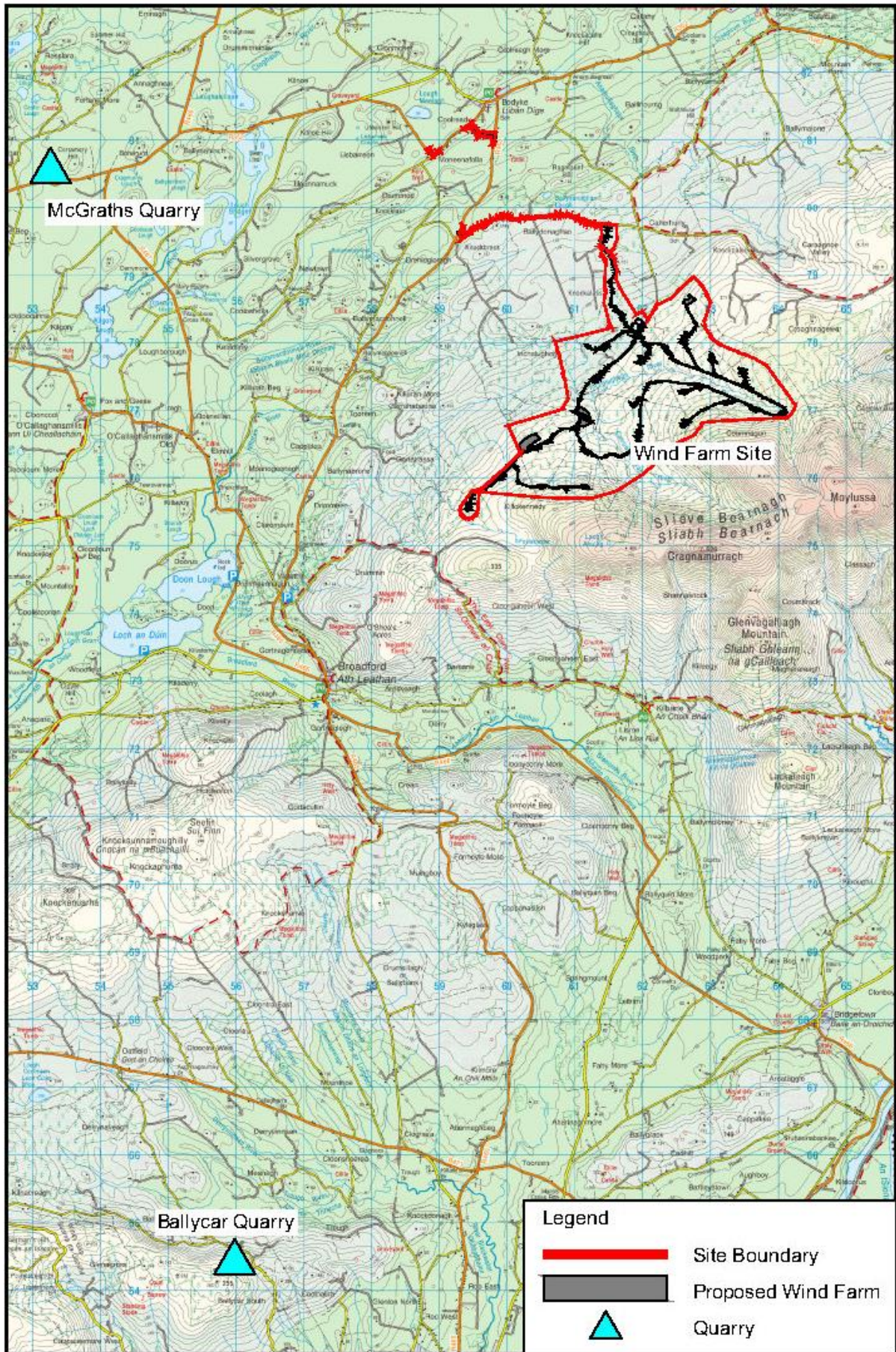


Figure 6-1 Quarry Map



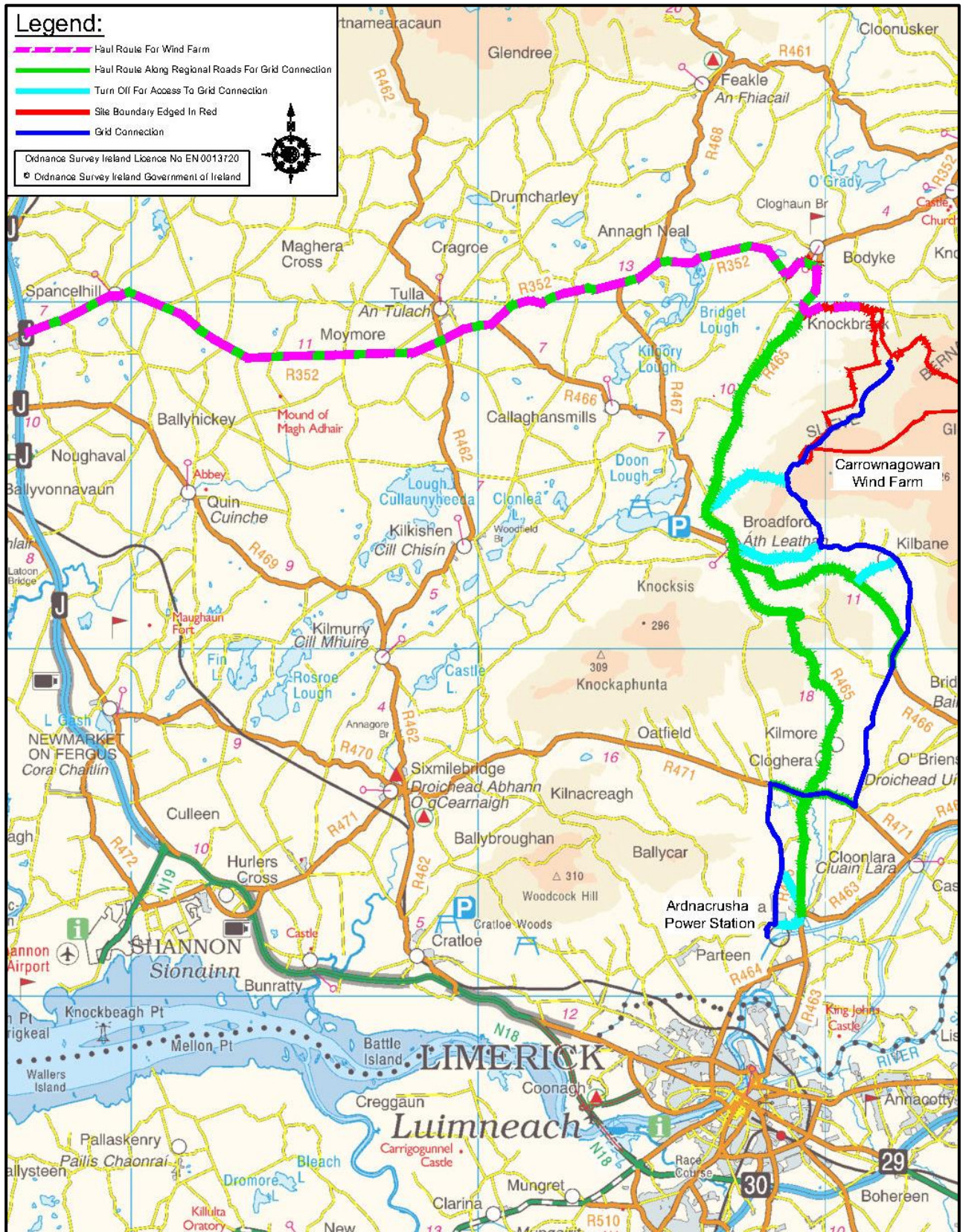


Figure 6-2 Delivery Route Access Map



## 7 CONSTRUCTION TRAFFIC

Construction traffic shall access and egress the works via the delivery route as outlined in Section 0. A summary of the approximate number of truck deliveries to the wind farm works and grid connection works is outlined in Table 7—1 and Table 7—2 below.

Civil Works Material - Wind Farm Works	No. of Approximate Deliveries / Loads
<b>Concrete</b> Each turbine foundation will have approximately 700m <sup>3</sup> of concrete	1,663
<b>Reinforcing Steel</b> Each turbine foundation will have approximately 100 tonnes of reinforcing steel	79
<b>Wind Turbine Components Deliveries</b> Delivery of steel towers, turbine blades, nacelle, rotor hub etc. from port to site	190
<b>Crane Deliveries to site, including ballast, booms etc.</b> Cranes of 750 to 1,200 tonnes lifting capacity will be required to erect the turbines. Ballast is also normally employed for craneage. Smaller cranes of 150 to 200 tonnes lifting capacity will be required to assist with the removal of tower sections from delivery trailers and to operate as "tailing cranes"	20
<b>Excavated Material for Turbine Delivery Areas and L-8221 Local Road Widening</b> Material excavated from construction of Turbine Delivery Areas and L-8221 Local Road Widening. Excavated material will be brought to a licensed waste facility.	1,236
<b>Imported Crushed Stone Aggregate for Turbine Delivery Areas and L-8221 Local Road Widening</b> Construction of Turbine Delivery Areas and L-8221 Local Road Widening with imported Class 6F material. Crushed stone will be sourced locally.	890
<b>Stone Capping Material for Access Roads, Hardstands and Temporary Site Compounds</b> Capping of Access Roads and Hardstands with Clause 804 granular material or similar. Capping material will be sourced locally.	2,353
<b>Internal Cabling</b> Importing cables, ducting and suitable stone backfill material	729
<b>Geotextile, Temporary Fencing, Storage Containers, Plant etc.</b>	140
<b>Substation Buildings and Compound</b> 2 no. electrical substations measuring approx. 635m <sup>2</sup> in total. Building materials will be mainly sourced locally for the construction of the substation building. Some 56 loads are apportioned for concrete blocks, roofing and general materials with 63 loads for concrete foundations. Another 30 loads in total are apportioned to the electrical equipment contained within the substation buildings and compound. Fencing materials will require a further 105 loads to deliver.	254
<b>Substation Compound Transformer</b> Delivery of substation transformer using specialist delivery vehicle	1
<b>Stone Capping Material for Substation Compound</b> Capping of Substation Compound with Clause 804 granular material or similar. Capping material will be sourced locally.	314
<b>Misc approx 10%</b>	786
<b>TOTAL APPROXIMATE DELIVERIES / LOADS FOR WIND FARM WORKS</b>	<b>8,655</b>

Table 7—1 Estimated Deliveries for Wind Farm Works

<b>Civil Works Material - Grid Connection Works</b>	<b>No. of Approximate Deliveries / Loads</b>
<b>Concrete - Grid Connection Cable Route</b> Approximate total deliveries of concrete to be poured into the cable trench along the cable route.	1,200
<b>Excavated Material - Grid Connection Cable Route</b> Approximate loads of material excavated from the cable trench and delivered to a licensed waste facility.	1,973
<b>Imported Material - Grid Connection Cable Route</b> Approximate total deliveries of ducting materials, cabling, warning tapes, granular stone for cable trench.	1,116
<b>Joint Bays - Grid Connection Cable Route</b> Approximate total deliveries of pre-cast concrete joint bays and communication chambers to be installed on cable route.	105
<b>Misc approx 10%</b>	439
<b>TOTAL APPROXIMATE DELIVERIES / LOADS FOR GRID CONNECTION CABLE ROUTE WORKS</b>	<b>4,833</b>

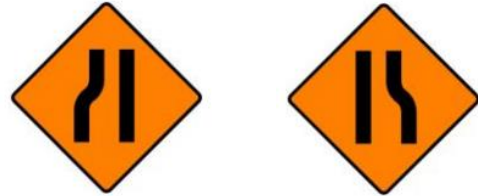
**Table 7—2 Estimated Deliveries for Grid Connection Works**

