

16. ROADS & TRAFFIC

Additional information relevant to Section 16 is presented in Appendix J in Volume 2 of 3 of the EIS.

16.1 RECEIVING ENVIRONMENT

16.1.1 General Access

The general locality has a network of country roads that serves a rural community that is reliant mainly on agriculture. These roads are used by this community for domestic and agricultural purposes, and as a result agricultural vehicles and bulk tankers associated with the dairy industry could be expected on the local road network.

Existing road conditions have been analysed and are presented in Appendix J.1.

General access to the site is via the L3021 / L3400 Third Class Road that runs from the R569 Regional Road at Morley's Bridge to the N22 National Secondary Road at Ballyvourney. Notable features along this route are the small village of Coolea and the Top of Coom public house. Coolea has a primary school, a church and a number of amenities, and is the part of the where dwellings are most densely located.

From its junction with the L3021 at Sillahertane, the L11187 Third Class Road, which is a narrow, single lane road, extends into the site, where it gives way to unsurfaced tracks.

The N22 serves as the main route between Cork and Killarney / Tralee. The R569 provides a link from the N22 at Clonkeen, Co. Kerry to Kilgarvan and through to Kenmare.

The L11187 Third Class Road within the wind farm site is used exclusively by the owners of the lands on which the development will take place and one other user who is present infrequently only for very short periods. It is of limited width, being generally less than 3 m, and it has several sharp bends and some significant gradients.

Wind Turbine Delivery Route

The project is currently at a stage where the contracts for the supply of materials and for construction of the project are not yet in place. In accordance with EU procurement rules for utilities, the contract to supply and construct the wind farm will be open to international competition.

It will be a matter for the chosen turbine supplier to determine the most suitable route for delivery of wind turbine components to the site. While definitive details with regard to the haulage route cannot be provided in such circumstances, the options that are realistically available are as follows:

- Access from the N22 at Ballyvourney, Co. Cork and travel for approximately 15 km on the L3021. This route has been used in the past for delivery of turbines to other projects in the area.
- Access from the N22 at Clonkeen, Co. Kerry and travel for approximately 10 km to join the L3021 near the wind farm entrance. Part of the route has been used in the past for delivery of turbines to other projects in the area.

The above are shown on Figure 16.1.

The various wind turbine manufacturers have different requirement regarding delivery of

turbines, but a minimum road width of 4.5–5.0 m along with a minimum vertical clearances of 5.0-6.0 m is commonly required.

Cable Route

The roads in which the underground cable will be installed follows are the L11187 and the L3021 from Coomatagart 110 kV Substation within the wind farm to site to Ballyvourney. From here it follows to N22 for approximately 40 m before turning to follow a series of minor roads (L7418 & L5228) to ESB Networks' Ballyvouskill Substation near Millstreet, Co. Cork.

16.1.2 Traffic Data

As would be expected, there is no specific traffic data from the National Roads Authority (NRA) for the R569 Regional Road or for the minor country roads in the vicinity of the site.

Short-period traffic counts were carried out in June 2015 on the L3021 / L3400 at the bridge adjacent to the N22 at Ballyvourney, Co Cork to ascertain the traffic patterns in the area.

Table 16.1: Traffic Counts on the L3021 / L3400 at Ballyvourney, Co. Cork

| Period | Volume East | Volume West | Total |
|-------------|-------------|-------------|-------|
| 12pm – 2 pm | 51 | 55 | 106 |
| 3pm – 5pm | 58 | 49 | 107 |

Cars and light vans accounted for virtually all the traffic occurring with only one HGV being recorded in four hours of measurement. There are no particularly notable sources of traffic in the area and the road is operating below capacity, with users experiencing no significant delays.

The only traffic count data available from the NRA is for the N22 at Slieveareagh Cross, north of Ballyvourney, Co. Cork.

Table 16.2: NRA Data for the N22 near Ballyvourney, Co. Cork

| Recording Site Location | AADT Estimate | HGV % |
|-------------------------|---------------|-------|
| Slieveareagh Cross | 6,380 | 5.1% |

16.2 IMPACT OF THE DEVELOPMENT

Access requirements can be divided into three distinct phases, project development comprising construction, project operation comprising routine inspection and maintenance, and project decommissioning.

16.2.1 Wind Farm Construction

Traffic associated with the construction phase essentially comprises three types, as follows:

- Construction staff: There will be a small increase in movements of private cars and vans at the beginning and end of each day as the workforce arrives at and departs from the site.
- Deliveries of concrete and other materials: The total was calculated to give the number of HCV movements to and from the site during the construction period.

- Exceptional loads: The total number was calculated on the basis of the installation of 38 turbines.

The vehicles requiring access during the civil engineering and earthworks phase will include tracked excavators, dump trucks, fixed or articulated haulage trucks and mobile cranes. Commercial traffic movements are likely to be spread throughout the working day.

