

## Appendix 15

### Grid Connection Construction Methodology (GCCM)



**Derrynadarragh  
Wind Farm**

**EIAR Volume III  
Appendix 2.1B –Grid  
Connection Construction  
Methodology**

**DERRYNADARRAGH WIND FARM**



## **Appendix 2.1B – Grid Connection Construction Methodology DERRYNADARRAGH WIND FARM**

**Abstract:** Inis Onshore Wind and Danu Energy compiled this Construction Methodology for the grid connection works associated with joining the new Transmission System Operator (TSO) 110kV Substation to the existing 110kV Bracklone Substation as required for the proposed development. The purpose of this document is to outline and explain the construction techniques and methodologies which will be implemented during the construction of the grid connection works. The grid connection will consist entirely of underground cabling (UGC) with the majority of the UGC to be installed within the public road network and some elements in the Site tracks.

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## 1. INTRODUCTION

### 1.1 Purpose

The purpose of this document is to outline and explain the construction techniques and methodologies which will be implemented during the construction of grid connection works. The grid connection will consist entirely of underground cabling (UGC) with the majority of the UGC to be installed within the public road network and some elements in the Site tracks. This document should be read in conjunction with:

- EIAR Volume II Chapter 2 Description of the Proposed Development,
- EIAR Volume III Appendix 2.1 CEMP
- EIAR Volume III Appendix 14.2 TMP
- EIAR Volume III Appendix 2.1 C Derrylea Road Arborist Report.

### 1.2 Statement of Authority

This Document has been prepared by Dara Energy Limited and Danu Energy Consulting, with contributions from:

John Shanahan & Peter King (Danu Energy Consulting) are both directors of Danu Energy Consulting and combined have in excess of 40 years engineering experience. Danu Energy specialises in providing civil and electrical design for the power industry in Ireland and were specifically brought on to this project to impart their expertise on the design and implementation of the electrical grid route from Derrynadarragh windfarm to Bracklone substation.

Mark Coleman (Inis Onshore Wind) holds both a first-class honours B.Sc. in Automation & Instrumentation as well as a Certificate in Power Systems Engineering. Mark has over 16 years of experience of working in the power industry in Ireland, specialising in aspects relating to the National Electricity Grid. Over the course of his career, Mark has worked across all aspects of a project's lifecycle – from seeking planning permission, to subsequent construction and right through to operations of various electrical power plants. Of relevance to this methodology, Mark was recently involved in the implementation of the grid connection construction methodology for the Yellow River Windfarm in Co. Offaly (2023-2024) (Strategic Infrastructure Development).

### 1.3 Proposed Grid Connection

The Proposed Grid Connection will comprise 11.4km of underground 110kV electrical cabling which will pass through the townlands of Cushina in County Offaly; Derrylea, and Inchacooly in County Kildare, and Coolnaferagh, Ullard or Controversyland, Clonanny, Lea, Loughmansland Glebe, and Bracklone in County Laois. The Proposed Grid Connection has been identified, to supply power from the proposed development to the Irish National Electricity Grid, and will exit the site to the south and follow the public road to Bracklone Substation (which has recently been constructed).



Figure 2.1B- 1 Grid Connection Route

### 1.4 Grid Connection Works

Works for the grid connection will involve trenching, laying of ducting, installing 15 no. cable joint bays and 5 no. horizontal directional drills (HDD), pulling cables and the back filling of trenches and reinstatement works. The route will run through 9.1 Km of existing public road, with 0.3km in existing tracks and 2km in new access tracks on the wind farm site.

## 2. TRENCHING AND CABLE INSTALLATION METHODOLOGY

### 2.1 TRENCHING AND CABLE INSTALLATION METHODOLOGY

#### 2.1.1 Preparation of Method Statement

The Contractor and their appointed Site Manager will develop a targeted Method Statement detailing the construction approach. This will be completed prior to construction commencing and will include all relevant mitigation and control measures outlined and in accordance with environmental management plan outlined in Section 4 of the CEMP Appendix 2.1 Volume III of this EIAR.

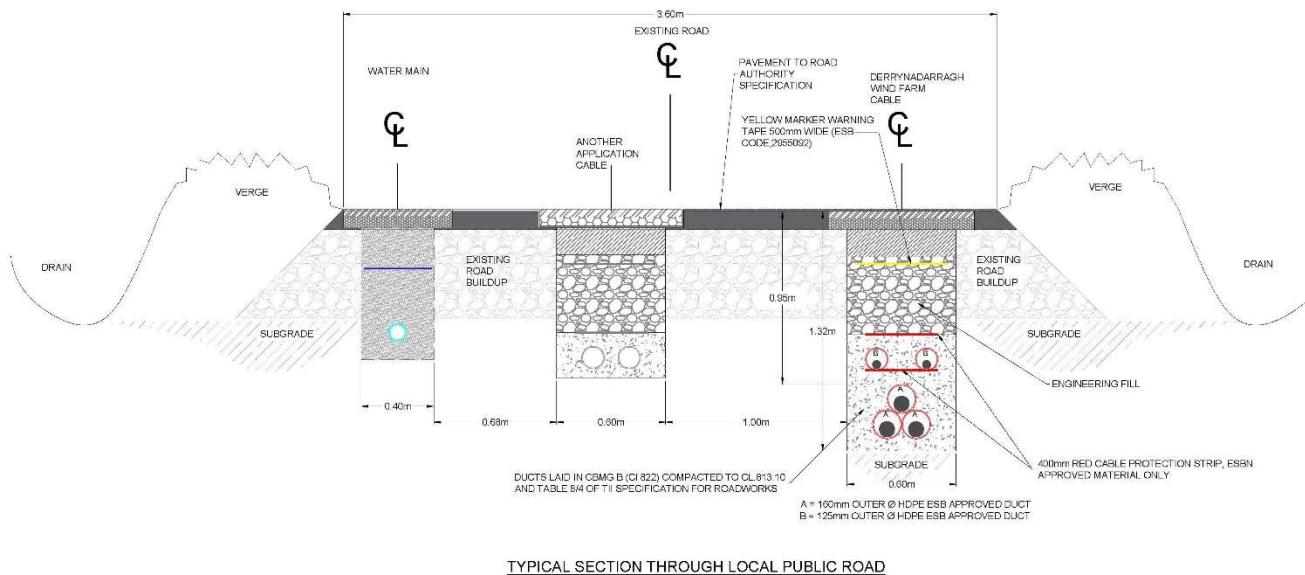
#### 2.1.2 Existing Utilities

A desktop utility survey was completed and identified a number of existing utilities along the proposed route. Checks for existing utilities were also completed during site walkovers along the route. Watermains were identified along sections of the proposed route, along with gas, telecoms, and electricity infrastructure. Prior to commencing construction, all existing underground services along the underground cable (UGC) route will be identified and marked on site.

Two locations were identified where the 110KV underground cable crosses a Gas Networks Ireland (GNI) pipeline. The construction of the proposed 110 kV underground cable trench beneath the existing GNI asset will be carried out in accordance with Gas Networks Ireland Code of Practice for Working in the Vicinity of Gas Transmission and Distribution Pipelines. Prior to commencement, the precise location, depth, and alignment of the pipeline will be verified through GNI supervised survey activities and controlled trial excavations. These works will be undertaken under direct GNI oversight, employing non-mechanical or low impact excavation techniques to ensure the continued stability and protection of the pipeline. The cable ducting will be installed with appropriate vertical and horizontal separation, protective measures, and engineered bedding to avoid any loading, vibration, or structural impact upon the pipeline. Following installation, the trench will be reinstated using approved materials and compaction procedures to restore ground conditions while safeguarding the integrity of the gas infrastructure. Sections showing the proposed grid route crossing the existing gas infrastructure are included in Planning drawing *DANU-DAR D001.7*

#### 2.1.3 Interface With Other Utilities

In the event of another applications been submitted along the route there is sufficient spacing for locating a 20kV and a 110kV (Derrynadarragh Wind Farm) and water main within the roads R420,R424,L-71761, L-7176 and L-7051 , See Figure 2.1b-5



**Figure 2.1B- 2 Section through local road**

#### 2.1.4 Traffic Management

Traffic management measures will be implemented in accordance with Chapter 14 of the EIAR. and Section 6 of this document.