## **Appendix 1**

### **Sample Schedule of Signs**



WK 001 - Roadworks Ahead / End



WK 032 / 033 - Road Narrows on Left / Right



WK 052 / 053 - Site Access on Left / Right



WK 091 - Diverted Traffic



WK 061 - Flagman Ahead



WK 060 - Temporary Traffic Signals



WK 090 - Detour



WK 092 - End of Detour

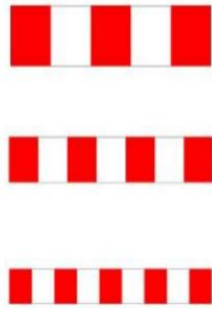


WK 094 - Road Closed



WK 095 - Stop Here on Red





W 183 / 184 / 185 - Barrier Boards



RUS 060 / 061- Stop and Go



RUS 001 - Keep Left



RUS 002 - Keep Right



RUS 014 - No Overtaking / End



WK 071 - Uneven Surface



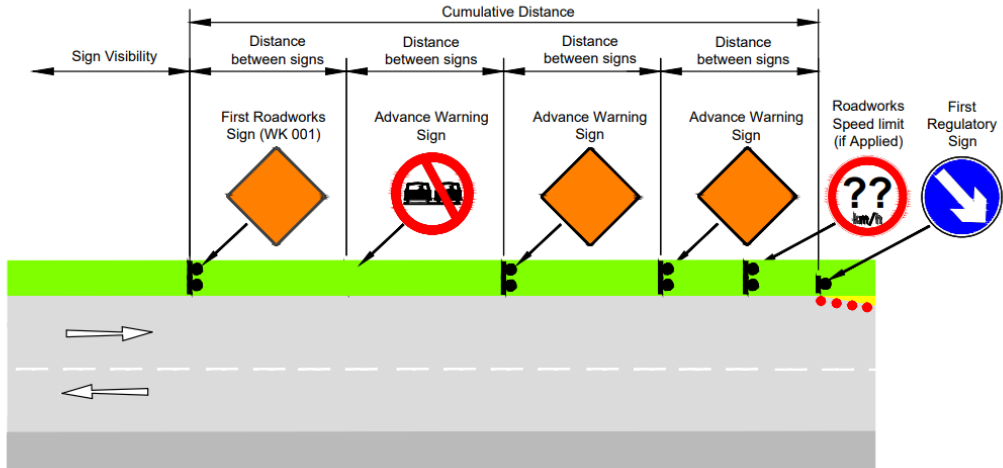
WK 073 - Loose Chippings



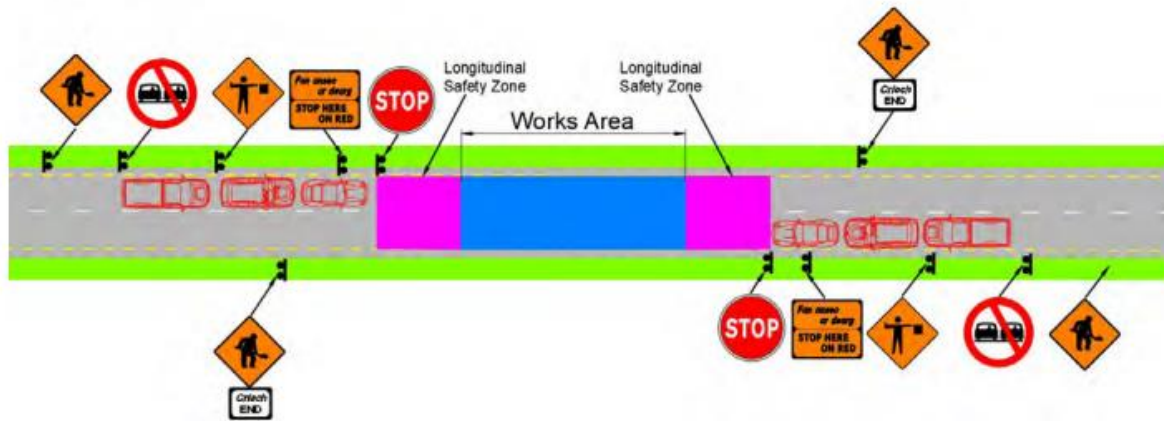
WK 052 - Site Access

## **Appendix 2**

### **Sample Traffic Management Drawings and Check Sheets**

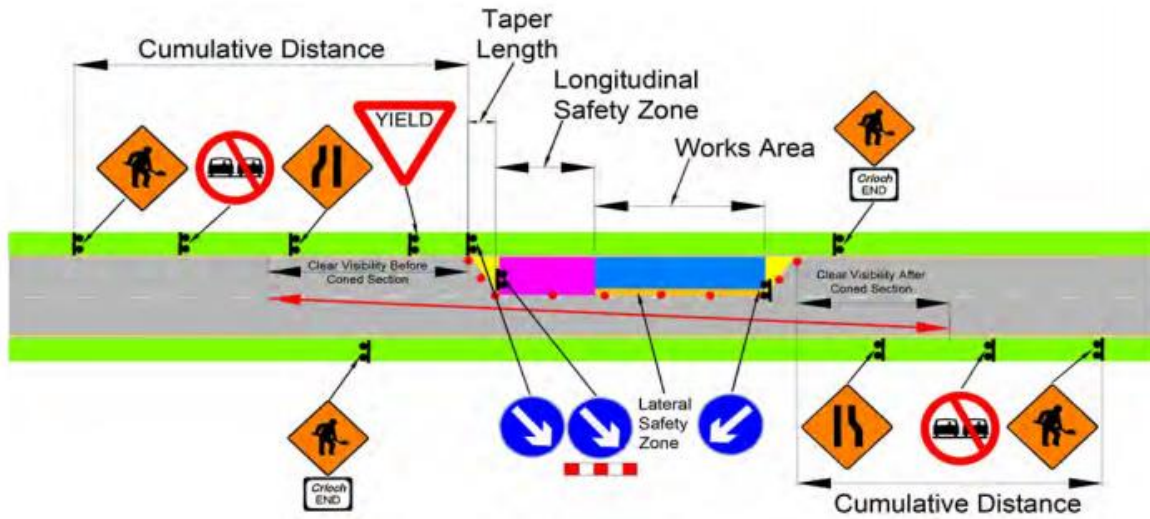


**Required Locations for Advance Warning Signs to Roadworks**



Level	Longitudinal Safety Zone (m)
2(i)	45
2(ii)	60

**Example Layout of an "All Stop" Traffic Operation**



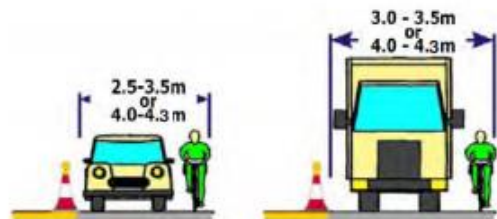
Roadworks Type	Speed (km/h)	No. Adv. Warning Signs	Cumulative Distance (m)	Sign Visibility (m)	Longitudinal Safety Zone (m)	Lateral Safety Zone (m)	Max Cone / Lamp Spacing (m)
Level 2 (i) A	80	4	480	90	45	1.2	12 / 24
Level 2 (i) B	80	3	360	90	45	1.2	12 / 24
Level 2 (ii) A	100	4	800	120	60	1.2	12 / 24
Level 2 (ii) B	100	3	600	120	60	1.2	12 / 24

**Summary Criteria**

Speed (km/h)	Coned Area Length	Max Traffic Flow (3 min count)	Clear Visibility Before and After Coned Area (m)
80	80m maximum	40 vehicles	80
100			100

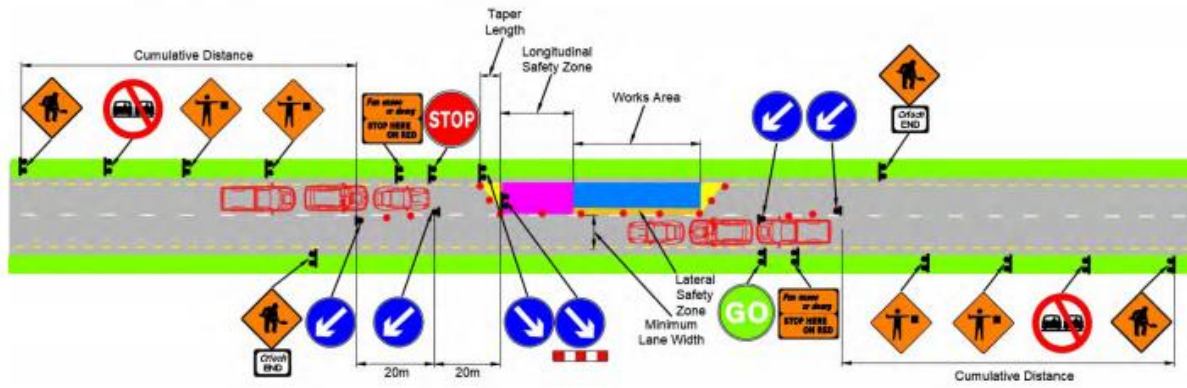
**Lane Widths**

Cars only	≥ 2.5m
HGVs present	≥ 3.0m
Preferred width	3.3m
Preferred (with cyclists)	4.0 - 4.3m



**Example Layout of a Priority Yield Operation**





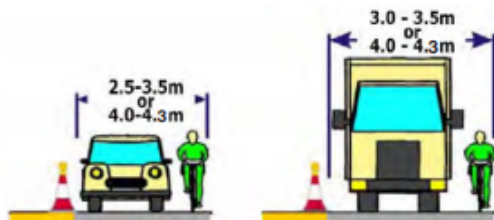
Roadworks Type	Speed (km/h)	No. Signs	Cumulative Distance (m)	Sign Visibility (m)	Longitudinal Safety Zone (m)	Lateral Safety Zone (m)	Max Cone / Lamp Spacing (m)
Level 2 (i) A	80	4	480	90	45	1.2	12 / 24
Level 2 (i) B	80	3	360	90	45	1.2	12 / 24
Level 2 (ii) A	100	4	800	120	60	1.2	12 / 24
Level 2 (ii) B	100	3	600	120	60	1.2	12 / 24

### Summary Criteria

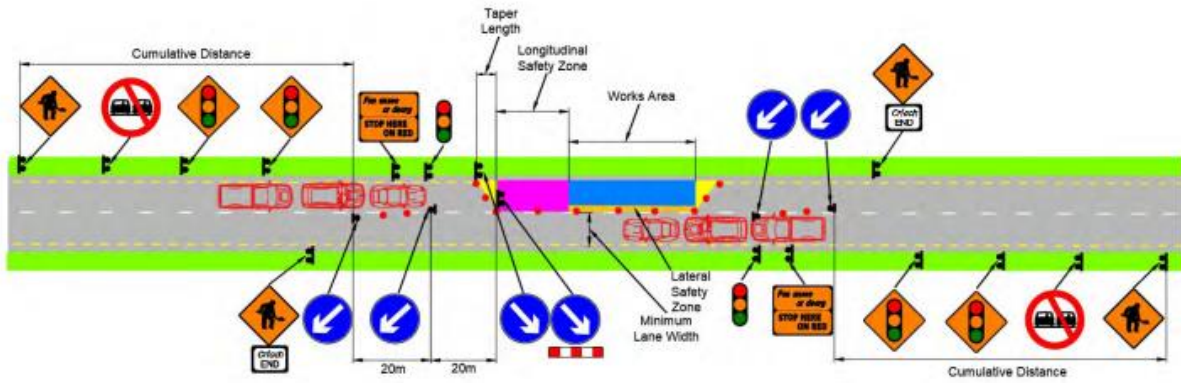
Shuttle Length	Maximum Traffic / 3 mins	Notes
500m	45	Shall be 2 operators, 2 discs when $\geq 200m$
400m	50	
300m	55	
200m	60	May be 1 operator with remote discs. Operator must be $\leq 100m$ from each disc and have clear view of each
100m	70	
20m	25	May be 1 operator, 1 disc

### Lane Widths

Cars only	$\geq 2.5m$
HGVs present	$\geq 3.0m$
Preferred width	3.3m
Preferred (with cyclists)	4.0 - 4.3m



### Example Layout of a Stop and Go Operation



Roadworks Type	Speed (km/h)	No. Adv. Warning Signs	Cumulative Distance (m)	Sign Visibility (m)	Longitudinal Safety Zone (m)	Lateral Safety Zone (m)	Max Cone / Lamp Spacing (m)
Level 2 (i) A	80	4	480	90	45	1.2	12 / 24
Level 2 (i) B	80	3	360	90	45	1.2	12 / 24
Level 2 (ii) A	100	4	800	120	60	1.2	12 / 24
Level 2 (ii) B	100	3	600	120	60	1.2	12 / 24

### Signal Checks

- Batteries
- Bulb / LEDs operating
- Signals communicating with each other
- Housing is in good condition

### Signal Sequence

- Red - time is set by Operative
- Green - time is set by Operative
- Amber - 3 seconds

