2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 INTRODUCTION

This chapter of the EIAR is a description of the proposed project and provides details on the design, construction, operation and decommissioning phases of the proposed project and associated infrastructure.

The proposed project comprises:

- A proposed wind farm comprising fourteen (14) wind turbines, an on-site 110kV electrical substation and other ancillary infrastructure including access roads and drainage, within a development boundary for infrastructure of 170.5 ha within an overall boundary of 389 ha including biodiversity enhancement lands;
- A proposed grid connection comprising a 110kV underground cable approximately 32 km in length to connect the wind farm to the National Grid at an existing ESBN substation in Srananagh, Co. Sligo;
- A proposed turbine delivery route along the public road network between Killybegs, Co. Donegal and the wind farm site, which will require accommodations at specific locations to facilitate turbine and construction material delivery.

The EIA process necessarily requires an assessment of the likely significant effects of the entire project within the meaning of the EIA Directive and consequently the description provided herein describes all the components and phases of the proposed project including the construction, commissioning, operation and decommissioning of the wind turbines and associated infrastructure, the GCR and the TDR.

The proposed wind farm, GCR and TDR layouts are shown on Figures 2-1, 2-2 and 2-3, respectively.

This chapter is supported by the following appendices, which are referenced throughout.

- Appendix 2-1: Turbine Delivery Route (TDR) Report (Swept Path Analysis)
- Appendix 2-2: Substation and Grid Connection Drawings
- Appendix 2-3: Construction Methodology Lissinagroagh Wind Farm
- Appendix 2-4: Construction Environmental Management Plan (CEMP)
- Appendix 2-5: Spoil and Peat Management Plan
- Appendix 2-6 A,B,C: Ground Investigation Phase 1,2,3
- Appendix 2-7: Surface Water Management Plan:
- Appendix 2-8: Consideration of Afforestation

2.2 STATEMENT OF AUTHORITY

This Chapter has been prepared by Sinéad Ryan, Associate Director and Environmental Engineer with TOBIN, with inputs from Michael Nolan and Ryan Bragge (civil and CAD design), John Dillon (drainage/hydrology/hydrogeology) and TLI (electrical consultant). Both TOBIN and TLI have extensive experience in wind farm infrastructure siting and design.

Sinéad Ryan has over 20 years' professional experience working in the environmental sector in Ireland, with over 10 years in the planning and EIA aspects of onshore renewable energy projects. She has specific experience in constraints-led wind farm design and EIA. Michael Nolan has over 20 years' of

professional experience in building and environmental consulting and in wind farm development projects, leading the CAD/GIS design inputs, layout optimisation, and environmental modelling. Ryan Bragge is a Chartered Civil Engineer with over 20 years' of experience in both consulting and contracting roles across residential, commercial, and mixed-use developments. John Dillon (BSc, MSc, MCIWM, PGeo) is an environmental and hydrogeological specialist with over 18 years of experience in geological and hydrogeological assessment for EIA.

Further details of the project team are provided in Chapter 1 – Introduction.

2.3 PROPOSED PROJECT DESCRIPTION SUMMARY

The following is a summary description of the proposed project:

Proposed Wind Farm

- Fourteen (14) wind turbines with a blade tip height range of 180 m to 185 m inclusive, a rotor diameter range from 149 m to 163 m inclusive, a hub height range from 101 m to 110.5 m inclusive, a minimum ground clearance of 22 m, and all associated foundations, hardstanding and assembly areas;
- A permanent meteorological mast with a height of 100 m, with a lightning finial extending above the mast;
- Modifications to an existing site access on the L61801 local road in the townland of Faughary in the west of the site, to be used as a permanent access during construction and operation;
- A new temporary access on the L6184 local road in the townland of Cherrybrook for use by turbine delivery vehicles during construction only, and subsequent reinstatement;
- Modifications to an existing site access on the L61844 local road in the townland of Lissinagroagh in the southeast of the site, to be used as a temporary access during construction phase only;
- Approximately 7.95 km of new internal access tracks to include passing bays and associated drainage;
- Upgrade of approximately 8.35 km of existing access tracks, to include passing bays and associated drainage;
- Temporary and permanent drainage and sediment control systems;
- Ten (10) clear span bridges and one (1) existing culvert extension at watercourse crossings by access tracks;
- Three (3) borrow pits with a total available area of 63,352 m2 for temporary use during construction. The borrow pits will subsequently be used for storage of excavated material;
- Two (2) temporary construction compounds each on an area of 9,100 m2 to contain site offices, storage containers, bunded fuel storage, waste storage, parking areas and security fencing;
- Seven (7) permanent controlled access points on the L61801 and L6184 Local Roads in the townlands of Faughary and Boleyboy to facilitate turbine delivery and construction works which will remain in place after the construction period;
- A temporary crossing of unnamed local road in the townland of Cherrybrook to facilitate turbine delivery vehicles during construction only;
- All associated underground electrical and communications cabling connecting the wind turbines to the on-site substation (the substation is subject to a separate planning application, see details below);
- All related site works and ancillary development including landscaping and soil excavation;