#### 2.1.5 Trench Dimensions

Trenches will be excavated approximately 600mm in width and 1315mm in depth, both within public roads and site roads see drawings [EirGrid Type 160 duct trench]. Some sections of public road have been identified where peat is present under the road structure. The depth to base of peat varies and can be up to 2m deep below road surface. Along these local sections of road, it will be necessary to excavate wider and deeper, down to base of peat, and place lean-mix or engineering fill to support the grid route trench. Refer to drawing DANU-DAR D002.1

#### 2.1.6 Peat Removal

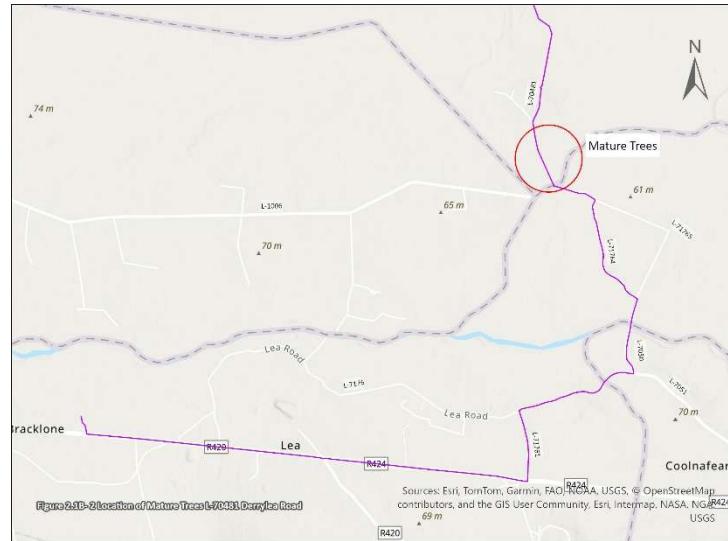
A ground penetrating radar GPR survey was conducted by APEX Geophysics Limited along the public road sections of the route, refer Volume III Appendix 11.4 Cable Route Geophysical Investigation Report. The survey identified the presence and depth of peat beneath the road surface. While peat depths under public roads are generally modest, certain locations will require over-excavation to remove underlying peat. In localized sections, particularly along the existing bog road within the site, trench depths may reach up to 2 metres. The anticipated volume of peat to be excavated from trenching works within public roads is approximately 2,800m<sup>3</sup> (un-bulked). Where peat is encountered along the grid route, it will be removed to ensure the trench is founded on a stable and suitable sub-grade. The road will be reconstructed to ensure the stability of the road and grid route.

#### 2.1.7 Peat Storage and Management

Excavated peat will be stored in designated peat deposition areas on site, in accordance with the Peat Management Plan (refer Appendix 11.3).

#### 2.1.8 Trenching Along Local Road L-70481 adjacent to mature trees

A 360m section of the grid route will be trenched along public road L-70481 (figure 2.1B-2), which is lined with mature trees on both sides. To protect tree roots, trenching will follow Section 6.5.5 of the Purple Book 2015 Guidelines for Managing Openings in Public Road. A qualified arborist will oversee and advise on all works in this area. Detailed methodology for this work is included in this EIAR Volume III Appendix 2.1C Arboricultural Derrylea Road Report.



**Figure 2.1B-3 Location of Mature Trees L-70481 Derrylea Road**

### 2.1.9 Duct Installation

HDPE cable ducts will be placed into the prepared trench, inspected, and backfilled in accordance with Planning drawing DANU DAR D002.1.

### 2.1.10 Material Stockpiling

Excavated suitable material will be temporarily stockpiled on site for reuse during reinstatement. Imported fill will be delivered to the work site and stockpiled for use locally. Any stockpiles will be:

- limited to a maximum height of 2m
- located at least 50m from any surface water features.
- At locations approved by the Site Manager and Project Environmental Clerk of Works (ECoW).

### 2.1.11 Backfilling and Surplus Material

Where suitable, excavated material will be reused for backfilling. Any surplus will be transported to designated on-site deposition areas or a licensed waste facility, as appropriate.

### 2.1.12 Sod Management

Earthen (sod) banks will be carefully excavated, with surface sods stored separately and preserved for reinstatement.

### 2.1.13 Dewatering

If required, trenches will be dewatered using a sump installed at the lowest point. Any extracted water will be treated via silt bags before being discharged to vegetation or surface water drainage features, in line with Chapter 12 of the EIAR and Appendix 12.2 Surface Water Management Plan.

### 2.1.14 Grass Reinstatement

Grass will be reinstated either by reseeding or by replacing stored grass turves, depending on site conditions.

### 2.1.15 Sequential Excavation

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Generally, no more than 100m of trench will be open at any one time at a works location. The works generally progress sequentially, and the next section of trenching will only be excavated once reinstatement of the previous section is substantially complete.

### **2.1.16 Work Rate and Schedule**

On average it is anticipated that excavation, duct installation, and reinstatement of a 100m section (approximately) will be completed within one working day.

### **2.1.17 Roadway Reinstatement**

Where trenching occurs in roadways, temporary reinstatement may be applied to facilitate larger-scale permanent reinstatement. Permanent road reinstatement details will be confirmed with the relevant county councils prior to construction. Various roads along the route may require full lane or full width road pavement reinstatement. Some sections of public road have been identified where peat is present under the road structure, and it will be necessary to reconstruct the upper section of the road to incorporate geogrid layers to strengthen the road structure.

### **2.1.18 Working Hours**

Works will be carried out during standard hours:

Monday to Friday: 07:00–19:00

Saturday: 07:00–13:00

No works on Sundays or Bank Holidays, except in emergencies or exceptional circumstances.

### **2.1.19 Cable Pulling and Jointing**

As per drawings P22-145-0500-0004 and ‘EirGrid Typ 160 duct trench’, following duct installations, cables will be pulled through the ducts. Cable pulling will take approximately one day between each joint bay. Cable jointing will take approximately one week per joint bay location.

### **2.1.20 Equipment:**

The equipment and operatives anticipated at a trenching location would generally include:

- 1 no. excavator operator
- 1 no. works supervisor
- 3-4 no. general operatives
- 1 no. tracked excavator (only rubber tracked machines will be allowed on public roads)
- 1 no. dumper or tractor and trailer.

### **2.1.21 Materials:**

- Ready-mix concrete (delivered to site)
- Trench backfilling material (excavated material and aggregates) to relevant specifications
- 160mm diameter HDPE ducting
- 125mm diameter HDPE ducting
- 63mm diameter HDPE duct
- Temporary surface reinstatement materials
- Geogrid and pavement reinforcement materials
- Permanent road surface reinstatement materials.

### 3. JOINT BAYS AND CHAMBERS

#### 3.1 Joint Bays and Associated Chambers Methodology

##### 3.1.1 Joint Bay Installation

Joint bays will be installed in accordance with EirGrid specifications. EirGrid specifications for joints bays consist of a pre-cast concrete structure measuring 2.5m (W) x 6m (L) x 2.05m (D), positioned below the finished ground level. Refer to DANU-DAR-series drawings for details.