There will be private car movements at the beginning and end of the day as the workforce arrives at and departs from the site. While the peak workforce may be up to 50 persons, with car pooling / sharing, which will be encouraged, taken into account, the average maximum traffic will be about 30 cars / light goods vehicles.

Site Establishment

Some import of crushed stone material will arise at the commencement of the works for site establishment. Further to this, temporary office and welfare facilities will be established within the construction compound, where perimeter fencing and gates will also involve import of materials. A total of 75 deliveries is assumed to include delivery of construction plant and equipment over the full construction period.

Track Construction & Turbine Hardstands

Crushed stone material will be required for construction of access tracks and cranepads within the site, and it is envisaged that suitable material will be available from development of borrow pits within the site. However, it is not yet fully established that the material available will be suitable for the top layer of capping material to the tracks and cranepads, of which approximately 22,500 m³ (2,250 loads) will be required. Additionally, some import of materials will arise at the commencement of the works for site establishment and for the initial sections of access tracks. Furthermore, Geotextile matting may be required for access tracks, cranepads and the temporary construction compound. In consideration of a worst case scenario, approximately 3,000 deliveries are assumed.

Concrete & Reinforcement

The major requirement for ready mixed concrete will be for construction of the turbine foundations, each of which will entail about 55 loads of structural concrete. Up to 30 t of reinforcing steel will be required in each foundation. In total, concrete and associated steel reinforcement, shuttering, ductwork, etc. for each wind turbine foundation will entail up to approximately 60 deliveries.

Concrete will also be required for miscellaneous other uses within the site, and for transformer bases and bunds at Coomataggart Substation and for the Control Buildings within it.

A total requirement of approximately 2,400 deliveries is calculated and this will be sourced from a local ready mixed concrete supplier.

Electrical Equipment

Approximately 55 km of electrical cabling will be required for the underground connection of individual turbines to Coomataggart Substation, being the equivalent of approximately 50 loads. Taking the requirement for ducting for cables into account, a total of approximately 150 loads is assumed. This includes for the miscellaneous electrical equipment such as transformers and switchgear that will be installed in Coomataggart Substation.

Building Materials & Other Equipment

Miscellaneous other traffic will arise over the course of the construction including temporary site cabins and storage containers, construction plant and tools, fuel deliveries, felling of trees on the Clonkeen wind turbine access route. A total of 300 deliveries is assumed.

Various building materials will be required for the construction of the wind farm, notably blockwork, shuttering, etc. for the Control Buildings at Coomatagart Substation. A total of 100 deliveries is assumed.

Summary of Traffic Movements and Assessment of Impact

On the basis of the above, the total number of heavy vehicle movements involved in the construction of the Wind Farm has been calculated and is as shown in Table 16.3.

Table 16.3: Construction Traffic

| Site Establishment | Stone Fill | Concrete & Steel | Electrical | Misc. | Building Materials | Total |
|--------------------|------------|------------------|------------|-------|--------------------|-------|
| 75 | 3,000 | 2,400 | 150 | 300 | 100 | 6,025 |

The total number of deliveries involving heavy traffic movements will be approximately 6,025, or a total of 12,050 traffic movements on and off the site when allowance is made for the return of empty vehicles. Over a 18-month construction period the additional average daily traffic movements is about 30 HCVs.

There will be no effects thereafter, but short-term effects, which will be temporary and short lived, will arise during construction. There will be some inconvenience to other road users, but the low level of current use of the roads surrounding the site means that only a limited number of existing road users will be impacted.

Averaging the total vehicle movements over the full construction period may not produce a realistic pattern of road usage. Rather than occurring uniformly throughout the construction period, traffic movements will likely peak on the 38 non-consecutive days on which concrete for turbine foundations will be delivered. Each foundation will involve up to 55 deliveries or 110 vehicle movements.

For most of the construction period the number of truck movements per day will be considerably less than the maximum assessed above. No long-term impacts will be created.

16.2.2 Wind Turbines

It is expected that delivery of each turbine will involve about 12 loads using articulated haulage trucks. Deliveries will comprise towers (4), blades (3), nacelle (2), hub (1) and small parts (2). The total number of loads involved in turbine deliveries will thus be 456

Typical deliveries of wind turbine tower components and turbine blades are shown in Figures 16.2 & 16.3.

Assessment of Potential Traffic Routes

The assessment of a suitable delivery route for wind turbine components involves the following:

- Identification of suitable port facilities – principally the availability of off-loading

equipment and sizeable laydown area. Typical unloading of turbine blades at the delivery port and placing on a delivery trailer in preparation for transport to site is shown in Figure 16.4.

- Assessment of the delivery route from port to site entrance in relation to road (and bridge / culvert) strength and running width.

Delivery of components of the nacelle will involve the heaviest loads with delivery of turbine blades being the longest loads.