### Signal Heights



### Summary Criteria

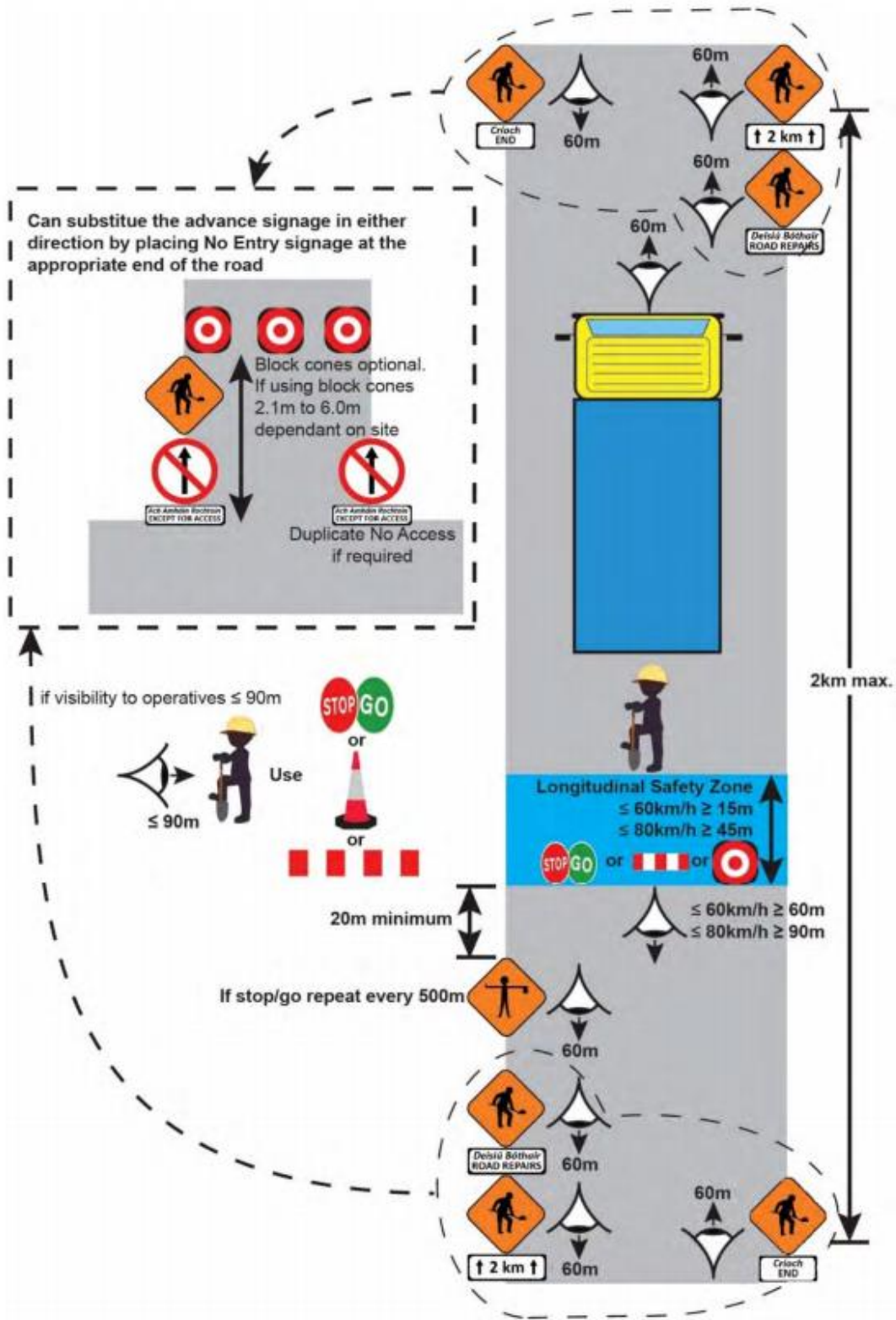
Max Speed Limit (km/h)	Max Coned Area Length (m)	Max Traffic Flow
60	500	No Restrictions

### Lane Widths

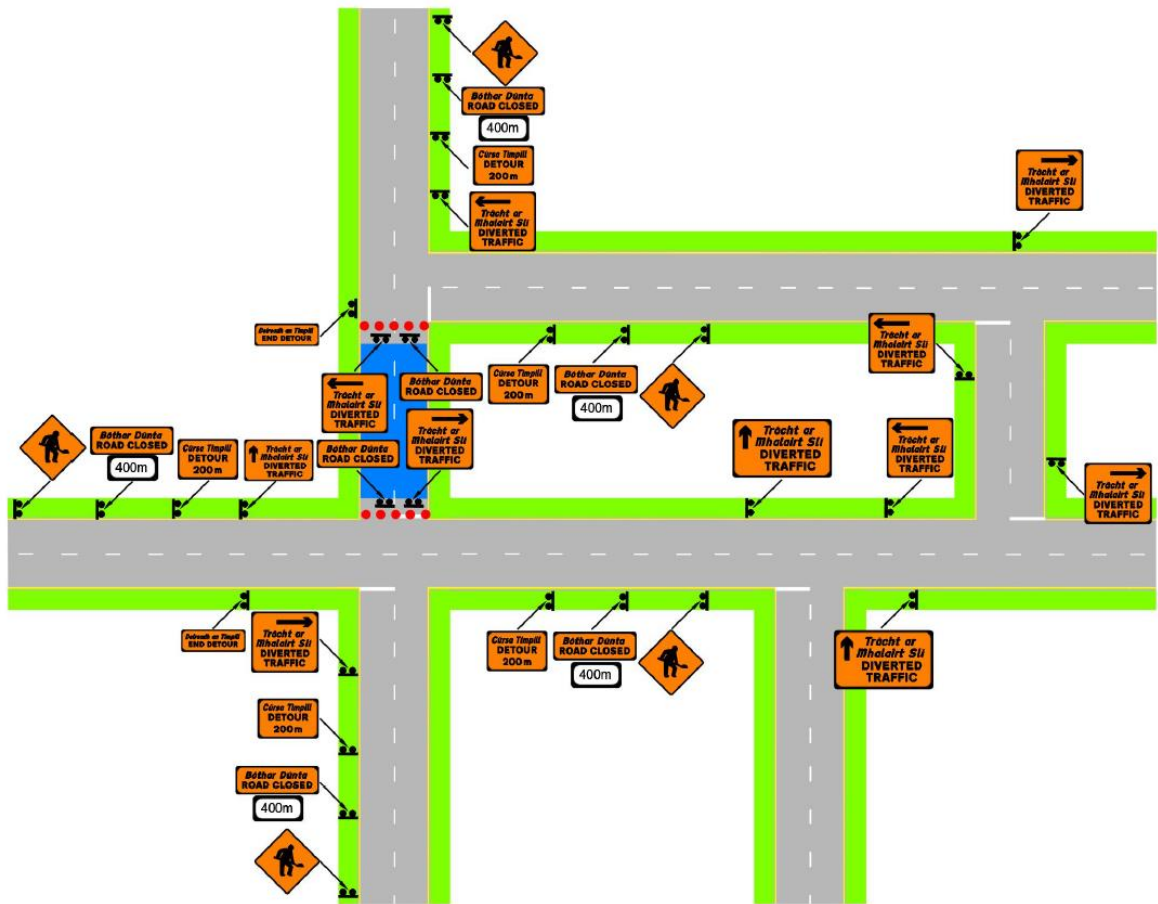
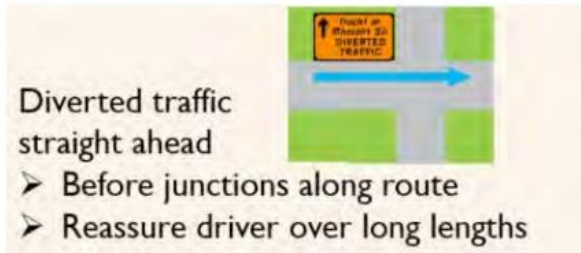
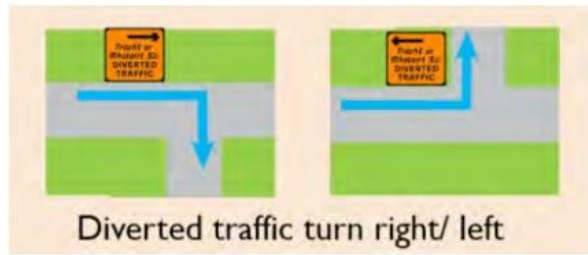
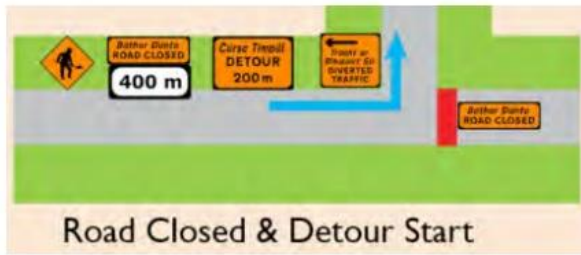
Cars only	≥ 2.5m
HGVs present	≥ 3.0m
Preferred width	3.3m
Preferred (with cyclists)	4.0 - 4.3m



### Example Layout for a Temporary Traffic Signals Operation



Example of a Road Opening Works Operation

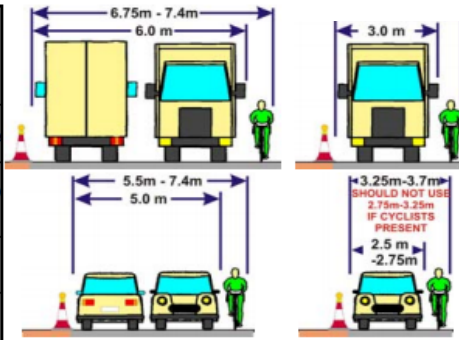


Example of a Road Detour and Signage Operation



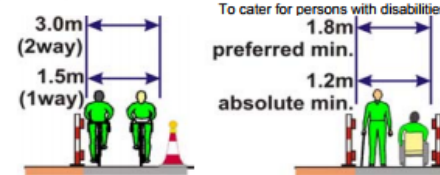
**PLANNED WORKS TRAFFIC MANAGEMENT DESIGN SHEETS**  
**TRAFFIC MANAGEMENT LAYOUT PARAMETER DESIGN SHEET**

STEP 1: SELECT TRAFFIC MANAGEMENT TYPE	Road Closure	When:
		1) Adequate Safety Zone + Lane Width cannot be achieved, or 2) Alternative Safe Method of Work cannot be implemented, or 3) Semi Static Operation for Minor Roads not applicable, or 4) Convoy Working cannot be implemented
	24/7 detour	Where RESIDUAL risks on Road Works Section are greater than on the Detour even when active works are not taking place
	Working hours detour	Where RESIDUAL risks on Road Works Section are greater than on the Detour when works are active AND where the RESIDUAL risks on Road Works Section are less than on the Detour when works are not active
Two-Way	Abs Min. Minimum Maximum	5.0m (Cars and light vehicles only) 6.0m Combined lane width should not exceed 7.4m
Lane/ Shuttle	Abs Min. Minimum Maximum Cyclists	2.5m 3.0m 3.7m DO NOT USE lane width between 2.75m and 3.25m
Marshall		Shuttle with mainly light vehicles and alternatives not suitable
Convoy	Select Where:	1) Adequate Safety Zone + Lane Width cannot be achieved 2) Alternative Safe Method of Work cannot be implemented 3) Semi Static Operations for Minor Roads not applicable
Semi-Static Management		> On Minor Roads use for Surface Dressing > For moving single vehicle operations
Roadworks		Refer to Section 4.3
Speedlimit		
Cautionary Speed Plate		See Section 4.3
All Stop		short duration (<10 min typically) and 300 veh/hr or less



STEP 2: SHUTTLE OPTIO	Method	Max Speed Limit (km/h)	Length of Works (m)	Traffic Flow (veh/hr)	Notes
	Give and Take See 4.5.1	50	50	400	Visibility
	Priority	100	80	850	Speed Distance
					50 km/h 60m 60 km/h 70m 80 km/h 80m 100 km/h 100m
					If used at night, will require flashing lamps
	Stop/Go	100	20	500	1 Person/ 1 Sign
	1 Sign	100	100	1400	1 Person/ Auto Signs
	1 Person	100	200	1250	1 Person/ Auto Signs
	2 Person	100	300	1050	2 Person/ 2 Signs
	2 Person	100	400	950	2 Person/ 2 Signs
	2 Person	100	500	850	2 Person/ 2 Signs
	Traffic Lights	100	500	n/a	Vehicle Actuated

- > Limit Shuttle lengths to 500m generally (+/- at junctions/ specific reasons)
- > Use Vehicle Actuated Traffic Lights
- > Notify Gardai if using Traffic Lights/ Stop-Go boards