##### 3.1.2 Communication Chambers

At each joint bay location, communication chambers will be installed to facilitate data links and protection systems between Derrynadarragh Wind Farm and the Bracklone 110kV Substation. These chambers will be located adjacent to the joint bays.

##### 3.1.3 Earth Sheath Link Chambers

Earth sheath links are used for earthing and bonding cable sheaths in underground power cables. These are installed in a flat formation to minimise circulating currents and induced voltages. Earth sheath link chambers will be positioned near joint bays and will also be constructed from pre-cast concrete with surface-level access covers.

##### 3.1.4 Marker Posts

On sections of the grid route away from public roads, marker posts will be installed to indicate the duct route and joint bay locations. These posts will feature:

- A corrosion-resistant aluminium triangular danger sign (750mm base)
- A centred lightning symbol on a fluorescent yellow engineering-grade background
- Marker posts or plates will also be placed where cable burial depth is below standard due to road conditions.

##### 3.1.5 Drawings and Documentation

Detailed drawings of joint bays, communication chambers, and their locations are included in the planning drawings:

DANU-DAR-SK001 - Joint bay drawing v2

DAR-D002.1 Cable Trench In Road Details

DAR-D002.2.1 Sections Through L-7176 Local Road

DAR-D002.2.2 Sections Through L-71761 Local Road

DAR-D002.2.3 Sections Through R420 Regional Road

P22-145-0103-0001

P22-145-0103-0002

P22-145-0103-0003

P22-145-0103-0004

P22-145-0103-0005

P22-145-0103-0006

P22-145-0103-0007

## 4. HORIZONTAL DIRECTIONAL DRILLING

### 4.1 Horizontal Directional Drilling (HDD) Methodology

#### 4.1.1 Site Preparation

A designated work area of will be securely fenced on both sides of the crossing to ensure safety and containment.

#### 4.1.2 Equipment Setup

The drilling rig and fluid handling units will be positioned on one side of the crossing. These units will be placed on double-bunded PVC bunds to contain any potential fluid spills and manage stormwater runoff.

#### 4.1.3 Excavation of Entry and Exit Pits

Entry and exit pits, each measuring 1m x 1m x 2m, will be excavated using an excavator. Excavated material will be temporarily stored within the work area and either reused for reinstatement or disposed of at a licensed facility.

#### 4.1.4 Installation of Steel Boxes

Steel containment boxes (1m x 1m x 2m) will be placed in each pit to collect drilling fluid returns from the borehole.

#### 4.1.5 Drilling Initiation

A surveyor will set up the drill bit, after which the driller will advance the drill string into the ground, steering the bore path beneath the watercourse/crossing.

#### 4.1.6 Monitoring and Control

A surveyor will continuously monitor the drilling process to ensure that modelled stress levels and collapse pressures are not exceeded.

#### 4.1.7 Cuttings Removal

Drilled cuttings will be flushed back to the steel box in the entry pit using drilling fluid. Excess fluid will be removed from the pit by vacuum extraction into a tanker vehicle for treatment or disposal at a licenced facility. For larger crossings it may be necessary to utilise a holding pond or tank at the drill location, which acts as an interim holding tank while the tanker vehicle is emptied.

#### 4.1.8 Back Reaming

Upon completion of the pilot hole, a hole-opener or back reamer will be installed in the exit pit to pull a drill pipe back through the borehole to the entry side.

#### 4.1.9 Duct Installation

After all boreholes are completed, a towing assembly will be set up to pull the ducting through the bore.

#### 4.1.10 Fluid Disposal

Steel boxes will be removed, and all drilling fluid will be disposed of at a licensed facility.

#### 4.1.11 Duct Verification

Installed ducts will be cleaned, tested, and surveyed to confirm their location and integrity.

#### 4.1.12 Site Reinstatement

Entry and exit pits will be reinstated in accordance with specifications provided by ESB Networks, EirGrid, and Laois and Kildare County Councils.

#### **4.1.13 Transition Coupler Installation**

Transition couplers will be installed on both sides of the crossing to connect the HDD ducts to the standard ducts, as per ESB Networks and EirGrid requirements.

## 5. WATER CROSSINGS

### 5.1 Water crossings

Seven water crossings have been identified along the grid route. For detailed locations, refer to Volume II of the EIAR Chapter 2 - Description of the Proposed Development and planning drawings series P22-145-0103.

The crossings include:

- 6 Horizontal Directional Drills (HDD) – including one beneath the Barrow River bridge (see Figure 2.1B-3 below). See planning Application drawings DAR-D001 Series Drawings for Water crossing Sections details.
- 1 crossing over the new wind farm bridge on site see Planning application drawing P22-145-0300-0001.



Figure 2.1B- 4 Bridge over river Barrow

## 6. TRAFFIC MANAGEMENT FOR GRID CONNECTION WORKS

## 6.1 Introduction

This section outlines a traffic management plan for the construction of the Derrynadarragh Wind Farm 110kV underground grid connection works between the proposed 110kV substation on Site located in County Offaly, and the existing 110kV Bracklone Substation in County Laois, the route will also pass through County Kildare.

The proposed grid route commences at the proposed Derrynadarragh 110kV Substation and travels along proposed wind farm access roads, before following the public road network to 110KV Bracklone substation (point A in Figure 2.1B-4 below). The route follows local roads L-70481, L-71764, L-7050, L-7051, L-7176, and L-71761. It then joins regional roads R424 and the R420, before following the access road into the existing Bracklone 110 kV Substation.

The location of the proposed grid route and public road references are also shown in Volume IV of the EIAR Figures 14.5 to 14.11.



## Figure 2.1B- 5 TMP Connection Route Overview

## 6.2 Scope & Objective

The primary objective of this traffic management section is to outline how access will be provided and maintained in the local area during the construction of the proposed grid route to facilitate the safe passage of road users, while endeavouring to limit disruption and maintaining access to private property during construction.

This will form part of subsequent road opening license applications and will include the Mitigation Measures from this EIAR and will incorporate relevant planning conditions. The Road Opening Licenses are granted by the relevant local councils.

The traffic management plan (TMP) and associated traffic management control measures will be designed and executed in compliance with the Department of Transport (DoT) Guidance for the Control and Management of Traffic at Road Works and the DoT Traffic Signs Manual – Chapter 8: Temporary Traffic Measures and Signs for Roadworks.

## 6.3 Construction Compound Facilities

The construction compound facility will be located at the wind farm site, however mobile office and welfare facilities would be provided at the works areas along the public roads.

## 6.4 Programme

The grid route works will be completed generally following these high-level steps:

1. Trenching works will be progressed in stages along the route. Trenches will be backfilled, and a temporary road surface will be installed to allow for settlement of trench backfill before the final road reinstatement is completed. Joint bay installation and water crossings are often completed as the route progresses, however in some cases they may be scheduled as discrete works, e.g. if specialist equipment is required for HDD crossings.
2. Re-excavation at the joint bays to pull and joint the cables. Followed by reinstatement at each joint bay location and the laying of a temporary road surface.
3. Final road reinstatement. Depending on the road pavement reinstatement works required, Step 3 may need to be programmed to be completed during the spring or summer months.

The anticipated construction timeframes are, approximately:

- Step 1 – 7/8 months
- Step 2 - 3 months
- Step 3 - 3 months

It should be noted that the timelines above are overall construction timelines, and do not reflect the time construction works will take place on a particular road.

For Step 1, grid route construction works are progressed in a linear manner, with the works area moving along the grid route progressively. There will be in effect a moving works site, with associated rolling traffic management. For example, the active works site may be 100m in length at any one time – the active works site would relocate along the grid route over the period outlined in Step 1.