Although the turbine blades are relatively light it is the blade delivery that typically defines both vertical and horizontal alignment requirements. Blade trailers are extendable and invariably have rear wheel steer with the capability of being operated automatically during regular road use, or manually during slow walking pace manoeuvring.

While multiple blade load trailers may be preferred, this means that blades can have no overhang and the trailer unit must extend to the full length of the blade. Use of a trailer with shortened wheel base and allowing blade overhang provides for the possibility of tighter turning circles and avoidance of grounding.

It is envisaged that the wind turbines will be imported to Ireland via Foynes, which has been the port of entry for turbines in the wind farm developments nearby to Grousemount. For the purposes of the transport assessment, it was assumed that delivery is possible from the port to the N22 at Clonkeen or Ballyvourney.

Options for delivery to the site from the N22 are as follows:

Delivery via Ballyvourney

While the existing triple-arch bridge on the Sullane River at Ballyvourney has been trafficked in the past in the delivery of turbines to developments adjacent to Grousemount, it is unsuitable for deliveries of turbines of the dimensions proposed at Grousemount without significant structural modifications. It is believed that these modifications would permanently alter the character of the bridge, which dates from c. 1830, with various recent alterations.

A temporary bridge upstream of the existing bridge is proposed (Figure 16.5). This will be a single span structure similar to that shown in Figures 16.6 & 16.7. It will be delivered to site in a number of components for pre-assembly and will then be lifted into position by crane. The temporary bridge will remain in position for approximately 12 months, after which it will be removed and the site reinstated.

Detailed analysis was undertaken of the route from the N22 turn-off in Ballyvourney on to the local roads to the site entrance. A number of nodes were identified where road improvements could be required to facilitate deliveries. The locations of Nodes 1-6, as listed in Table 16.4, are shown on Figure 16.8. The remaining locations are within the wind farm site on the L11187 following the turn-off from the L3021 at Sillahertane when using that route.

Further to the temporary bridge at Ballyvourney, the most notable location on the route is the bridge at Ballyfinane. Here, the works discussed with Cork County Council comprise a saddle to overspan the bridge and raised parapets.

Table 16.4: Results of Swept Path Analysis

| Node | Description | Results of Swept Path Analysis (SPA) |
|------|-----------------------------|---|
| 1 | Ballyvourney N22 Turn-off | Temporary bridge to bypass existing bridge. |
| 2 | Village of Coolea to Node 2 | The road between the village of Coolea and the bridge at Lumnagh Beg has an average width of 4.5 m. The road width is below the required 5 m for a distance of 3 km. |
| 2 | Lumnagh Beg | SPA shows that a significant land take is required to negotiate this turn and that an area of road strengthening is required. Fencing will be required to be removed and an area will be kept free for blade overhang. The road will be widened to 5 m where width falls below this on the approach to and exit from this Node. The existing bridge has accommodated previous turbine deliveries. |
| 3 | Lumnagh Beg | SPA shows an area of road strengthening is required. Although this road has previously been used for turbine deliveries, road widening to 5 m continue to the site entrance is required. |
| 4 | The Coom | SPA shows an area of road strengthening is required on existing stoned areas. The SPA also indicates areas to be kept free for blade overhang. The road widening to 5 m will continue to the site entrance. |
| 5 | The Coom | A section of fencing and ditch boundary is required to be removed. The road widening to 5 m will continue to the site entrance. |
| 6 | Sillahertane | Where this site entrance is used, SPA shows land take is required to negotiate the bend onto the L11187. |

Delivery via Clonkeen

Part of this route has been used in the past for deliveries of turbines to developments adjacent to Grousemount that have turbines with broadly similar dimensions to those at Grousemount.

It is not currently an uninterrupted continuous route over its entire length and construction of an additional length of approximately 500 m through forestry lands is needed to connect the existing northern and southern portions. In addition, some bends on the southern portion of the route and some locations between where the route emerges to join the L3021 and the wind farm entrance require realignment to accommodate turbines with the dimensions proposed at Grousemount. This final part of the route on the L3021 where some improvement are needed corresponds with the route from Ballyvourney.

The northern part of the route, which accounts for the majority of its length, was largely developed by Brookfield Renewables (formerly Bord Gáis Energy), which has given consent to its use for the Grousemount development.

Delivery via Morley's Bridge

The existing junction of the L3021 with the N369 at Morley's Bridge is not suitable for long load deliveries and there is little potential for modifications to improve its suitability. Further to this, the channel of the Roughty River at Morley's Bridge lies a considerable depth below the adjacent roadway and is enclosed by significant embankments. A clear span to cross the Roughty River at any nearby location would require an extremely long single span and is not considered feasible.

Summary

As indicated, it will be a matter for the chosen contractor to select the haulage route for delivery of turbines to the site and the results of the contractor's own surveys will form the basis for any works necessary for widening and strengthening of roads prior to commencement of haulage to the site.