VULNERABLE ROAD USERS	
Footway Desirable minimum width	1.8m
Vulnerable users' minimum width	1.2m
Minimum width at obstacle	1.0m
Minimum width at bus stop	3.0m
Minimum width at shop front	3.5m
Cycle track desirable minimum width	1.5m
Cycle track absolute minimum width	1.3m
Combined minimum width	3.0m
Desirable minimum clearance height	2.5m
Absolute minimum clearance height	2.3m

STEP 3: SELECT PARAMETERS	Type of Road	Type of Works	Advance Sign Distance (D) (m)	Min. Number Of Advance Signs	Min. clear visibility of Signs (m)	Min. size of signs (mm)	Min. height of cones (mm)	Long. Safety Zone (L) (m)	Side. Safety Zone (S) (m)	Long. Cone Space	Long. Lamp Space	Hard Shoulder Taper Multiply Factor	2 WAY Lane Taper Multiply Factor	2 WAY Lane Taper Cone Spacing	Lane Taper Lamp Spacing	Lane Lead-in cone tapers Recommended lengths	Width of hazard (including safety zone)			
																	NOTE: WHERE TWO TRAFFIC MAINTAINED			
																	1m	2m	3m	4m
Single carriageway road, 30km/h	All works		50	1 (rwa) 1 (tm)	50	600	750	5	0.5	6	12	5	10	3	6	Length of taper (T) in (m)	10	20	30	40
																Minimum no. of Cones	5	8	12	15
	Single Vehicle		25	1 (rwa)	50	600	750	5	0.5	6	12	5	5	3	6	Length of taper (T) in (m)	5	10	15	20
																Minimum no. of Cones	3	5	7	8
Single carriageway, 31km/h to 60km/h	All Works		75	1 (rwa) 2 (tm)	50	600	750	25	0.5	6	12	10	15	3	6	Length of taper (T) in (m)	15	30	45	60
																Minimum no. of Cones	7	12	17	22
	Single Vehicle		50	1 (rwa) 1 (tm)	50	600	750	5	0.5	6	12	5	5	3	6	Length of taper (T) in (m)	5	10	15	20
																Minimum no. of Cones	3	5	7	8
Single Carriageway 61 to 100 km/h	All Works		800	1 (rwa) 1 (no) 2 (tm)	120	600*	750	60	1.2	12	12	30	55	3	6	Length of taper (T) in (m)	55	110	165	220
																Minimum no. of Cones	20	38	57	75
	Single Vehicle		600	1 (rwa) 1 (no) 1 (tm)	120	600*	750	45	1.2	12	12	20	40	3	6	Length of taper (T) in (m)	40	80	120	160
																Minimum no. of Cones	15	28	42	55

\* Use 600mm signs where Vehicles Per Day < 5,000. Use 750mm signs where Vehicles Per Day > 5,000

Tapers at Shuttles to be at 45 degrees with 1m cone spacings.



**PLANNED WORKS TRAFFIC MANAGEMENT DESIGN SHEETS**  
**HEALTH, SAFETY AND RISK ASSESSMENT MASTER SHEET**

SITE SPECIFIC SHEET \_\_\_\_\_ OF \_\_\_\_\_

**Works Name:**

TDRAM -

Job Location	Works	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12
PSDP (CMO)													
PSCS (CMO)													
Job Code													
Budget Holder													
Budget													
Total No. Work Days													
Tot. No. Person Days													
Work Days > 30 or Person Days > 500 then Notify HSA													

**Physical Data**

Brief Description of Works:	
Road Classification	
Road ID (incl. Seg)	
Road Width	
Works Length	
Roadside Development:	

**Traffic Data**

AADT	
% HCV	
Speed Limit	
Operating Speed	

**Traffic Management Items**

Accident History	
Pedestrians	
Schools	
Shops	
Cyclists	
Equestrian/Rail Crossing	
Vulnerable Road Users	
Bus Route/School Route	

**Particular Risk Items**

Burial	<input type="checkbox"/>	Underground works	<input type="checkbox"/>
Fall from height	<input type="checkbox"/>	Diving	<input type="checkbox"/>
Chemical/Biological	<input type="checkbox"/>	Compressed air	<input type="checkbox"/>
Radiation	<input type="checkbox"/>	Explosives	<input type="checkbox"/>
HV Power Lines	<input type="checkbox"/>	Heavy components	<input type="checkbox"/>
Drowning	<input type="checkbox"/>	Other	<input type="checkbox"/>

**Identified Items (For Map Reference see overleaf)**

Map Ref.	Item	Hazard	Risk			Control	Residual Risk		
			Hi	Med	Lw		Hi	Med	Lw

Design Prepared By: \_\_\_\_\_

**PLANNED WORKS TRAFFIC MANAGEMENT DESIGN SHEETS**  
**TRAFFIC MANAGEMENT DESIGN CIVIL WORKS SHEET**

SITE SPECIFIC SHEET \_\_\_\_\_ OF \_\_\_\_\_

Works Name: \_\_\_\_\_

Layout Parameters

TDC -

**Traffic Management Selection**

**Notes**

Advance Distance	
Number of Advance Signs	
Min. Advance Sign Visibility	
Size of Signs	
Height of Cones	
Taper Length	
Sideways Safety Zone	
Longways Safety Zone	
Lane Width/ Carriageway Width	
Longitudinal Cone/ Lamp Spacing	
Taper Cone/ Lamp Spacing	
Maximum Length of Shuttle	
Repeater Sign Distances	

**Inspections**

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

**Consultation**

Buses/School Buses	<input type="checkbox"/>	Milk Lorries	<input type="checkbox"/>
Local Residents	<input type="checkbox"/>	Emergency Services	<input type="checkbox"/>
Gardaí for Roadworks Speedlimit	<input type="checkbox"/>	/or Positive TM	<input type="checkbox"/>

Road Closure: 24/7 - Working Hours	
Detour	
Two Way	
Shuttle:	Give & Take
	Priority
	Stop/Go
	Traffic Lights
Marshall	
Convoy	
Semi-Static Roadworks	
Roadworks Speedlimit	
Cautionary Speed Plate	
All Stop	

Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.
WK 001	Roadworks Ahead		km/h m	
RUS 014	No Overtaking			
RUS 039-044	Roadworks Speedlimit		Specify Speed Both Sides	
WK 032	Road Narrows Left		m	
WK 033	Road Narrows Right		m	
WK 034	Road Narrows Both		m	
WK 060	Temporary Traffic Signal		m	
WK 061	Flagman Ahead		m	
WK 062	Queues Likely		m	
WK 094	Road Closed			

Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.
WK 071	Uneven Surface		Go Slow km/h	
RUS 001	Keep Left			
RUS 002	Keep Right			
W 062L	Chevron Left			
W 062R	Chevron Right			
W183 W184 W185	Barrier Board			
RUS 060/ 061	Stop and Go		SG-M=Manual Stop/Go SG-A=Auto/Controlled Stop/Go delete as appropriate	
TL	Temporary Traffic Signal			
WK 095	Stop Here on Red			
WK 030	Single Lane Shuttle			

Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.
WK 070	Hump or Ramp		m	
WK 050	Side Road Left		Oscillate Cheilite CONCEALED ENTRANCE	
WK 051	Side Road Right		Oscillate Cheilite CONCEALED ENTRANCE	
WK 052	Site Access Left		Oscillate Cheilite CONCEALED ENTRANCE	
WK 053	Site Access Right		Oscillate Cheilite CONCEALED ENTRANCE	
WK 074	Soft Verge			
WK 080	Pedestrians Cross Left			
WK 081	Pedestrians Cross Right			
PB	Pedestrian Barrier			
PF	Heracle Style Fencing			

Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.
WK 001 P010	Roadworks End			
RUS 014 P010	No Overtaking End			
C	Cone			
WB	Workman Barrier			
LS	Steady State Lamp			
LF	Flashing Warning Lamp			
RR	Rotating Reflector			
RUS 026	Priority Signage			

Design Prepared By: \_\_\_\_\_

**PLANNED WORKS TRAFFIC MANAGEMENT DESIGN SHEETS**

SITE SPECIFIC SHEET \_\_\_\_\_ OF \_\_\_\_\_

**TRAFFIC MANAGEMENT DESIGN DETOUR SHEET**

**Works Name:**

**Layout Parameters**

**TDD** -

**Traffic Management Selection**

Road Closure: 24/7 - Working Hours	
Detour	
Roadworks Speedlimit	
Cautionary Speed Plate	

**Notes**


Advance Distance	
Number of Advance Signs	
Min. Sign Visibility	
Size of Signs	
Height of Cones	
Diversion Width	
Repeater Sign Distances	

**Inspections**

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

**Detour Risk Assessment**

Length	Shops
Capacity	Cyclists
Speed > Limit	Equestrian
Accident History	Rail
Pedestrians	Vulnerable Users
Schools	Bus/School Route

**Consultation**


Buses/School Buses	<input type="checkbox"/>	Milk Lorries	<input type="checkbox"/>
Local Residents	<input type="checkbox"/>	Emergency Services	<input type="checkbox"/>
Gardaí for Roadworks Speedlimit	<input type="checkbox"/>	for Positive TM	<input type="checkbox"/>

Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.	Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.	Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.	Sign Ref	Sign	Quantity	Supplement/ Additional Info	No.
WK 001			km/h m		WK 091 KL	Diverted Traffic Keep Left				WK 081	Pedestrians Cross Right				W 603 R	Side Road Right		m	
RUS 014	No Overtaking				WK 091 R	Diverted Traffic Right				W 647	Slippery Road	km/h Crash End			W 652	Caution Children			
RUS 039-044	Roadworks Speedlimit		Specify Speed Both Sides		WK 091 KR	Diverted Traffic Keep Right				W 644	Hump or Ramp	m			PB	Pedestrian Barrier			
WK 090	Detour Ahead				WK 092	End of Detour				W 645	Hollow	m			PF	Herace Style Fencing			
WK 061	Flagman Ahead		m		RUS 001	Keep Left				W 620 L	Dangerous Corner Left	km/h			WK 001 P010	Roadworks Ends			
WK 094	Road Closed				RUS 002	Keep Right				W 620 R	Dangerous Corner Right	km/h			RUS 014 P010	No Overtaking Ends			
MB	Manned Road Block				W 062L	Chevron Left				W 622	Series Dangerous Corners	km/h			C	Cone			
WK 091S	Diverted Traffic Straight				W 062 R	Chevron Right				W 626L	Road Narrows Left				LS	Steady State Lamp			
WK 091 L	Diverted Traffic Left				W183 W184 W185	Barrier Board				W 626 B	Road Narrows Both				LF	Flashing Lamp			
					WK 080	Pedestrian Cross Left				W 603 L	Side Road Left	m							

Design Prepared By: \_\_\_\_\_

<b>PLANNED WORKS TRAFFIC MANAGEMENT SITE INSPECTION SHEET</b>			
<b>PROJECT NAME:</b>		<b>Phase:</b>	
<b>Date:</b>		<b>Time:</b>	1). 2).
<b>1) TRAFFIC MANAGEMENT SET-UP/ MODIFICATION, INSPECTIONS</b>			
<b>1-1) Installation Checks</b>			
Does the Traffic Management conform to the Design Layout and Parameters?			
Have all hazards been addressed in the Traffic Management Plan?			
Has allowance been made for the delivery and removal of materials?			
Have Gardai been informed of any Traffic Lights/ Stop-Go Boards in use?			
Have Gardai been informed of Roadworks Speed Limits being introduced?			
<b>2) TRAFFIC MANAGEMENT OPERATION INSPECTIONS</b>			
<b>2-1) Operation Checks</b>			<b>1 2</b>
Are Safety Zones being kept clear of operatives, plant and materials?			
Are all the signs in good condition/ are all cones in good condition with sleeves?			
Are sign vision lines free from bends, hills/dips in the road, parked vehicles, hedges etc?			
Will the site be safe at night or in wind, fog, snow or rain? (delete as appropriate)			
Are all misleading permanent signs and road markings covered?			
Is the carriageway/footway being kept clear of mud and surplus equipment?			
Are materials/ plant that are left on verges or lay-bys being properly guarded and lit?			
<b>2-2) Traffic Checks</b>			
Is there safe access to adjacent premises?			
Does Signing and Guarding meet the (changing) conditions?			
Are traffic control arrangements working at the optimum level to reduce traffic delays?			
If present, are the needs of cyclists or horse riders incorporated into the layout?			
<b>2-3) Pedestrian and Vulnerable Road User Checks</b>			
Have the needs of pedestrians and vulnerable road users been addressed in the layout?			
If pedestrian route blocked, has a suitable alternative route been provided?			
Are pedestrian routes clearly evident/ indicated?			
If a footway in the road is to be used, are ramps to the kerb provided?			
Are pedestrian hazards sufficiently GUARDED at night?			
<b>3) TRAFFIC MANAGEMENT CESSATION INSPECTIONS</b>			
<b>3-1) Works Complete Checks</b>			
Have all signs, cones, barriers, and lamps been removed?			
Have any covered permanent signs been restored?			
Have Gardai been informed that Speedlimits/ Traffic Signals/ Stop-Go removed?			
<b>4) EXCEPTIONS REPORT</b>			
(Append attachments as necessary)			
<b>Check Completed By:</b>			





**HEALTH AND SAFETY  
AUTHORITY**

# SAFE SYSTEM OF WORK PLAN (SSWP)

## WORKING ON ROADS

Plan No.