The anticipated construction times for the active work site to be located along each road section are outlined in Table 2.1B- 2 Step 1 Construction Timelines for each Road Sections.

## 6.5 Local Access

Local access to residence and property will be maintained throughout the works, although traffic flow may be temporarily reduced during active construction. Where road closures and diversions are put in place, local access to residences and property will be maintained. Where construction works are progressing outside

property entrances, access can be maintained by keeping an access point clear of spoil/fill and by the provision of crossing points over the works, e.g. steel plate crossings.

## **6.6 Emergency Access**

Emergency services access to residence and property will be maintained throughout the works. Where road closures and diversions are put in place, local access to residences and property will be maintained. In the event of an emergency, steel plates (kept on site) can be placed over open trenches to temporarily restore traffic flow.

## **6.7 Road Cleanliness and Safety**

The public road will be regularly inspected and kept free of mud and debris. Road sweeping will be carried out as needed to ensure construction traffic does not negatively impact road conditions.

## 6.8 Traffic Management Plan

This traffic management plan for the proposed Grid Connection Route has been divided into sections along its length. Refer Volume IV Figure 14.5 and-Figure 2.1B- 6 below. The various sections are tabulated along with approximate length of each section, the road reference and the anticipated traffic management measures anticipated for each section of road (refer to Table 2.1B- 1 Outline Traffic Management Plan Sections and Diversions-). As noted in Section 6.4, the works site and associated traffic management will move progressively along the route, and the anticipated works timeframes for each section of road are outlined in Table 2.1B- 2 Step 1 Construction Timelines for each Road Sections.

In general, two primary traffic management measures are anticipated to be required, based on an assessment of the existing road widths, locations and the type of works. These are a 1-way stop/go system and road closures, and these measures are outlined below:

### I. 1-Way Stop/Go System

Where a road has provision for two traffic lanes with adequate width, a rolling Stop/Go traffic light system will be implemented in approximately 50m-100m works sections, allowing traffic to bypass the construction works. This measure would involve the road remaining open, but with reduced traffic flows due to the closure of one lane of traffic at the works area.

### II. Road Closure

Narrow single-lane local roads will be closed to allow construction of the grid route to proceed. Diversion routes will be indicated for all traffic. Local access for residents / businesses will be maintained and accommodated during the works. Where required, stoned passing bays will be prepared by the contractor in road verges to create space for local residents to bypass tracked machinery and other construction plant. Where open trenches obstruct residents' access, steel road plates may be installed over the trench temporarily to provide safe access.

It is expected for both options that approximately between 75-100m of trenching, ducting and backfilling (temporary surface) could be completed on average per day.

**Table 2.1B- 1 Outline Traffic Management Plan Sections and Diversions**

| Road Section Reference | Approx. Section Length | Road Reference               | Anticipated Traffic Management Measures | Alternative Route (Diversion)              |
|------------------------|------------------------|------------------------------|---|--|
| A-B                    | 150m                   | Local access road            | Stop/Go                                 | No Diversion Required                      |
| B-C                    | 1900m                  | Regional (R420)              | Stop/Go                                 | No Diversion Required                      |
| C-D                    | 1600m                  | Regional (R424)              | Stop/Go                                 | No Diversion Required                      |
| D-E                    | 600m                   | Local road L- 71761          | Road Closure                            | Figure 2.1B- 6 TMP Grid Route Section D-E  |
| E-F                    | 950m                   | Local road L- 7176 & L- 7051 | Road Closure                            | Figure 2.1B- 7 TMP Grid Route Section E-F  |
| F-G                    | 600m                   | Local road L- 7050           | Road Closure                            | Figure 2.1B- 8 TMP Grid Route Section F-G  |
| G-H                    | 900m                   | Local road L- 71764          | Road Closure                            | Figure 2.1B- 9 TMP Grid Route Section G-H  |
| H-I                    | 330                    | Local road L- 71764          | Road Closure                            | Figure 2.1B- 10 TMP Grid Route Section H-I |
| I-J                    | 1200m                  | Local road L- 70481          | Road Closure                            | Figure 2.1B- 11 TMP Grid Route Section I-J |
| J-K                    | 1350m                  | Local road L- 70481          | Road Closure                            | Figure 2.1B- 12 TMP Grid route Section J-K |
| K-L                    | 1500m                  | Wind farm roads              | N/A private roads                       | No Diversion Required                      |

Table 2.1B- 2 Step 1 Construction Timelines for each Road Sections

| Road Section Reference | Road Reference              | Anticipated Works Timeframe [weeks] |
|------------------------|-----------------------------|-------------------------------------|
| A-B                    | Local access road           | 1                                   |
| B-C                    | Regional (R420)             | 6                                   |
| C-D                    | Regional (R424)             | 5                                   |
| D-E                    | Local road L-71761          | 2                                   |
| E-F                    | Local roads L-7176 & L-7051 | 3                                   |
| F-G                    | Local road L-7050           | 2                                   |
| G-H                    | Local road L-71764          | 3                                   |
| H-I                    | Local road L-71764          | 1                                   |
| I-J                    | Local road L-70481          | 3                                   |
| J-K                    | Local road L-70481          | 4                                   |
| K-L                    | Wind farm roads             | 4                                   |

### **6.8.1 Regional Roads**

Along the R420 (points B-C) and R424 (C-D) where road widths permit, a traffic light ‘Stop/Go’ traffic management system will be implemented, maintaining a minimum 2.5m wide carriageway to allow traffic to pass safely around the works area. Trenching works are anticipated to take approximately 11 weeks along the length of the two regional roads, however the works area would be limited in length at any one time (for example the traffic management and trench works area may be 100m in length, moving progressively). Local property access will be maintained throughout the works. At this time, it is not envisaged that a road closure or diversion will be required for this work.