Any local road improvements, albeit that they will be limited in extent, will ultimately benefit the local population and represent an important investment in local infrastructure. The safety of the local road network will also be improved.

16.2.3 Grid Connection

A slight increase in traffic will arise due to construction vehicles involved in delivering construction materials, removal of surplus excavated spoil material that will not be used in backfilling of the cable trench or in land reclamation / improvement of the adjoining area and transporting operators to site.

All these vehicles will be regular road using vehicles that will not cause excessive wear on the local road network. It can be estimated that approximately 3 cars and 10 HGVs will travel to and from each work location each day, resulting in 26 vehicle movements per location.

The necessary traffic control measures to be employed over the underground cable route are presented in Table 16.5.

Table 16.5: Road Analysis and Closure Summary

| Road Section (Length) | Condition | Recommended Road Closure |
|--|--|--|
| Coomataggart Substation to Sillahertane junction (4 km) | L11187: approximately 2.5 m wide, in relatively poor condition | Full road closure |
| From Sillahertane junction to Top of Coom junction (Where fork in road meets East of The Coom public house) (2.5 km) | L3021: Single lane, two way traffic, majority is good metalled surface | Full road closure. All-stop system may be required for local residents as no suitable diversion route available |
| From Top of Coom junction to Ballyvourney (9.8 km) | Road varies between 2 lane, 2 way traffic, and 2 way unmarked road. Mainly good metalled surface | Single lane closure |
| N22 section at Ballyvourney (40 m) | N22 – National Road, two way traffic, one lane each way | Single lane closure |
| Ballyvourney to Cappagh West junction (1.5 km) | L7418 section approximately 4 m wide | Full road closure |
| Cappagh West junction to Coomnaclohy Road Junction -last of three 90 degree bends (1.05 km) | Road width varies between 3 m to 5 m | Single lane closure as appropriate. An all-stop closure on the narrower sections in absence of appropriate road diversion. |
| From Coomnaclohy Road Junction to Garrane Bridge (8.65) | Continuation of L7418, approximately 2.75 m wide | Full road closure |

| Road Section (Length) | Condition | Recommended Road Closure |
|---|---|--------------------------|
| km) | and in relatively poor condition in parts | |
| Garrane Bridge to Ballyvouskill Substation (1.5 km) | Approximately 5 m wide road (L5226). Metalled surface in adequate condition | Partial road closure. |

Should the L3021 from Ballyvourney be the contractor's preferred option for wind turbine deliveries, this section of the underground cable route will require to be completed in advance of commencement of deliveries.

16.2.4 Project Operation

Maintenance

Wind farms are designed to operate largely unattended and during the operational phase the wind farm will normally be unmanned. Each turbine will have its own in-built supervision and control system that will be capable of starting the turbine, monitoring its operation and shutting down the turbine in the case of fault conditions.

Supervisory operational and monitoring activities will be carried out remotely with the aid of computers connected via a telephone modem link.

Visits will be necessary to carry out routine inspection and preventive maintenance. A light vehicle will be required for routine access, occurring about once weekly, and in the event of any unscheduled fault conditions. In the unlikely event of a major component failure, a mobile crane will be required on site.

Road Safety

By their very nature wind turbines are significant features in the landscape and the turbines at Grousemount will be visible intermittently from local roads. It is acknowledged that moving turbine blades may draw the eye of any motorists and any such distraction could be considered a potential safety hazard. However, there is no evidence from Ireland or elsewhere to indicate that wind turbine towers or moving wind turbine blades endanger public safety by reason of traffic hazard.

Delivery of large wind turbine components poses special road traffic risks and there have been a number of road accidents associated with collisions involving wind turbine component delivery. These accidents can be avoided by undertaking comprehensive route surveys with deliveries accompanied by a Garda escort and the temporary closure of roads to traffic, should the need arise.

Fast moving objects in the field of view or on the horizon are much more likely to cause distraction to motorists than wind turbine blades. These move slowly and steadily, rotating at a speed of one revolution every 4 – 5 seconds. Instances of fast moving objects include views from the public road of aircraft take-offs and landings at airports; trains crossing roads at bridges or running on tracks parallel to roadways; traffic crossing road overbridges and on parallel, higher, lower or crossing roads at sophisticated motorway interchanges. Horses and other animals are also liable to move quickly in the field of view. There is no indication that such phenomena impact adversely on road safety.

There is no recorded instance where the presence of a wind turbine in the field of vision

was cited as a contributory factor in a road accident. Nor is there any recorded instance where the presence of a wind turbine in the field of vision was cited as having a negative impact on road safety.

Any local road improvements that are necessary for delivery of wind turbine components will improve overall road safety in the long term.

16.2.5 Project Decommissioning

Short-term effects will arise during decommissioning. The low level of current use of the road accessing the site means that only a limited number of existing road users will be impacted. Any impact that does arise will be temporary and very short lived.