Job Details	Resources Required	Emergency Details								
Employer Name: _____ Responsible Person/Supervisor: _____ Number of Workers: _____ Specific Location: _____ Description of Works: _____ _____ Start Date: _____	Worker Skills: _____ _____ _____ Plant/Equipment: _____ _____ _____ Hazardous Materials: _____	Contact Names & Tel No. 1. _____ 2. _____ 3. _____ First Aider: _____ Location of First Aid Box: _____ _____								
NOTE: A new SSWP must be completed when the task or the environment changes.		<b>WORK PERMITS REQUIRED</b> Hot <input type="checkbox"/> Electricity <input type="checkbox"/> Excavation <input type="checkbox"/> Confined Space <input type="checkbox"/> Other <input type="checkbox"/> Method Statement Yes <input type="checkbox"/> No <input type="checkbox"/>								
<b>Before Works Starts the following MUST be in place</b> Tick the <input checked="" type="checkbox"/> circle when confirmed										
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Supervision <input type="checkbox"/></div> <div style="text-align: center;"> Safe Pass <input type="checkbox"/></div> <div style="text-align: center;"> Plant/Equip. Cert. <input type="checkbox"/></div> <div style="text-align: center;"> CSOS <input type="checkbox"/></div> <div style="text-align: center;"> Communication/Induction <input type="checkbox"/></div> <div style="text-align: center;"> WC &amp; Washing <input type="checkbox"/></div> <div style="text-align: center;"> Canteen <input type="checkbox"/></div> <div style="text-align: center;"> Drying/Changing <input type="checkbox"/></div> <div style="text-align: center;"> Drinking Water <input type="checkbox"/></div> <div style="text-align: center;"> First Aid <input type="checkbox"/></div> <div style="text-align: center;"> PPE <input type="checkbox"/></div> </div>										
<b>SELECT HAZARD OR ACTIVITY</b> <b>SELECT CONTROL</b> All controls identified below must be in place before work starts Tick the <input type="checkbox"/> box to identify controls required;     Tick the <input checked="" type="checkbox"/> circle when control is in place.										
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Live Traffic                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Working Close to the Public                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Lifting Operations                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Plant and Equipment                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Hand Tools                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									
<div style="background-color: #f4a460; padding: 5px; text-align: center;">  Hand Tools                     </div>	<div style="display: grid; grid-template-columns: repeat(10, 1fr); gap: 5px;"> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> <div style="text-align: center;"><input type="checkbox"/> </div> </div>									

PART 1

PART 2

LA1

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HAZARD OR ACTIVITY		CONTROL Tick the <input checked="" type="checkbox"/> box to identify controls required; Tick the <input checked="" type="checkbox"/> circle when control is in place.									
Excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Falls and Falling Objects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sewers/Culverts/ Mains/Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working Close to Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asbestos Cement Water Pipes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hazards, activities and controls on this SSWP identified by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Controls put in place by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

I have been made aware of the hazards & controls for this activity. Signed by Team:

**NOTE: This list of Hazards and Controls is not exhaustive and is in no particular order.**  
**IF IT'S NOT SAFE DON'T DO IT AND INFORM SITE MANAGEMENT**

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## Site Specific Record for Standard Traffic Management Plan

Job Name/ID:  Location:   
 Date:  SLG Cardholder:

### Step 1: Record Road Details

Visibility:  $\geq 25m$    $\geq 35m$    $\geq 50m$    $\geq 90m$    $\geq 120m$    $\geq 160m$

Width:  tick  tick  tick  tick  tick  tick

Speed:  value (km/h)

Urban:  tick Rural:  tick

3 min traffic count:  value (no.)

Road Type:  N  R  L

### Step 2: Record Work Site Details

Time needed:  value (hh:mm)

Unobstructed width left open:  value (m)

Works length:  value (m)

### Step 3: Record Traffic Management Selection

Diversion:  tick

Semi-Static:  tick

2-way:  tick

All Stop:  tick

Stop-Go:  tick

Traffic Signal:  tick

Marshall:  tick

Priority:  tick

Give & Take:  tick

Convoy:  tick

If using standard plan, ID reference:

### Step 4: Record Traffic Management Devices Implemented

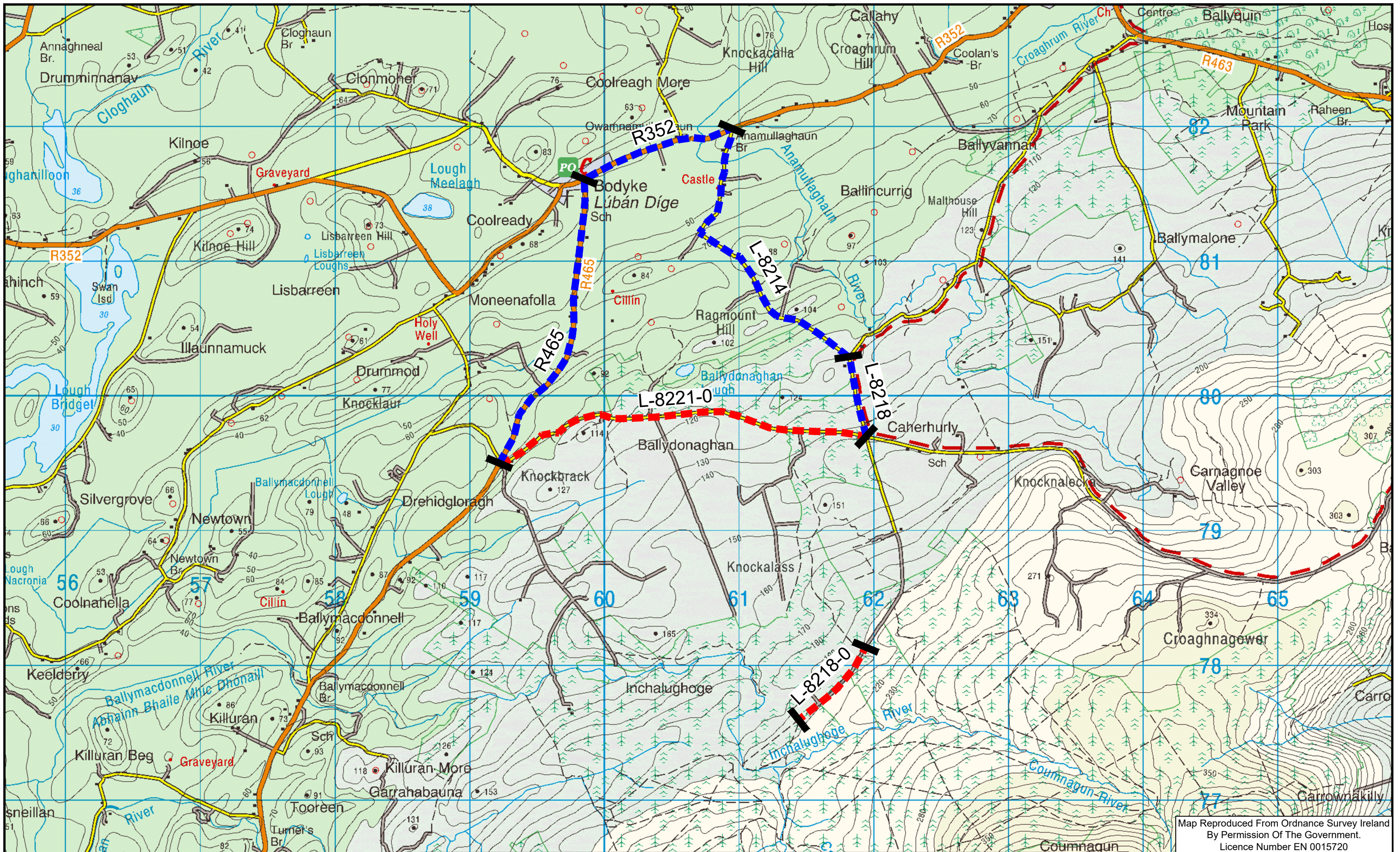
Warn → Inform → Direct → End

	no.	tick	no.	no.	no.	no.	no.
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>		A	<input type="checkbox"/>	<input type="checkbox"/>
	B	<input type="checkbox"/>	<input type="checkbox"/>		B	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input type="checkbox"/>	<input type="checkbox"/>		C	<input type="checkbox"/>	<input type="checkbox"/>
	D	<input type="checkbox"/>	<input type="checkbox"/>		D	<input type="checkbox"/>	<input type="checkbox"/>
Are all required cones (lamps & beacons) in place (& operating)	<input type="checkbox"/>			Yes	<input type="checkbox"/>		
	<input type="checkbox"/>			No	<input type="checkbox"/>		
If using traffic signals/Stop-Go have Gardaí been notified	<input type="checkbox"/>			Yes	<input type="checkbox"/>		
	<input type="checkbox"/>			No	<input type="checkbox"/>		

## **Appendix 3**

# **Preliminary Traffic Diversion Drawings for Wind Farm and Grid Connection Cable Route Works**

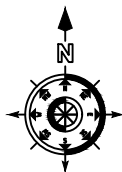




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**Legend :**

- - - Road Closures (L-8221-0: 2.9km, L-8218-0: 700m)
- - - Diversion (6.4km)



Project	Carrowmagowan Wind Farm				
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL
Client					

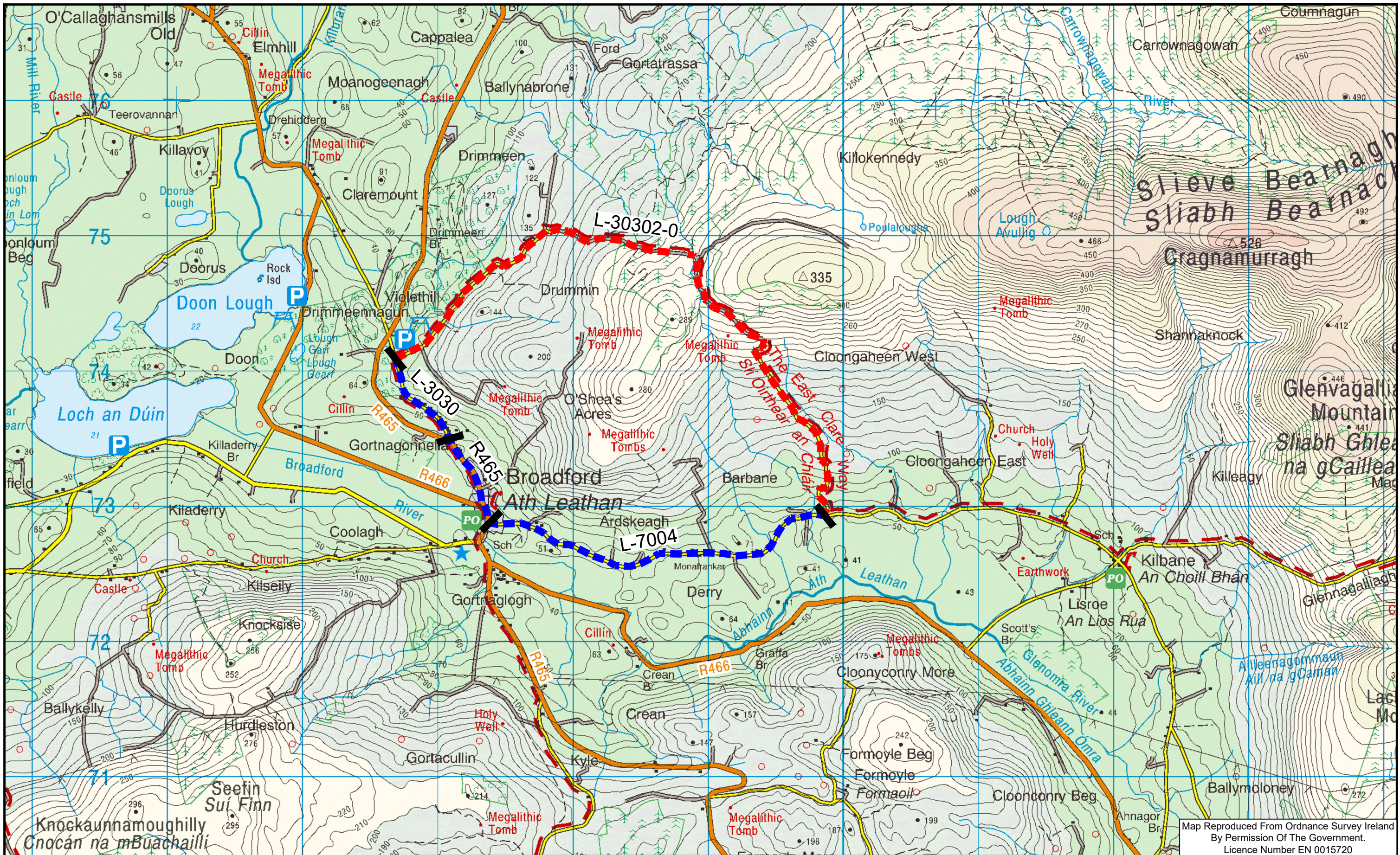
Title	Proposed Road Closures at L-8218 and L-8221 Local Roads Preliminary Traffic Management Plan	
-------	---	--