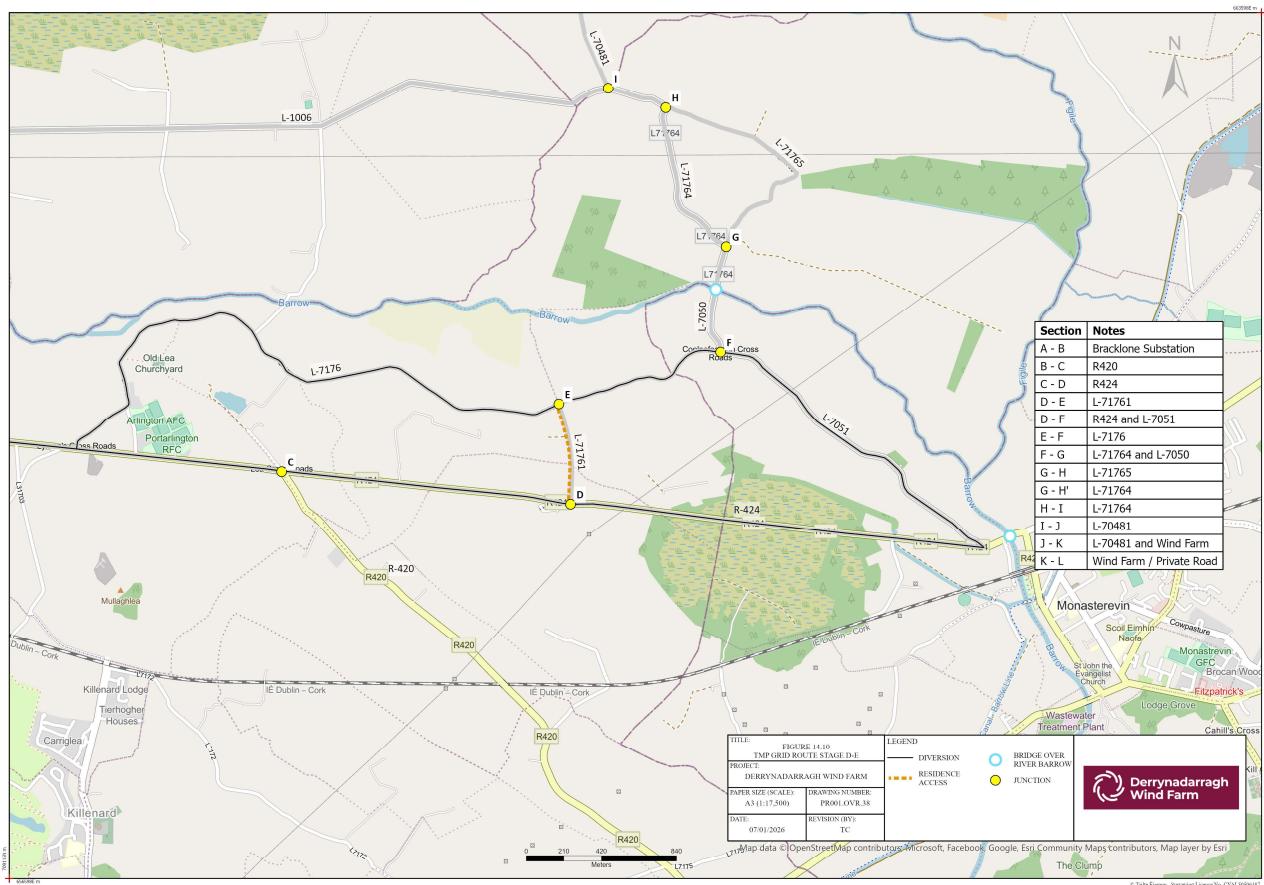
### **6.8.2 Local Roads**

Along the local roads L-71761, L-71764, L-7050, L-7051, L-7174, L-7176, L-70481 where a ‘Stop/Go’ traffic management system is not feasible, a road closure will be required. Diversion routes are outlined below, however it should be noted that local property access will be maintained throughout the works. For traffic management purposes it is usual to close the road from the nearest junctions, however the works area will be more limited (for example 50-100m in length), and this works area will then progressively move along the section of closed road. Where the works area is located at a property entrance, it will be possible to accommodate local access into the property across the works site.

Reference should be made to Table 2.1B- 2 for anticipated works timeframes for each section of road.

### 6.8.3 Section D-E (Local road L-71761)

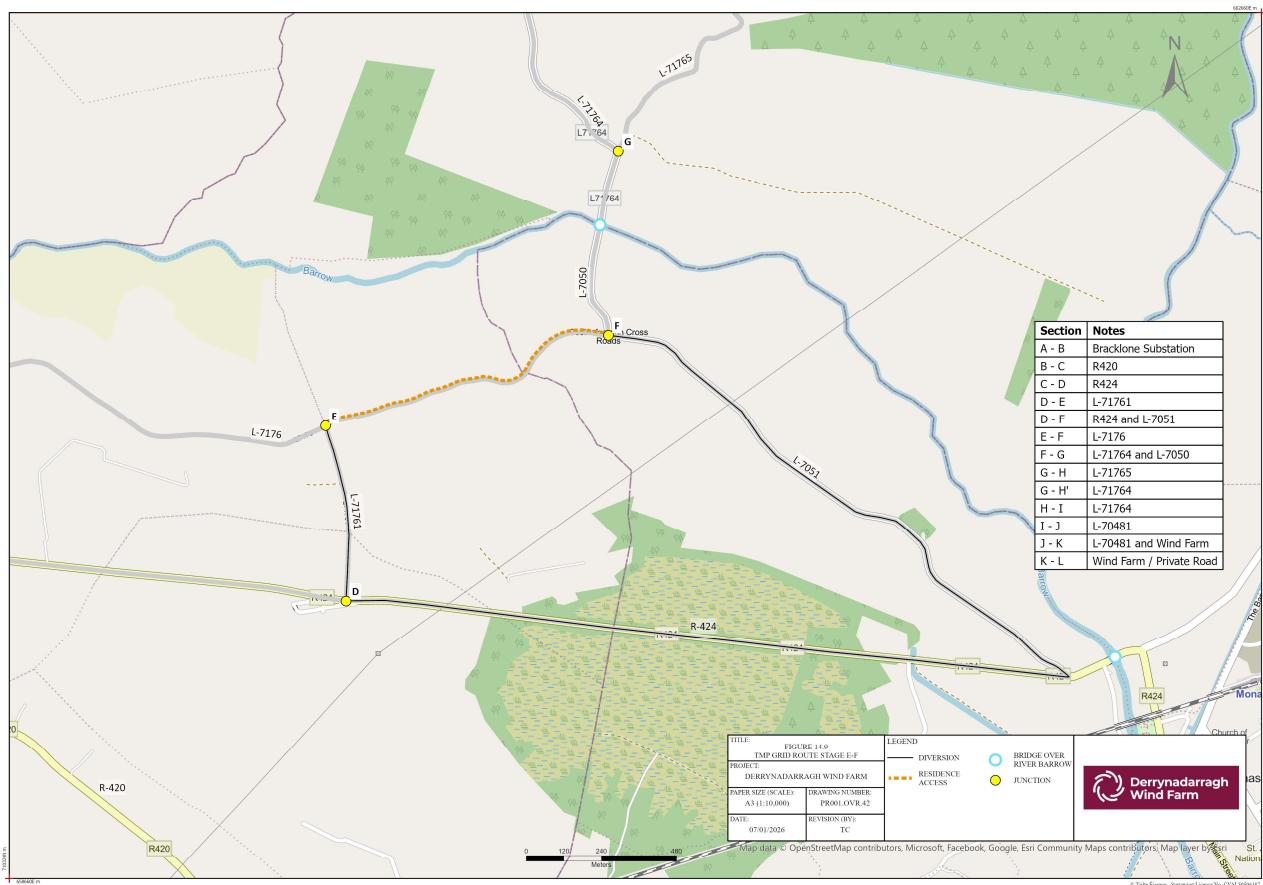
Two potential diversion routes are indicated in the figure below. As noted, local property access will be maintained.



**Figure 2.1B- 6 TMP Grid Route Section D-E**

#### 6.8.4 Section E-F (Local roads L-7176 & L-7051)

A diversion route is indicated in the figure below. As noted, local property access can be maintained along the proposed closed road.



## Figure 2.1B- 7 TMP Grid Route Section E-F

### 6.8.5 Section F-G (Local Road L-7050 and L-71764)

Given the limited number of road crossings over the River Barrow, the timing of Section F-G will be important, and the works will be agreed with the county councils when the construction stage traffic management plan is developed. A potential diversion route is indicated in the figure below. As noted, local property access can be maintained along the proposed closed road, however it may not be possible to allow public traffic to cross the River Barrow Bridge during HDD drilling operations.