Vehicle movements over the decommissioning period will be much less than those of the construction period, given that the major elements of traffic movements involving concrete deliveries will not arise.

The dismantling of the wind turbines will involve the use of mobile cranes and their removal will entail a similar number of loads to turbine delivery during construction. Alternatively, turbine blades, for example, may be cut into shorter sections before being loaded onto conventional flatbed trucks.

Dismantling of substations would involve removal of transformers and other electrical equipment from the site which would involve a small number of abnormal loads for the transformers

16.2.6 Cumulative Impacts

With there being only very occasional traffic during the operational phase and effects during commissioning being very short lived, the main potential for cumulative impacts on the network of local roads with the other recognised sources of traffic in the area is during the construction phase.

16.3 MITIGATION

All significant traffic likely to be generated by Grousemount Wind Farm will be during the construction and commissioning phase of the development and will be temporary in nature. It is envisaged that the construction period for the wind farm will span an 18-month period with the underground cable being installed over a 12-month period. The construction-phase Traffic Management Plan will mitigate these impacts.

A number of mitigation measures are implicit within the design:

- Minimising the extent of the new build requirement, thereby minimising materials' requirements.
- Maximising use of onsite resources (particularly stone material for track construction) to minimise the requirement for material import.
- Retaining surplus excavated material on site, thereby eliminating traffic associated with the disposal of same.
- Designing the cable for installation in pre-laid ducts, rather than directly installing the cable in the ground. The latter would require the entire trench from joint bay to joint bay to be fully open for cable laying.

16.3.1 General Construction Traffic

It is proposed that a joint condition survey of public roads be carried out with the Local Authorities prior to commencement of the project. This will form the basis for agreeing:

- Local road improvements in the vicinity of the site to minimise impacts on other road users.
- Any remedial works that may be necessary following completion of the construction.

Trucks used in deliveries of stone and concrete will be regular road going vehicles having no special constraints in relation to width or alignment. However, it is recognised that public roads will be affected by these deliveries. For the delivery route from concrete source to the site entrance, the assessment will focus on road strength and in particular on the quality of the running surface.

This is likely to include the following:

- Pavement Condition Index (PCI) survey. A visual inspection, incorporating a video survey of the access roads is normally conducted prior to movement of construction traffic to record road condition.
- Alignment and Width Survey. A full width and road alignment survey is conducted by an appropriately qualified transport company, in conjunction with both the turbine manufacturer and the site project engineer. Prior to delivery it would also be standard practice to complete a dry run with an unladen tractor and extendable trailer unit
- Structural Survey (Falling Weight Deflection). A full structural survey may be undertaken over any sections of road which appear particularly weak or liable to subside.

The surface of the public roads will be maintained for the duration of the works. The condition of the road will be inspected weekly throughout the construction period to check that it is in a safe and passable condition. Where necessary, potholes, ruts, etc. will be filled in and the surface made good.

Liaison will be maintained with the residents along local access routes and they will be advised of any particularly busy periods.

16.3.2 Traffic Management Plan

A number of measures are proposed to ensure road safety and to minimise inconvenience to other road users. A Traffic Management Plan will be agreed with the Local Authorities prior to commencement of works and this will include the following specific mitigation measures:

- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access and movement of construction vehicles will be restricted to these designated routes
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction materials, for example the use of dust covers on trucks carrying dust producing material.
- Speed limit compliance will be emphasised to all staff and contractors prior to

commencement of construction, or during induction if relevant.

- Temporary traffic lights and / or road or lane closures will be provided as required to ensure traffic safety.
- One-way delivery and access routes may be used to mitigate against unsuitable two-way construction traffic
- Alternative arrangements will be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath.
- Parking of site vehicles on the public highway will not be permitted.
- A road sweeper and / or wheel washing facilities will be utilised to clean the public roads of any mud that may be introduced from the site roads.
- All vehicles will be properly serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will be carried out off site.

16.3.3 Delivery of Wind Turbine Components

With regard to deliveries of turbine components, the appropriate authorities will be notified of the movement of long and abnormal loads. Appropriate traffic management measures will be agreed in advance and it is expected that these will include the following:

- Using special transporter vehicles with rear wheel steering in delivery of wind turbine components to assist safe transportation and manoeuvrability on the roads.
- Placing warning notices to advise other road users of the presence of slow moving vehicles.
- Using lead warning vehicles and using police escorts where required.
- Undertaking deliveries at times that minimise the impact on other road users and resting in safe lay-bys to reduce any traffic congestion.
- Closing extendable transporter vehicles on return journeys.

The proximity of the site to suitable points of delivery mitigates potential disruption to road users.