- Biodiversity enhancement areas (218.5 ha) to provide nesting and foraging habitat for birds and other land improvements; and
- Ancillary forestry felling to facilitate construction and operation of the proposed project.

Proposed Turbine Delivery Route (TDR)

- Accommodation areas at fifty-seven (57) locations along a 122 km TDR to include temporary vegetation management, local strengthening of road edges and street furniture management to facilitate the transport of oversize turbine components to the wind farm site and subsequent reinstatement.

Proposed Substation and Grid Connection

- A permanent 110kV on-site electrical substation to consist of:
  - An EirGrid control building containing worker welfare facilities and equipment store;
  - An Independent Power Producer (IPP) control building containing a high voltage switch room, site offices, kitchen facilities, storeroom and toilet amenities;
  - All electrical plant and infrastructure and grid ancillary services equipment;
  - A telecommunications mast;
  - Parking;
  - Lighting;
  - Security Fencing;
  - Wastewater holding tank;
  - Rainwater harvesting equipment;
  - All associated infrastructure and services including site works and signage;
- A 110 kV underground cable from the on-site 110kV substation to the existing ESBN Srananagh Substation in the townland of Ballysumaghan, Co. Sligo, approximately 32 km in length, of which 30.6 km will be in the public road corridor;
- Eleven (11) existing bridge crossings, of which eight (8) will involve in-road HDD (Horizontal Directional Drill), two (2) will involve off-road HDD and one (1) will be a standard crossing within the bridge deck;
- Eight (8) existing culvert crossings by open trenching;
- All related site works and ancillary development.

A full set of engineering design drawings are included with the planning application and are excerpted in this EIAR where required.

A ten-year planning permission is being sought.

Given the recent advances in turbine technology, and the anticipated lifespan of wind turbines, 35 years is considered to be the optimal operational life for the proposed project. The duration of this operational life allows the proposed turbines to be used to generate clean renewable energy until they have reached the end of their life, rather than being removed prematurely. The proposed grid infrastructure will remain as a permanent part of the national infrastructure, which will be operated by the Transmission System Operator, EirGrid and owned by ESB, the Transmission System Owner.

All elements of the proposed project including the accommodations required for turbine delivery have been considered and addressed in this EIAR.

2.4 PROPOSED PROJECT LOCATION

2.4.1 Proposed Wind Farm Site

The proposed wind farm site is located within the townlands of Boleyboy, Cashelaveela, Cherrybrook, Coolodonnell, Faughary, Killea, Lissinagroagh, Lisdarush, Lugasnaghta, Raheelin, Shasmore, Tawnyfeacle, and Tullyskeherny, Co. Leitrim. The closest turbine is located approximately 3 km northeast of Manorhamilton and approximately 4 km southwest of Kiltyclogher (Refer to Figure 1-2). The proposed biodiversity enhancement lands are located to the northeast and southwest of the wind farm in the townlands of Raheelin, Killea, Lugnasaghta, Cooloodonnell and Tullyskeherney and Cashelaveela.

The proposed landholding within which the wind farm is located extends to approximately 1,096 ha, of which 785 ha are currently commercial forest owned by Coillte. The remaining 311 ha are largely privately-owned third-party lands and comprise a mix of coniferous forestry, marginal agricultural land, peatbogs and transitional scrub. The planning application site boundary extends to 389 ha (Refer to Drawing 10955-2001).