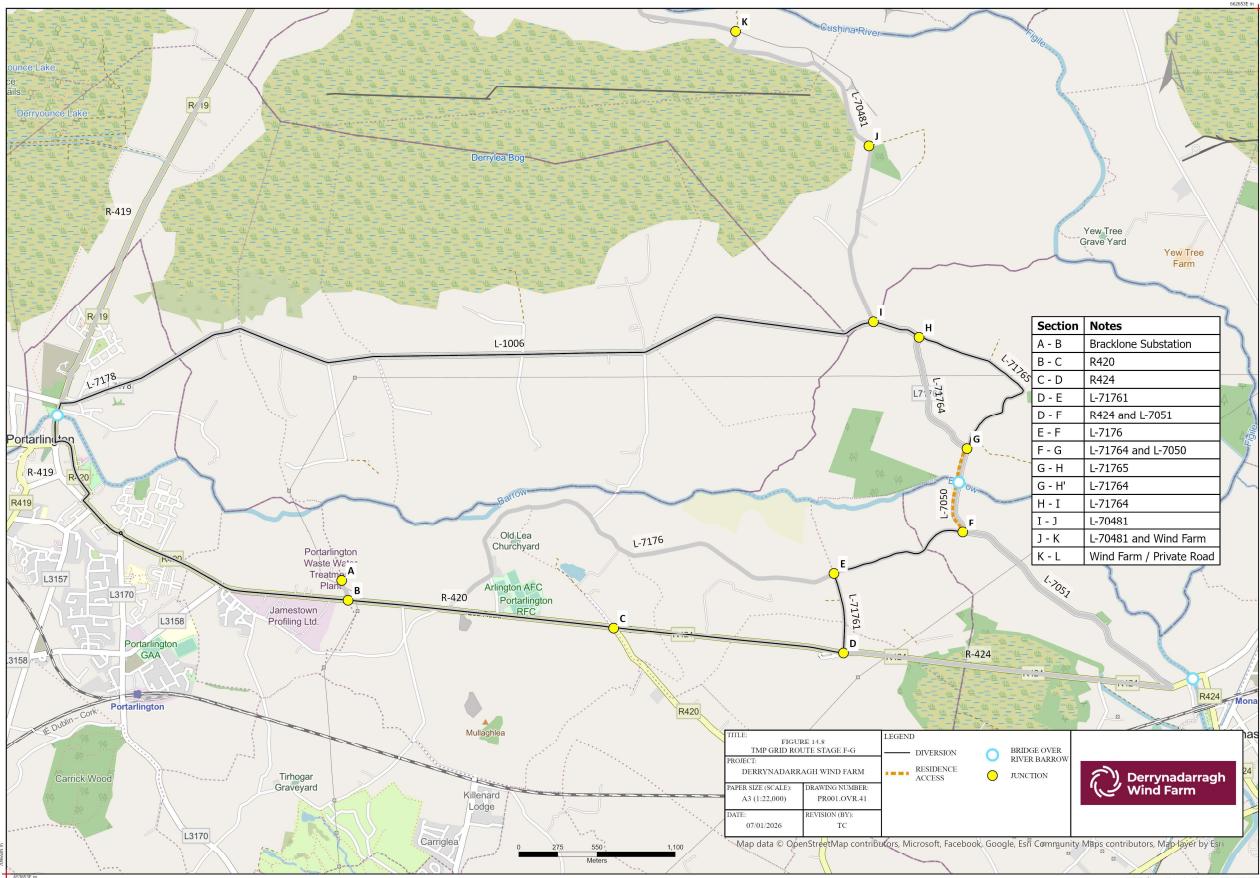


Figure 2.1B- 8 TMP Grid Route Section F-G

### 6.8.6 Section G-H (Local road L-71764)

For works along this section G-H, there will be temporary closure of this section of road with a diversion on L-71765.

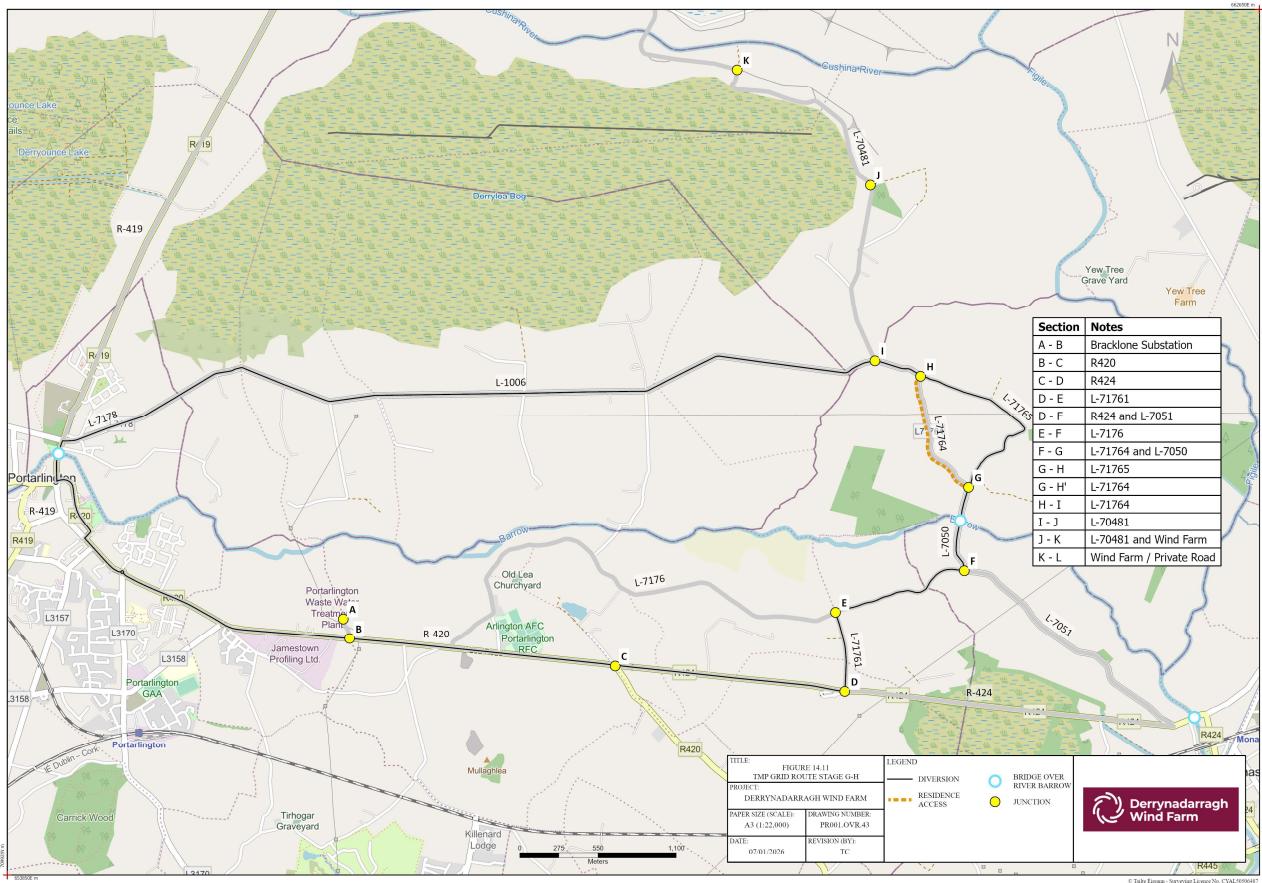


Figure 2.1B- 9 TMP Grid Route Section G-H

### 6.8.7 Section H-I (Local road L-7178)

A diversion route is indicated in the figure below. As noted, local property access can be maintained along the proposed closed road.