16.3.4 Landtake

Where road improvements involve landtake, the following approach will be adopted:

- Upon grant of planning permission and following full evaluation of any conditions in the permission relating to turbine deliveries, ESB Wind Development will meet with the landowners concerned, to provide details of the works required and negotiate compensation arrangements.
- As part of this process, the Landowners will complete a Deed of Dedication. This will provide permission for takeover by the local authority of the amended road area where applicable.
- ESBWD will remain engaged with the Local Authorities at all stages through construction work and will remain so until the completion of works and the final takeover by the local authority of amended road sections.

16.3.5 Road Closures and Temporary Diversions

It is envisaged that road closures will be necessary for the carrying out portions of the underground cable route, and the consent of Kerry County Council and Cork County Council will be required. Where possible, a single lane closure will be implemented, to minimise impacts on local traffic. On narrower roads, where diversions are required and available, a full road closure is proposed. In areas in which a road closure would cause excessive impact on the local community, the option of an all-stop system will be implemented, with a maximum waiting period of 10 minutes implemented.

A number of options are available in some areas for diverting traffic that will allow flexibility during construction. While traffic diversions are in place, local access will be maintained at all times. All access points (domestic, business, farm) will be considered when finalising the proposed road closures and diversions. Additional measures such as local road widening, traffic shuttle systems and 'Stop-Go' systems will also be considered subject to agreement with Kerry County Council and Cork County Council.

The traffic management measures implemented in Coolea will consider the needs of the community in relation to travelling to and from the local primary school. A viable access route will be maintained at all times, and time will be assigned each morning and afternoon as the school opens and closes to provide a safe route for parents and children with no moving construction traffic present.

During construction, constant communication with the relevant stakeholders and county councils will be conducted to ensure that the appropriate measures are being taken to minimising the effect on the local population.

It will be a contractual requirement that the contractor(s) installing the underground cable will develop a full Traffic Management Plan for agreement prior to commencement of construction.

16.3.6 Summary

While every transport operation involving an abnormal size load is unique, the procedures employed, particularly for wind turbine blades of the length proposed, are well established throughout the country and especially in the local area where equivalent developments are already completed.

Vehicle escorts, traffic management plans, dry-run tests, road marshals and convoy escorts by the Garda Síochána Traffic Corps are all measures that are routinely applied in abnormal load deliveries.

16.4 CONCLUSIONS

An impact will arise during the construction period but none thereafter.

Following the implementation of all mitigation measures it can be concluded that the proposed development will not endanger public safety by reason of traffic hazard or obstruction of road uses.