The site is located in close proximity to the Northern Ireland border in County Fermanagh which is approximately 3 km to the north. The site ranges in elevation from 170 to 380 m AOD, with the eastern part of the site bordering Dough Mountain (462m). The northern turbines are situated within the Saddle Hill (375m) Coillte property at elevations between 280 and 310 m AOD generally in undulating terrain. The southern turbines are located between 170 m and 380m AOD.

The land use/activities within the site are primarily commercial forestry, with expanses of wet grassland in the centre, northwest and southeast and upland blanket bog/open peatland particularly in the north and northwest. Site investigations undertaken within the proposed wind farm site indicate that peat depths vary from 0.1 m to 4.5 m in the north and 0.1 m to 1.8 m in the south.

There are a number of watercourses within the site. These range from naturally occurring upland streams to modified drainage channels within forested areas at mid to lower elevations. The southeastern part of the site is characterised by a number of flashy watercourses in deep ravines, the majority of which have existing crossings in place as part of existing forest road network.

The site is located within the Killarga South Groundwater Body (GWB). The aquifers underlying the site are classified as Locally Important in the west to Regionally Important – Karstified further east and southeast. Groundwater vulnerability ranges from Low in the west of the site to Moderate and High moving eastward, with areas of Extreme vulnerability to the north and west around Saddle Hill and south of Dough Mountain.

Coillte forestry within the site comprises different stages of coniferous plantation forestry including recent clear-fell, second rotation, immature, semi-mature and mature forestry.

The site can be accessed from the southeast via the L61844 Local Road diverging from the L6184 off the N16 National Road east of Manorhamilton and from the west via the L61801 diverging from the R282 Regional Road. The local roads are linked to a network of existing Coillte forestry tracks, which provide good coverage, are well maintained and in good condition.

In general terms, the area surrounding the proposed wind farm site can be described as rural with a dispersed settlement type. There are no residential dwellings within 740m (four times the maximum proposed tip height) of a proposed turbine. Residential dwellings are broadly aligned with the local road

network in the area surrounding the site and, for the most part, the site is relatively remote from settlement.

There is one operational wind farm located west of the proposed wind farm site, namely Faughary Wind Farm, comprising three turbines, 119 m in height. There are two further wind farms within 10km, namely Carrickeeny Wind Farm (4 turbines) located approximately 8km to the west and Tullynamoyle (19 turbines) located approximately 10 km to the south. Other operating wind farms at a greater distance from the site include Garvagh Glebe (13 turbines) and Moneenatieve (5 turbines) located 18-20 km to the south. Tullynahaw (11 turbines) and Altagowlan (9 turbines) are located further south in north Co. Roscommon close to the border with Co. Leitrim. Acres Wind Farm (6 turbines) is located approximately 22 km to the north in Co. Donegal. The proposed Croagh Wind Farm (10 turbines) is located approximately 17km to the southwest and Tullynamoyle New (4 turbines) adjacent to the operational Tullynamoyle Wind Farm. Refer to Figure 1-2, Chapter 1 – Introduction.

2.4.2 Proposed Turbine Delivery Route

The proposed TDR commences at the port of entry in Killybegs Co Donegal and extends southeast around Donegal Town before travelling southwest towards Sligo town before approaching Manorhamilton and the proposed Wind Farm site from the south. The total length of the route is 122 km.

Minor accommodations are potentially required at fifty-seven (57) locations along the 122-km route to facilitate the delivery of oversize turbine components to the site. Further details are provided in Appendix 2-1. These include temporary vegetation management, local strengthening of road edges and street furniture management to facilitate the transport of oversize turbine components to the wind farm site and subsequent reinstatement.