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Cork | Tralee | London | Limerick

Scales (A3)	NTS		Drg. No.	Rev.
Drawn	PN	15.11.2019	19107-5101	A
Checked	PN	15.11.2019		

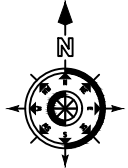




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**Legend :**

- - - Road Closure (5.0km)
- - - Diversion (4.2km)



Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL



Project  
Carrowmagowan Wind Farm

Title  
Proposed Road Closure  
at L-30302 Local Road  
Preliminary Traffic Management Plan

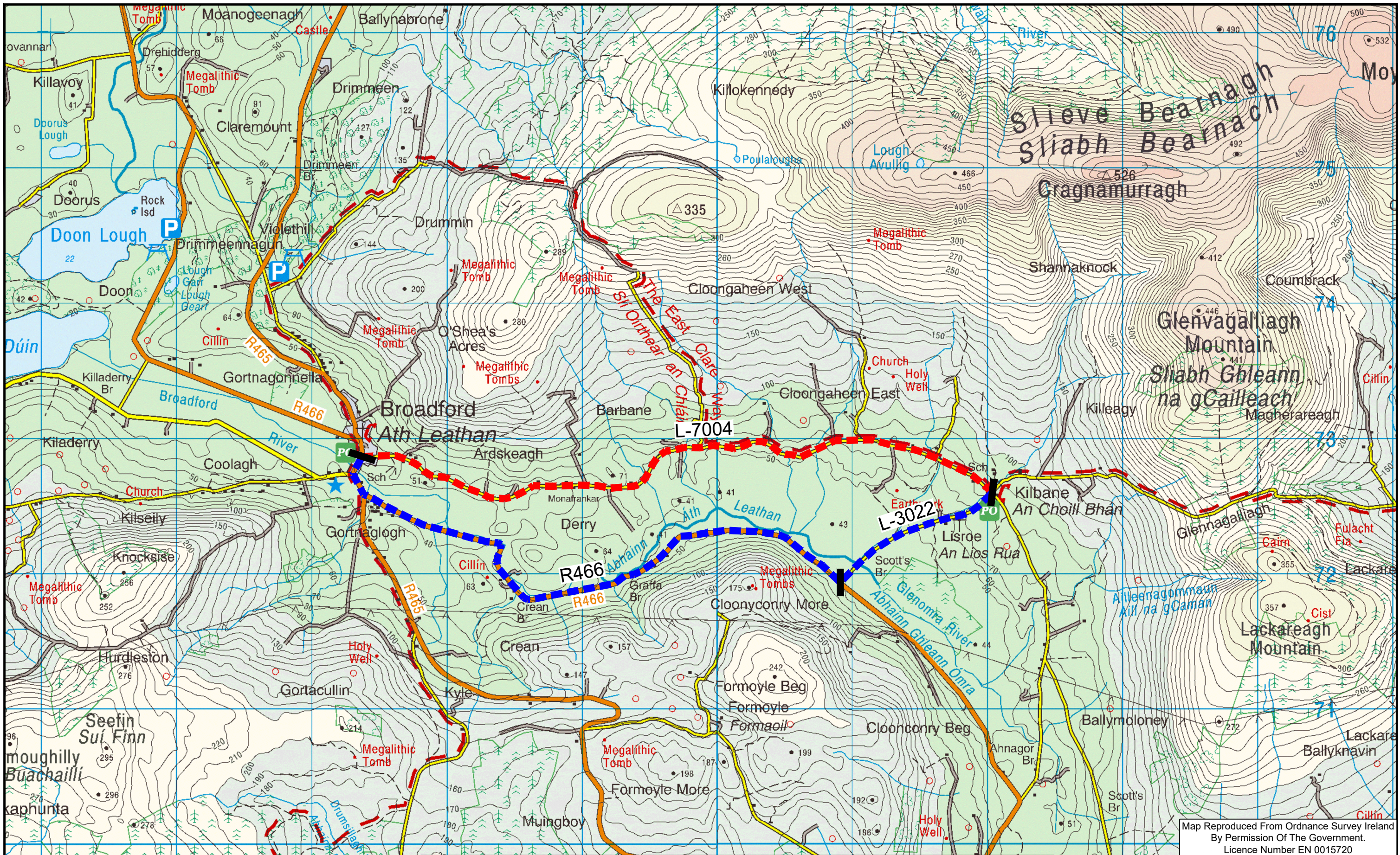


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Drawn	Checked	PN	NTS	Date
PN	PN			15.11.2019
				15.11.2019

Drg. No.	Rev.
19107-5102	A

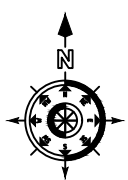




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**Legend :**

- - - Road Closure (5.0km)
- - - Diversion (5.8km)



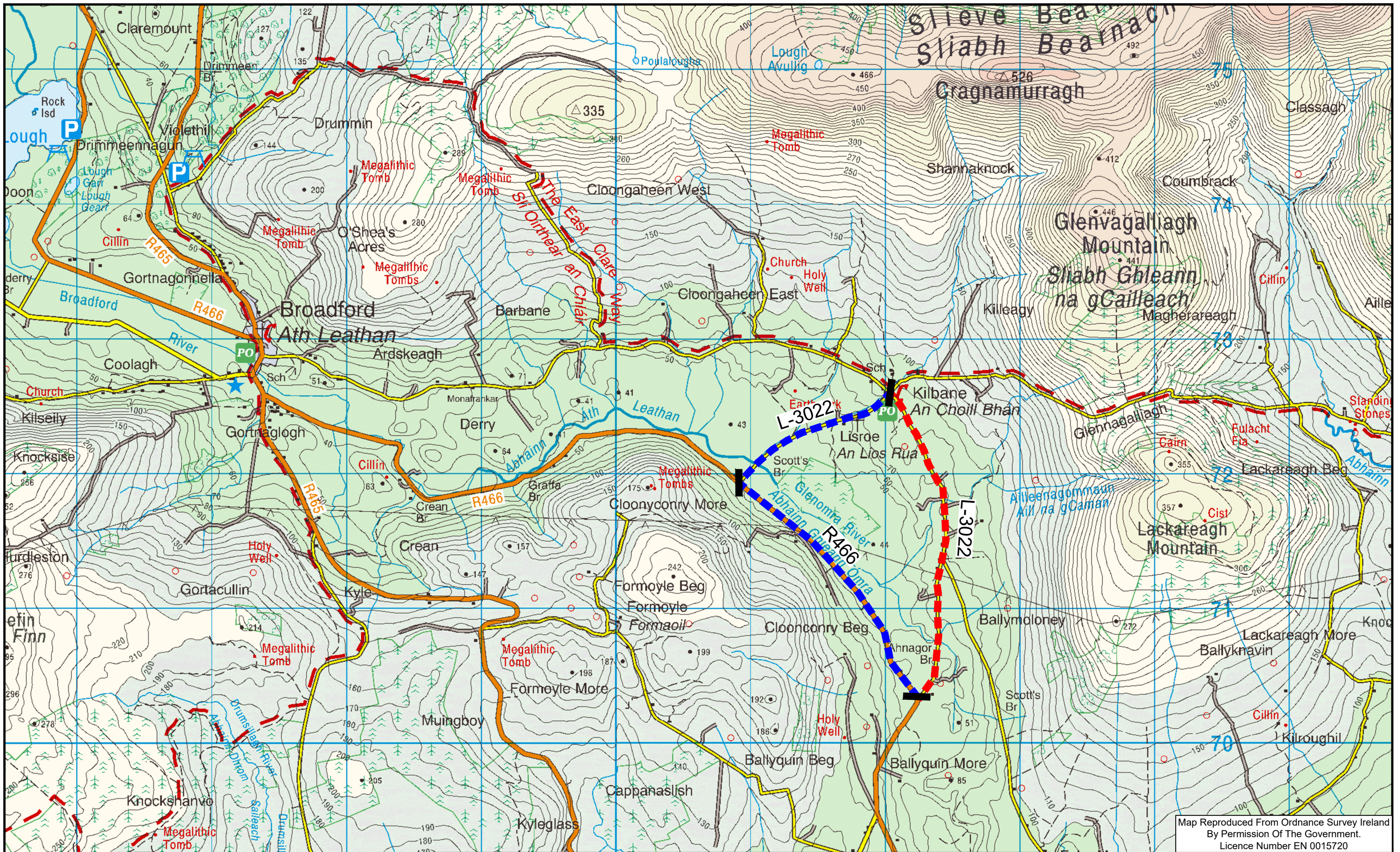
Client	COILLTE GROW TRANSFORM SUSTAIN			Project		
Rev.	Date	Description	by	ch'd	app	Title
A	05.02.20	Issued For Report	PN	PN	JoL	Carrowmagowan Wind Farm
						Proposed Road Closure at L-7004 Local Road Preliminary Traffic Management Plan



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Drawn	PN	15.11.2019	Drg. No.	19107-5103	Rev.	A
Checked	PN	15.11.2019	Scales (A3)	NTS		

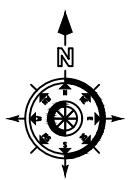




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**Legend :**

- - - Road Closures (2.4km)
- - - Diversion (3.4km)