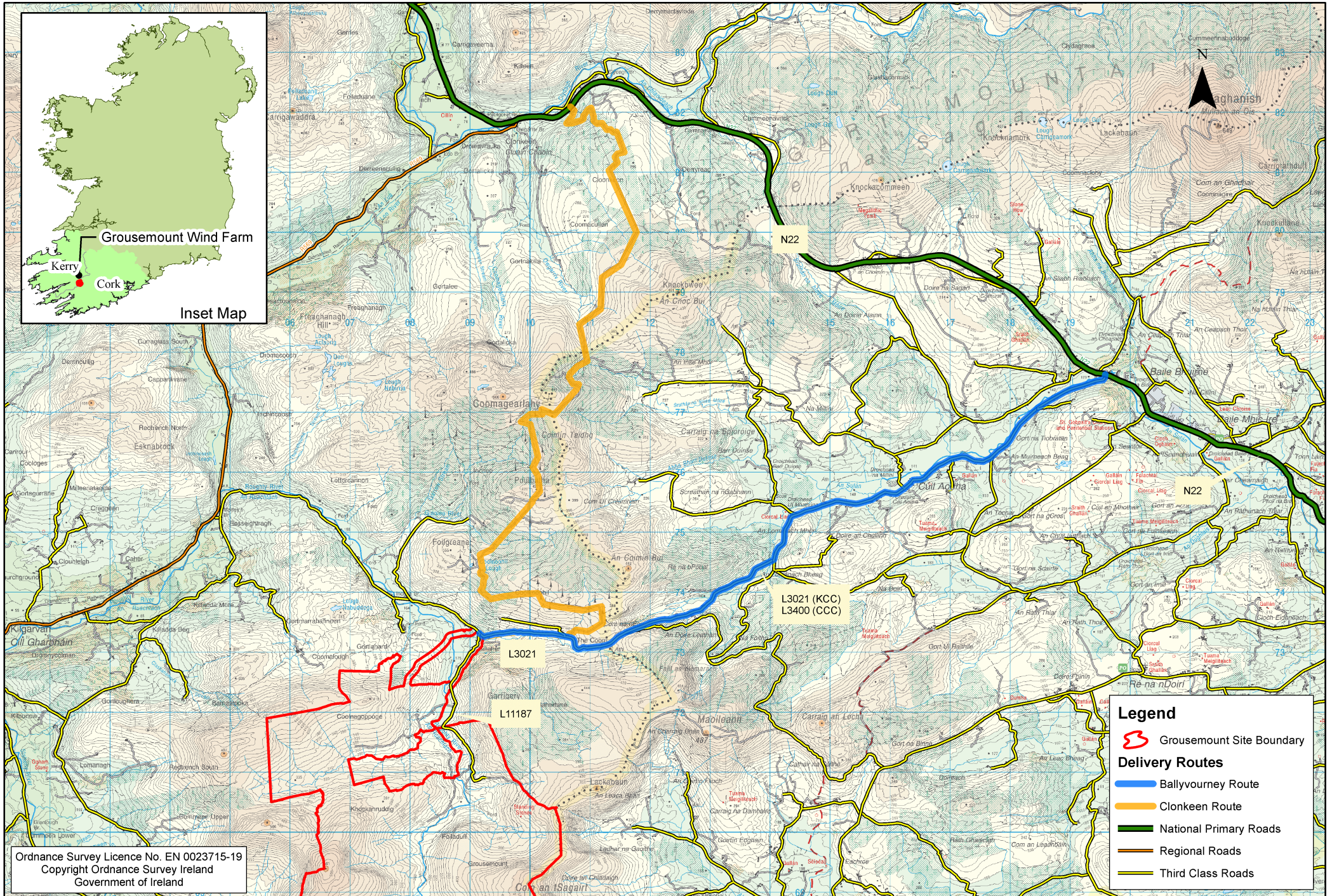


Figure 16.1 - Potential Turbine Delivery Routes



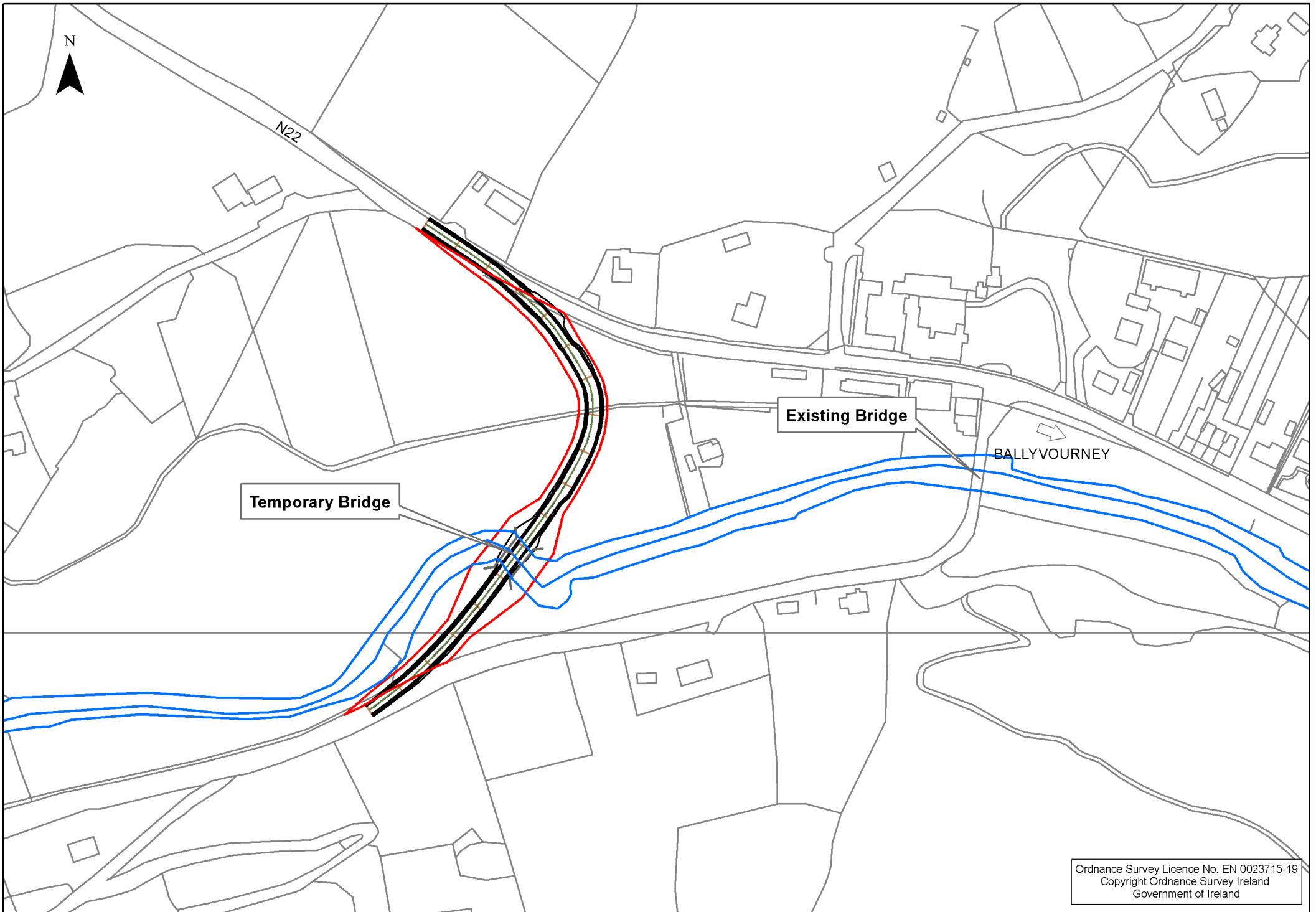
Figure 16.2: Typical Delivery of Wind Turbine Tower Components