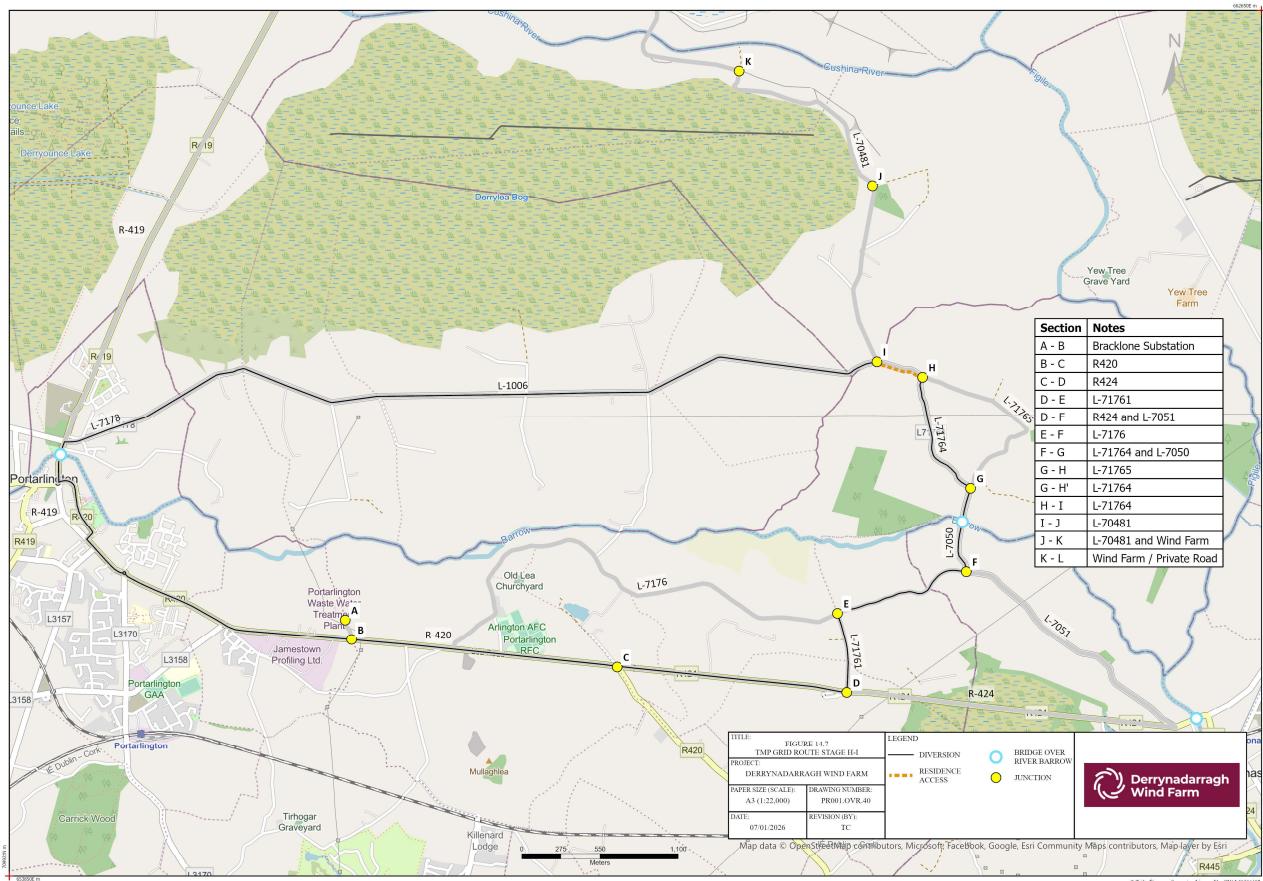
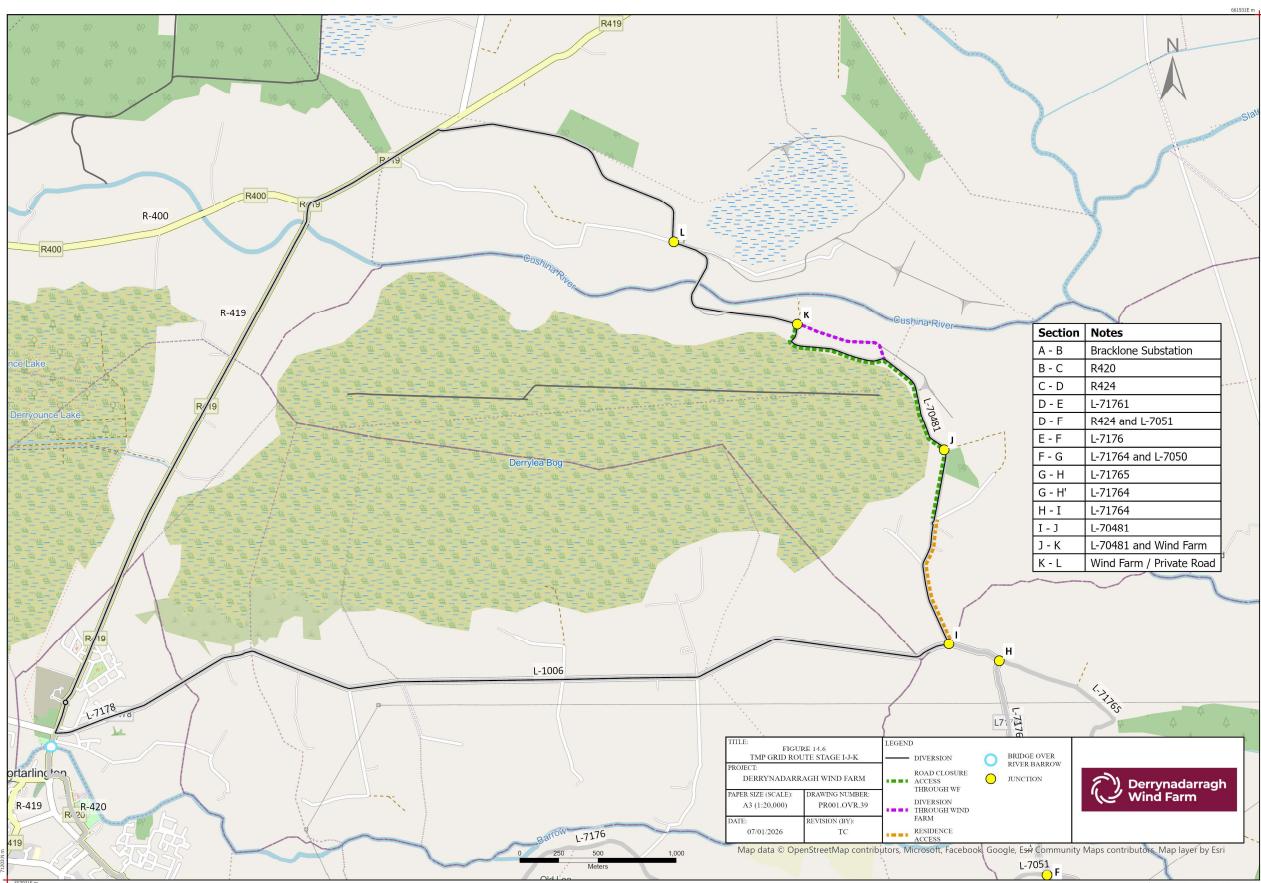


Figure 2.1B- 10 TMP Grid Route Section H-I

### 6.8.8 Section I-J K (Local road L-70481)

Wind farm access roads will be completed in advance of the grid route works, and therefore access for construction traffic will be possible using the proposed wind farm road network (e.g. L-K and at J).

A diversion route is indicated in the figure below for people accessing the bog for turf cutting through the wind farm. Local access for residence within Derrylea will be maintained along the proposed closed road during the works. Residence will be regularly informed of all works and activities along this route, and activities will be scheduled in coordination with residence where possible. For example, ensuring through access during the morning school run.



**Figure 2.1B- 11 TMP Grid Route Section I J-k**

### 6.8.9 Section J-K (Local road L-70481)

Wind farm access roads will be completed in advance of the grid route works, and therefore access for construction traffic will be possible using the proposed wind farm road network (e.g. L-K and at J). This could enable this section of the route to be constructed at two work fronts, thereby expediting construction along this section of the route. A potential diversion route is indicated in the figure below, and this may be a feasible diversion for people accessing the bog for turf cutting. Given this section of road is not currently a through road, local access can be maintained along the proposed closed road during the works.