These accommodations are located within the following townlands: Cherrybrook, Cornastauk, Diffreen, Donagh Beg, Donagh More, Knocknaclassagh, Manorhamilton, Moneenshinnagh, Lugnafaughery, Sracreeghan and Meenaphuill (County Leitrim), Barroe, Ballytivnan, Cartron, Cloontyprocklis, Doonally, Drumcliff South, Drumkilsellagh, Grange, Rathquarter, Tully, Willowbrook (County Sligo), and Aighan, Aghayeevoge, Ballymagowan, Beaugreen Glebe, Bruckless, Cashelreagh Glebe, Clarcarricknagun, Coolcholly, Darney, Doonan, Drumlonagher, Dunkineely, Finner, Killybegs, Magheracar, Mullans, Tullyearl, Tullygallan (County Donegal).

2.4.3 Proposed Grid Connection Route

The proposed GCR extends from the proposed substation southwest along the public road network for approximately 32km to the existing ESBN 110/220kV Srananagh substation in Co. Sligo.

It extends through the following townlands: Curraghfore, Skreeny, Faughary, Amorset, Clooneen, Milltown, Cornastauk, Srabrick, Cloonaquin, Carrigeencor, Boihy, Aghameelta, Kilcoosy, Corrudda, Cleen, Tully, Killeen, Killanummery, Cleighran, Fawn, Drumahaire, Drumlease, and Carrowcrin Co. Leitrim and Lavally, Drumee, and Ballysumaghan, Co. Sligo.

The proposed GCR utilises the existing public road network where possible prioritising the use of Local and Regional roads to reduce likely significant effects. There are two (2) bridge locations (referred to as Bridge 3 and Bridge 8 on Drawing 05773-DR-152 and 159) where the cable will extend offroad onto private lands to facilitate Horizontal Directional Drilling (HDD) beneath the River Bonet. The private

lands are generally pastoral agriculture. Further details are provided in Appendix 2-2, Appendix 2-3 and Section 2.5.7.

2.5 DESIGN OF PROJECT LAYOUT AND INFRASTRUCTURE

2.5.1 Design Approach and Constraints Analysis

The development or examination of alternative design approaches is an iterative process where there is a balance between achieving an optimised layout, with minimal excavation that avoids risk in terms of poor ground, deep peat or negative influence on the existing drainage regime and that considers feedback received through the consultation process.

Any constraints or restrictions as to the location of infrastructure such as planning policy, environmental buffers and flood risk were also considered from the outset. This iterative process saw the initial positioning of turbines and roads infrastructure being modified as each of the assessments were completed. The turbines and substation have been re-positioned where necessary, access routes have been carefully selected, and a drainage layout developed to complement the final design and take account of flood risk. Once turbine locations were finalised, the alignment and rotation of the hardstands were designed to optimise the balance between access criteria and the required volumes of excavated and imported materials.

The layout of the proposed wind farm has been designed to minimise the likely significant effects, while at the same time optimising energy production by utilising the natural wind resource across the site. Available wind speed is a key factor in determining the economic viability of potential wind energy locations. In 2003, the Sustainable Energy Authority of Ireland (SEAI) produced a Wind Atlas with information on wind speed modelled at 50m, 75m and 100m height above the ground. With turbine technology innovation, turbine models can now capture more of the wind current and have bigger rotors that radically change the economic viability of wind power. This has been reflected in the updated SEAI 2013 Wind Atlas which re-modelled wind speed data for a much wider range of 30m-150m height above ground level. The 2013 SEAI Wind Speed Atlas identifies the site as having a wind speed of between approximately 6.5 m/s and 8.8 m/s at 100m above ground level. This indicates that the site has a suitable wind resource for a commercial wind energy development.

The development design was informed by the following key constraints:

- Turbines were sited a minimum of 740 m (four time the maximum proposed tip height) away from residential dwellings;
- No works within 50m of EPA-mapped watercourses;
- No works within sensitive ecological sites (i.e. SAC, SPA, NHA, pNHA);
- No works within identified flood risk zones;
- Avoidance of recorded monuments;
- Avoidance of telecommunications infrastructure and links, where possible;
- Avoidance of existing electricity, gas and water supply infrastructure.