Figure 16.3: Typical Delivery of Wind Turbine Blade



Figure 16.4: Unloading of Wind Turbine Blade



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Figure 16.5 - Temporary Bridge at Ballyvourney



Figure 16.6: Temporary Bridge – Typical View



Figure 16.7: Temporary Bridge – Typical Installation

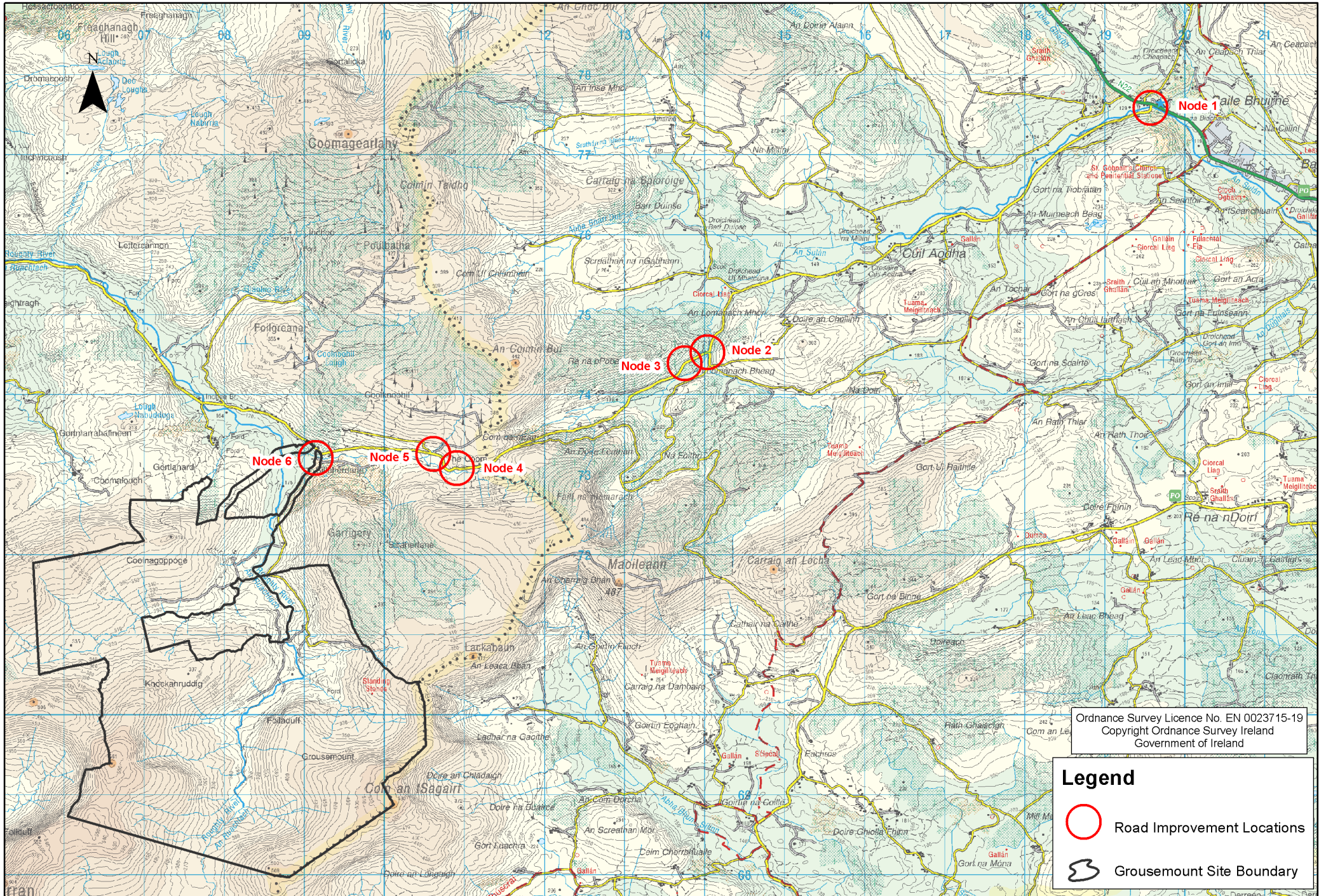


Figure 16.8 - Road Improvement Locations