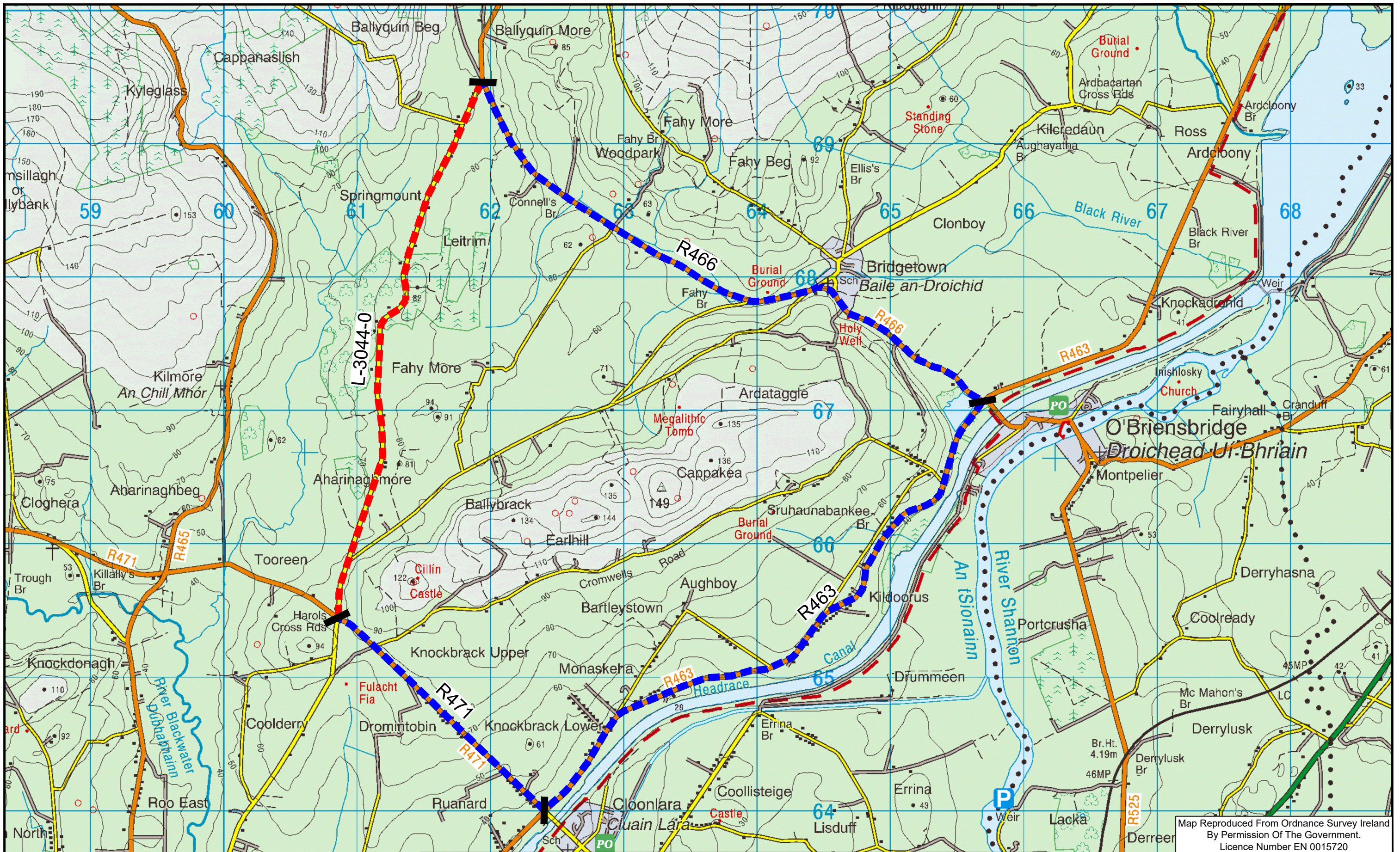
Client					
Project					
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL

Project	Carrowagowan Wind Farm				
Title	Proposed Road Closure at L-3022 Local Road Preliminary Traffic Management Plan				

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Scales (A3)		NTS	
Drawn	PN	15.11.2019	Drg. No. <b>19107-5104</b>
Checked	PN	15.11.2019	
			Rev. <b>A</b>

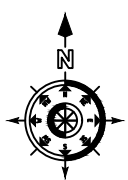




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**Legend :**

- - - Road Closures (4.2km)
- - - Diversion (11.7km)



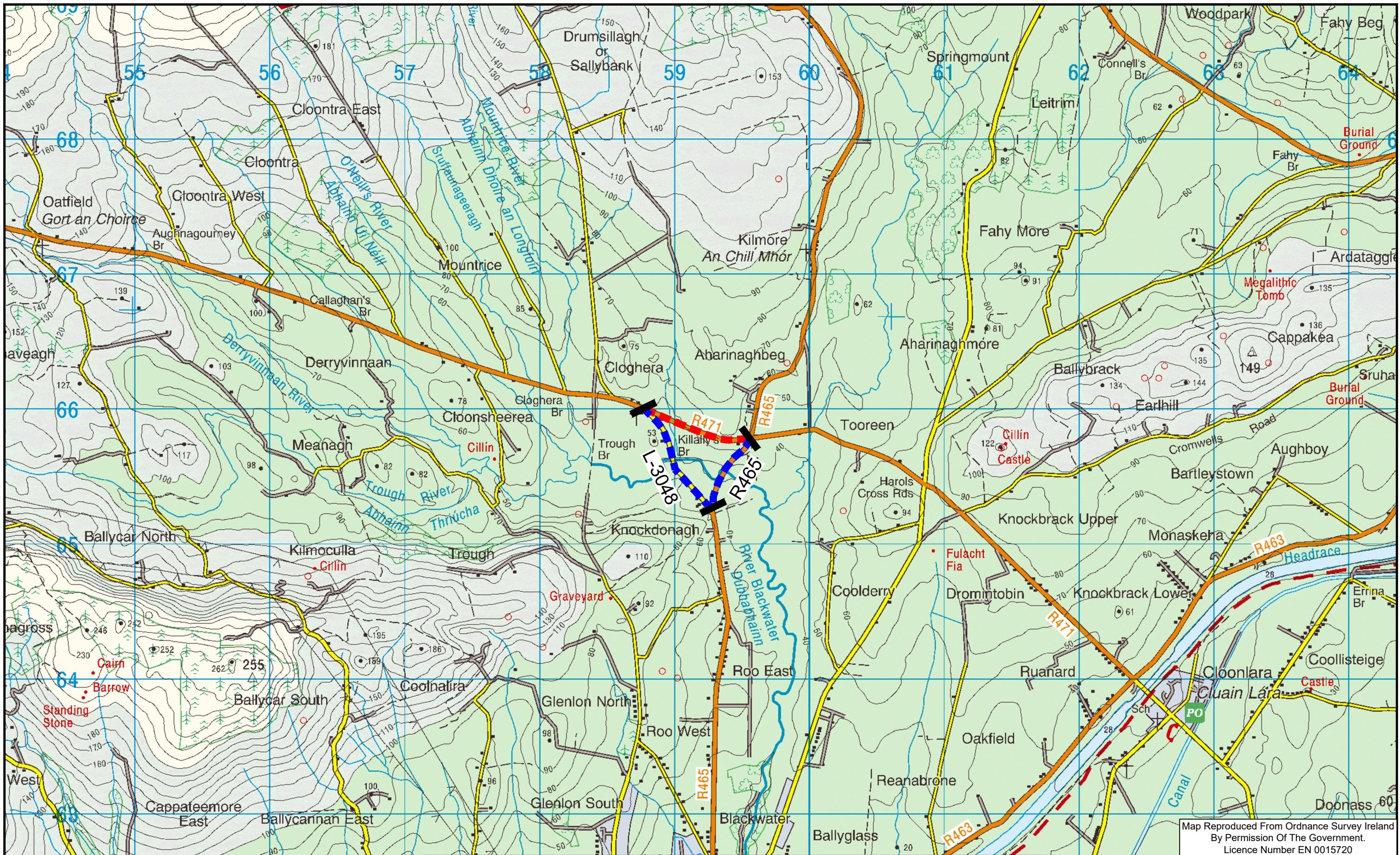
Client				Project		
Rev.	Date	Description	by	ch'd	app	Title
A	05.02.20	Issued For Report	PN	PN	JoL	
<p style="text-align: center;">Carrowagowan Wind Farm</p> <p style="text-align: center;">Proposed Road Closure at L-3044 Local Road Preliminary Traffic Management Plan</p>						



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Scales (A3)	NTS		Drg. No.	Rev.
Drawn	PN	15.11.2019	19107-5105	
Checked	PN	15.11.2019		
				A

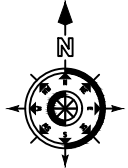




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**Legend :**

- - - Road Closure (0.8km)
- - - Diversion (1.5km)



Client					
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL

Project  
**Carrowmagowan Wind Farm**

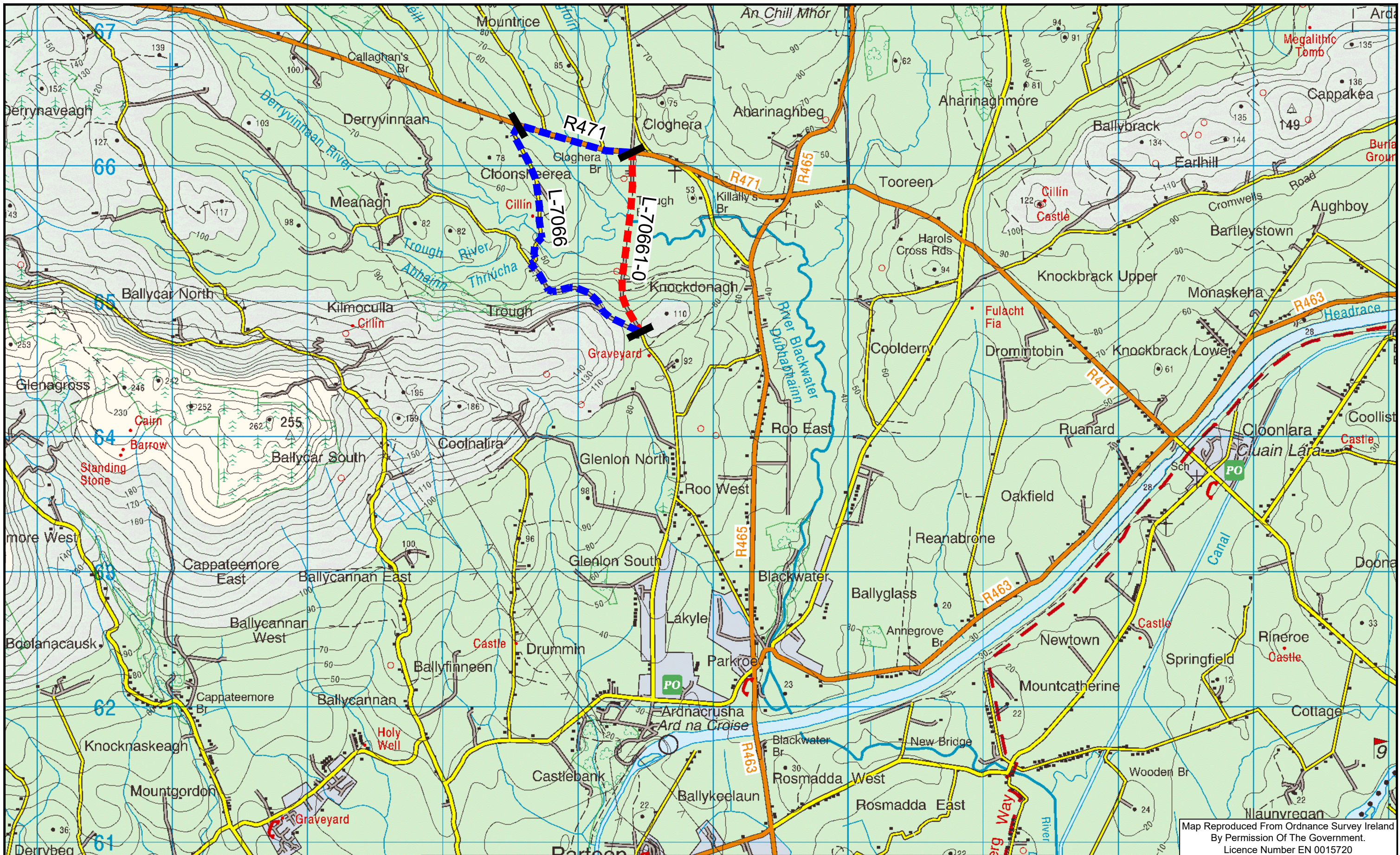
Title  
**Proposed Road Closure  
at R471 Regional Road  
Preliminary Traffic Management Plan**



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Drawn	PN	15.11.2019	Drg. No. <b>19107-5106</b>	Rev. <b>A</b>
Checked	PN	15.11.2019		

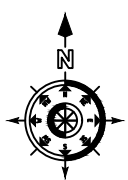




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**Legend :**

- - - Road Closure (1.3km)
- - - Diversion (3.0km)