2.5.2 Ground Conditions

Intrusive ground investigations (GI) were undertaken by specialist sub-consultants Ground Investigations Ireland (GII) and Causeway Geotech in a phased manner from October to February 2022, August to September 2024 and September to October 2025. The objectives of the investigations were to determine the subsurface conditions at the proposed wind farm site and inform

the design and location of wind farm infrastructure. The investigations included rotary borehole drilling, trial pit excavation, gouge augering and peat probing at potential infrastructure locations, including turbines, turbine hardstands, on-site substation, internal access roads and borrow pit locations.

The investigations revealed that the wind farm site is predominantly underlain by gravelly till with peat mainly in the northern section in areas. Soil strength generally increases with depth, transitioning from soft or firm clay to stiff clay, often containing angular to subangular gravel and cobbles. The investigations indicate that peat depths vary from 0.1 m to 4.5 m in the north and 0.1 m to 1.8 m in the south. Groundwater monitoring standpipes were installed in four boreholes (BH01, BH02, BH07 and BH08). Shallow groundwater monitoring was undertaken at four locations (GW3, GW4, GW5, GW6) to monitor the water level in the peat soils. Groundwater monitoring locations are shown on Figure 8-12, Chapter 8 – Hydrology and Hydrogeology. Groundwater monitoring results are provided in Table 8-18. The Ground Investigation and Geophysical Survey Reports are provided in Appendix 2-6 (A-C).

LiDAR (Light Detection and Ranging) surveying was also carried out to further inform the development design.

Further details of ground conditions and surveys undertaken are provided in Chapter 7 – Hydrology and Hydrogeology, Chapter 8 – Lands, Soils and Geology, Appendix 2-5 and 2-6.

2.5.3 Summary of Infrastucture Locations

The locations of the main infrastructural components of the development are summarised as follows:

Turbine T1, 2, 4, 5, 6: located in the north of the site in coniferous forestry at elevations ranging from approximately 270 m AOD (T1) to 350 m AOD (T5).

Turbine T3: on the southwestern slope of Saddle Hill at an elevation of 350-360 m AOD in upland blanket bog.

Turbines T7, T9: located in the central section of the site in marginal land/wet grassland at elevations of approximately 350 m AOD and 245m AOD, respectively.

Turbines T8, T10, T11, T12: located in the southwest of the site in coniferous forestry at elevations ranging from 175 m AOD (T12) to 320 m AOD (T8).

Turbine T13 and T14: located in the southeast of the site in coniferous forestry that ranges in elevation from 200m AOD to 280m AOD.

Access: seven (7) permanent accesses to the wind farm site from the L61801 and L6184 local roads. Two (2) temporary accesses comprising one on the L6184 for turbine delivery only and one on the L61844 for construction phase only.

Meteorological Mast: a 100m-high mast will be installed east of the substation and west of T12.

Borrow Pits: three (3) borrow pits located west of Turbine 1, south of Turbine 8, and southwest of Turbine 13.

Temporary Construction Compounds: two (2) temporary compounds; one located at the western end of the site near the proposed substation and the other located in the northern part of the site between T6 and T4.

Biodiversity Management Lands: located to the south and northeast of the wind farm site to be managed for biodiversity as outlined in Appendix 6-13.

110kV Wind Farm Substation: located in coniferous forestry in the west of the site close to the L61801 Local Road access and the western site entrance.

Grid Connection Route: a 32km-long underground 110kV cable extending from the wind farm substation to an existing ESBN substation in Srananagh, Co. Sligo.

The proposed wind farm layout is shown in Drawings 10955-2010 to 2019 and Figure 2-1. The proposed GCR and TDR are shown on Figures 2-3 and 2-4, respectively.

The layout reflects the outcome of the iterative design process. Further detail on the design approach, development constraints and facilitators, and the alternative turbine layouts and dimensions considered, is provided in Chapter 3 - Reasonable Alternatives.