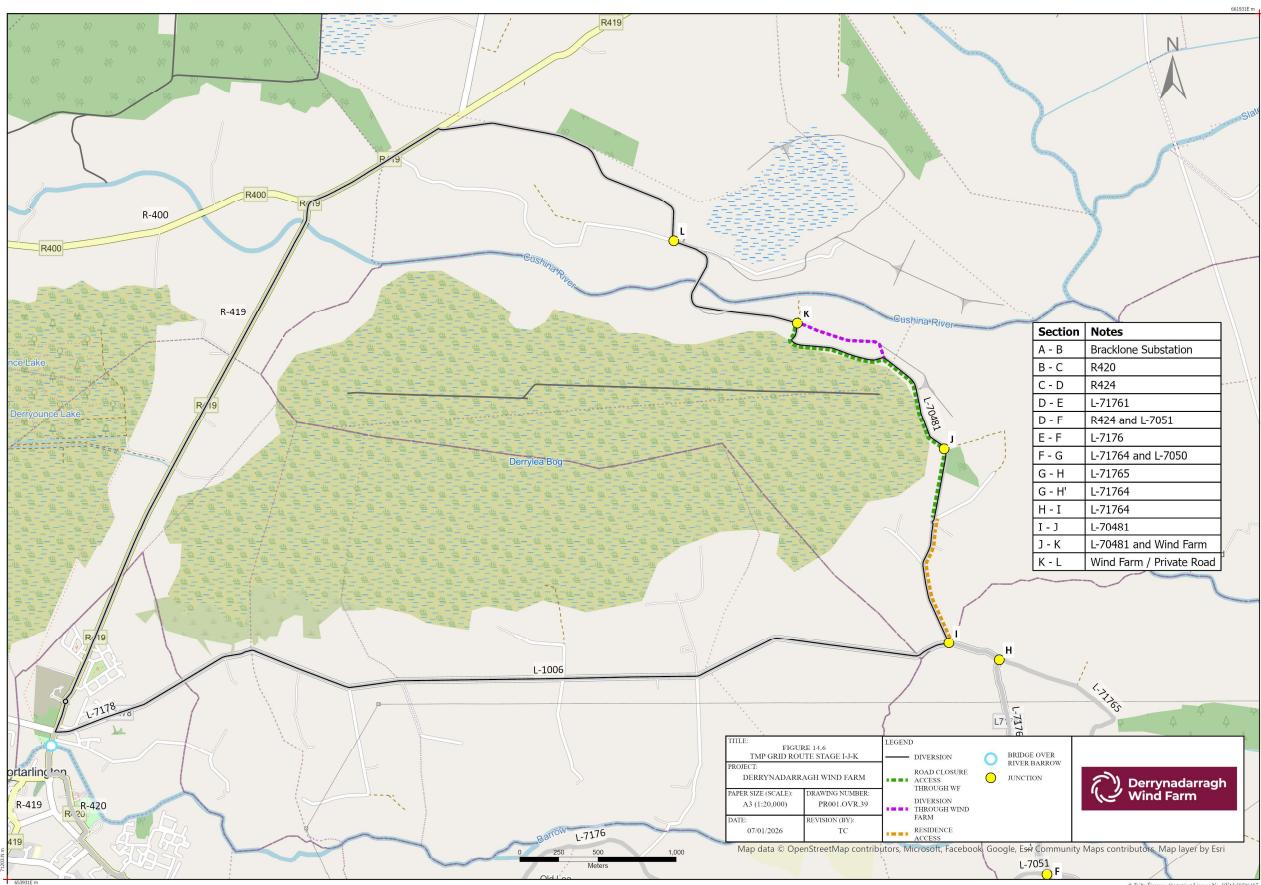


Figure 2.1B- 12 TMP Grid route Section J-K

### 6.8.10 Section K-L (Wind farm roads)

Section K-L will be constructed majority within the proposed wind farm road network which is not part of the public road network. No Diversion required however local access and right of ways will be maintained.

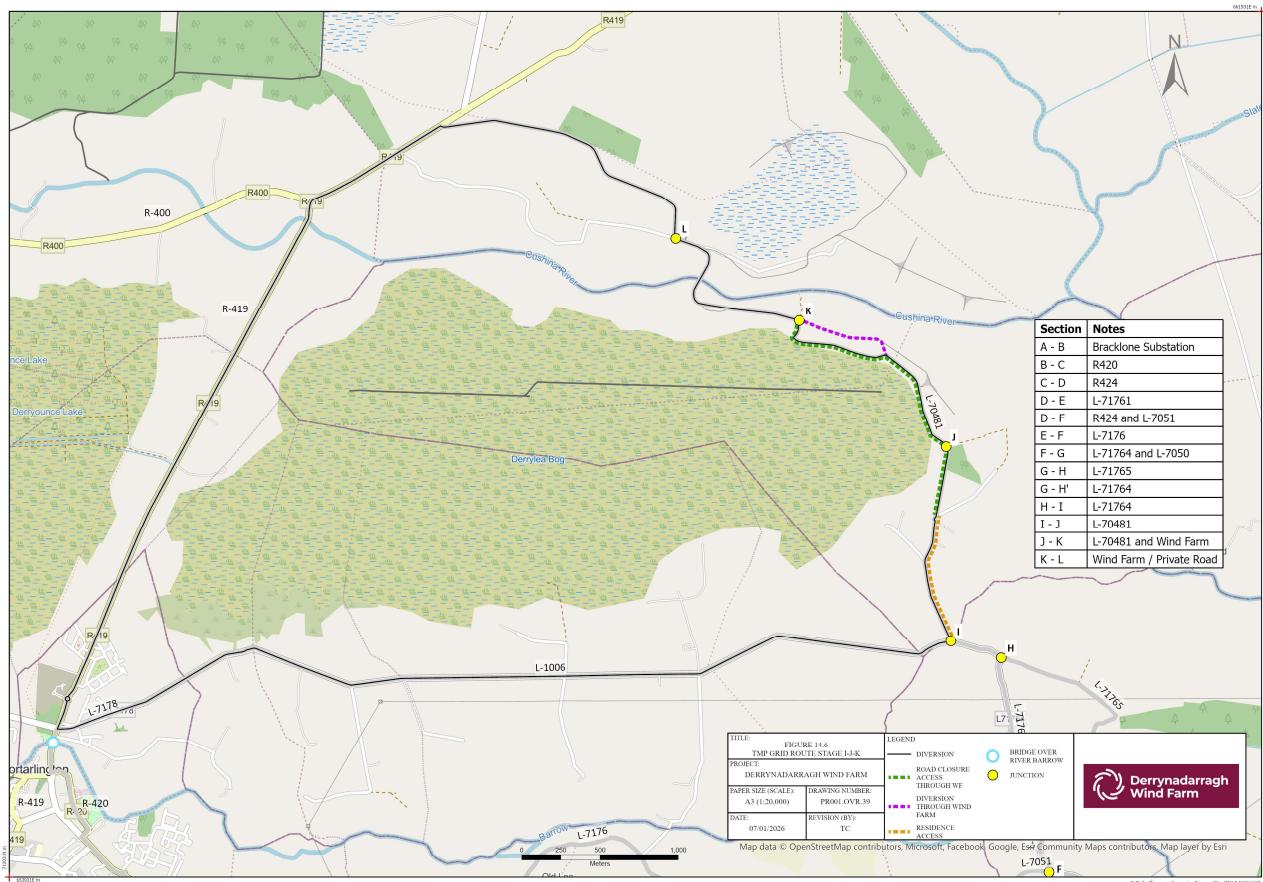


Figure 2.1B- 13 TMP Grid Route Stage K-L