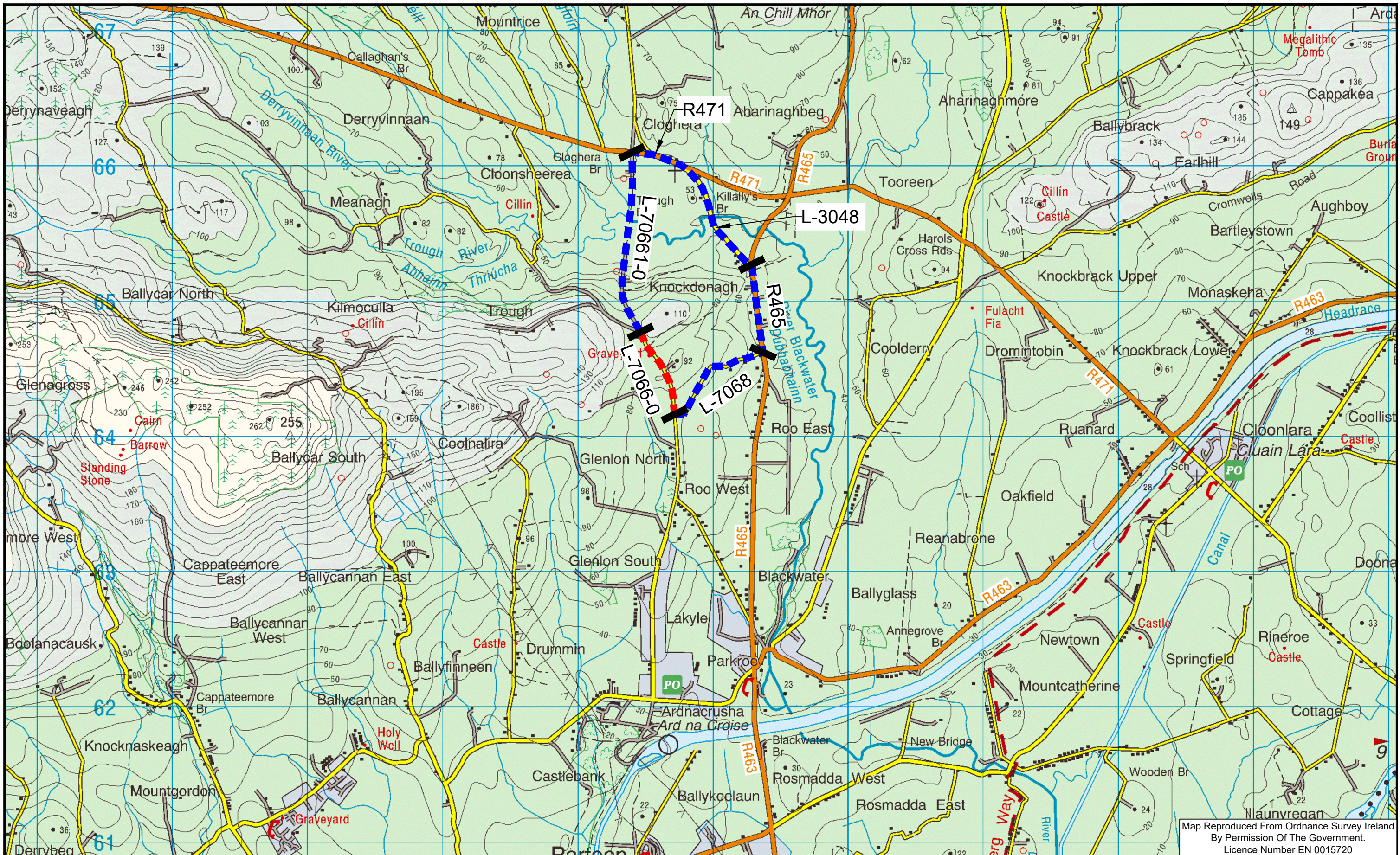
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL
Client					

Project	Carrowmagowan Wind Farm
Title	Proposed Road Closure at L-70661 Local Road Preliminary Traffic Management Plan

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Drawn	PN	15.11.2019	Drg. No. <b>19107-5107</b>	Rev. <b>A</b>
Checked	PN	15.11.2019		

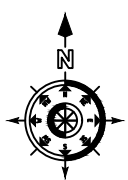




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**Legend :**

- - - Road Closure (700m)
- - - Diversion (4.2km)



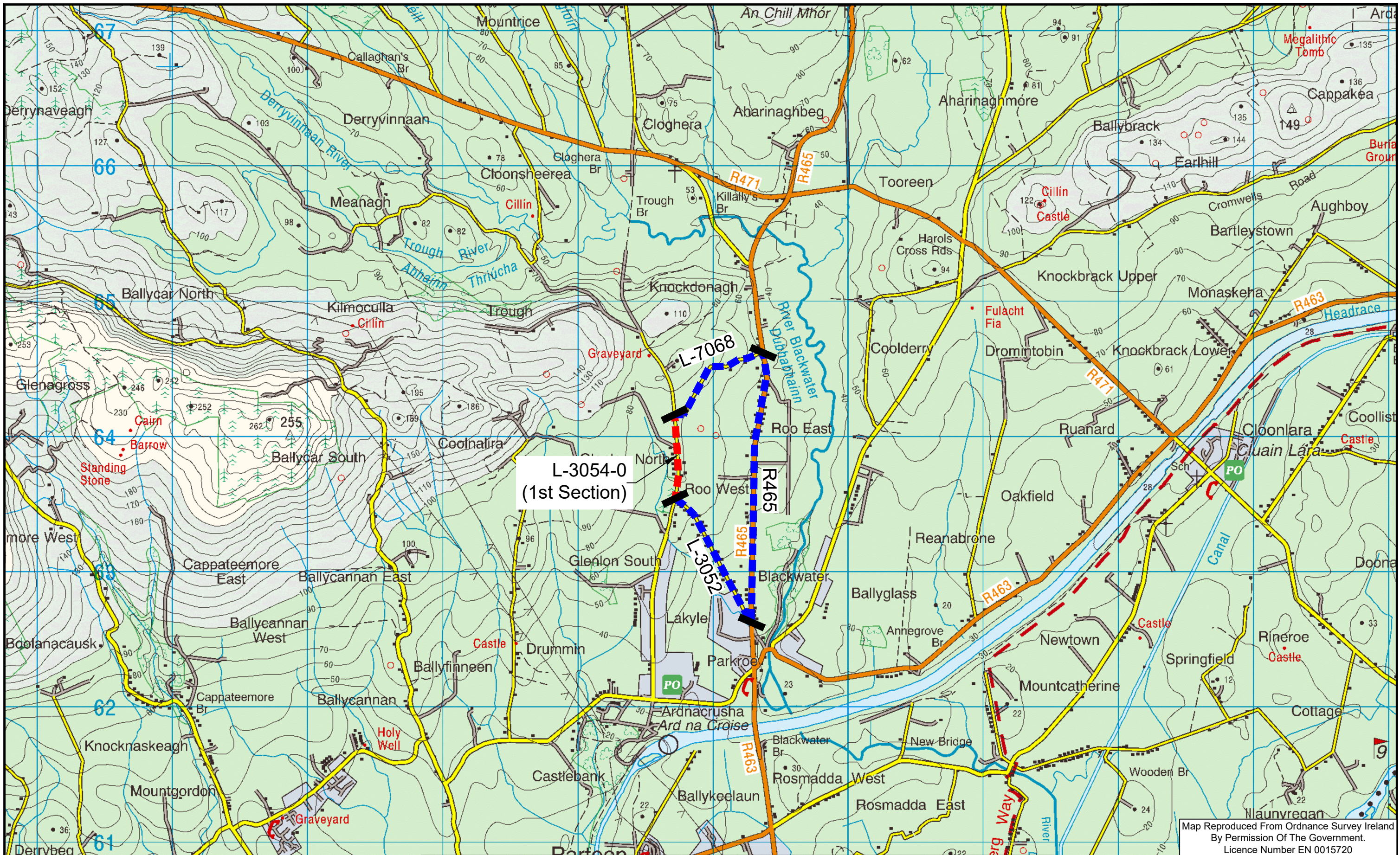
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL
Client					

Project	Carrowmagowan Wind Farm
Title	Proposed Road Closure at L-7066 Local Road Preliminary Traffic Management Plan

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Drawn	PN	15.11.2019	Drg. No. <b>19107-5108</b>	Rev. <b>A</b>
Checked	PN	15.11.2019		



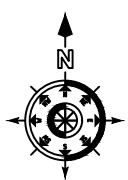


L-3054-0  
(1st Section)

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**Legend :**

- Road Closure (600m)
- Diversion (4.0km)



Project	Carrowmagowan Wind Farm				
Rev.	Date	Description	by	ch'd	app
A	05.02.20	Issued For Report	PN	PN	JoL
Client					

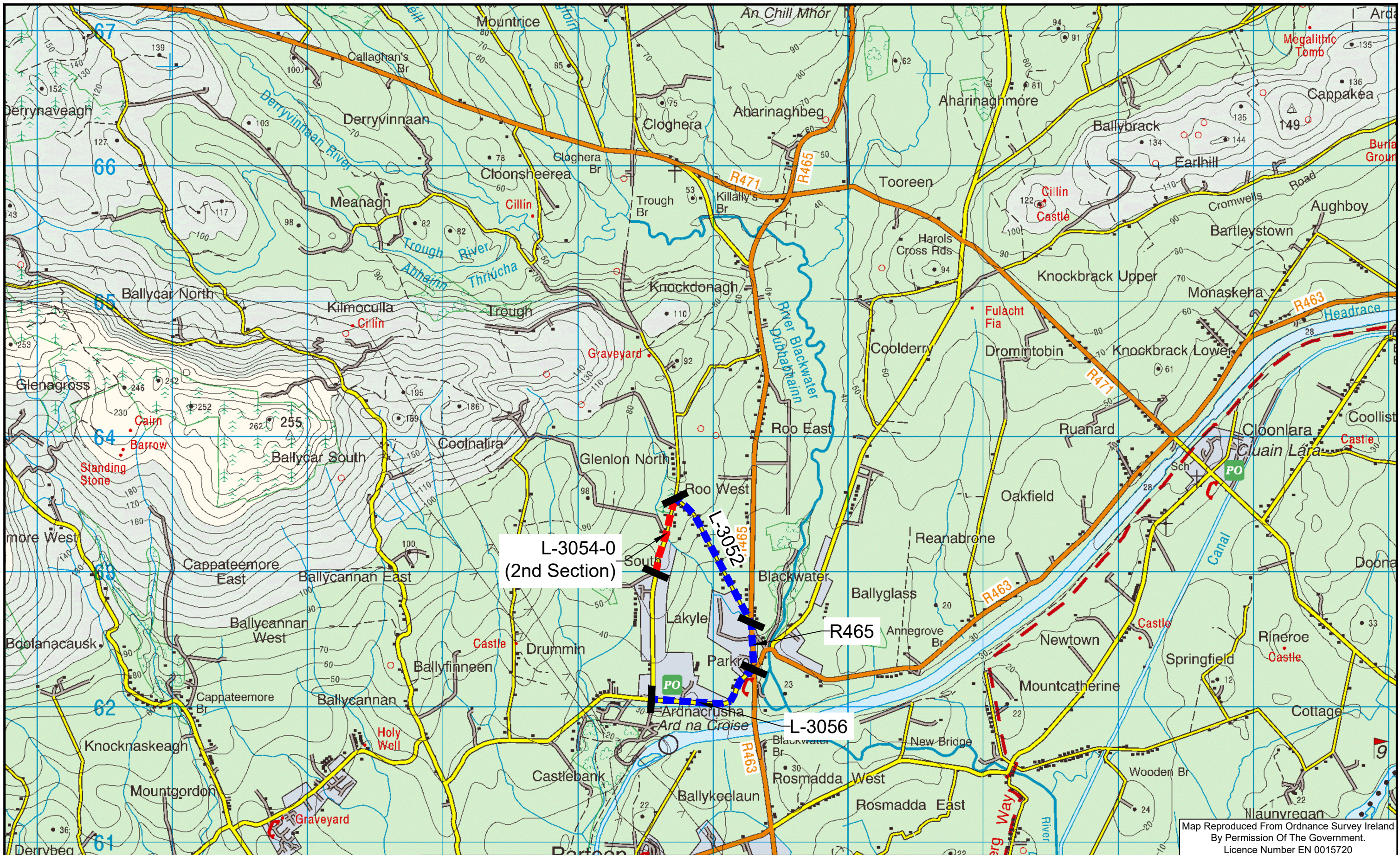
Title  
Proposed Road Closure  
at L-3054 Local Road (1st Section)  
Preliminary Traffic Management Plan



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Cork | Tralee | London | Limerick

Drawn	PN	15.11.2019	Drg. No. <b>19107-5109</b>	Rev. <b>A</b>
Checked	PN	15.11.2019		

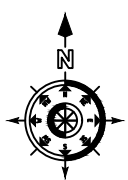




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**Legend :**

- - - Road Closure (600m)
- - - Diversion (2.3km)



A	05.02.20	Issued For Report	PN	PN	JoL
Rev.	Date	Description	by	ch'd	app
Client					

Project  
**Carrowmagowan Wind Farm**

Title  
**Proposed Road Closure  
at L-3054 Local Road (2nd Section)  
Preliminary Traffic Management Plan**

**Malachy Walsh and Partners**  
Consulting Engineers  
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Drawn	PN	15.11.2019	Drg. No. <b>19107-5110</b>	Rev. <b>A</b>
Checked	PN	15.11.2019		