8°8'30"W

8°5'5"W

54°20'24"N

54°19'12"N

590000

840000

N

T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14

Legend

- Application Boundary
- Turbine Layout

Site Layout

- Construction Compound
- Substation Location
- Borrow Pits
- Clear Span Bridge
- Turbine Hardstands
- Site Access Tracks
- Met Mast Location
- Oversail Areas
- Turning Bays

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	24/04/2026	First issue	S.P	S.R

Client:

Ireland FuturEnergy

Project:

Lissinagroagh Wind Farm

Title:

Figure 2-1:
Proposed Wind Farm Layout

Scale @ A3: 1:18,000

Prepared by:	Checked by:	Date:
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Map Ref: 10955-088-INFRA-P.App.BO-TOB-A

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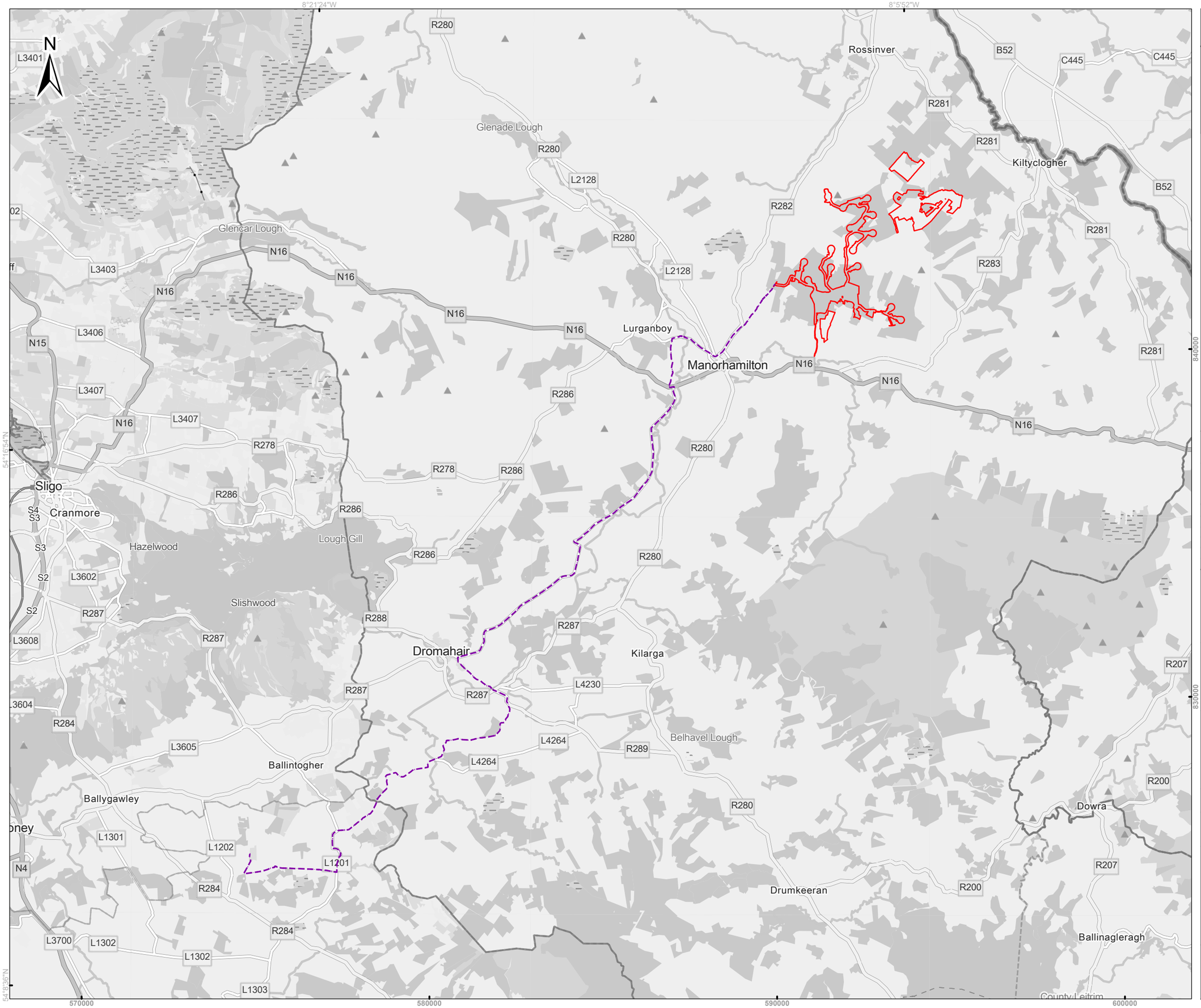

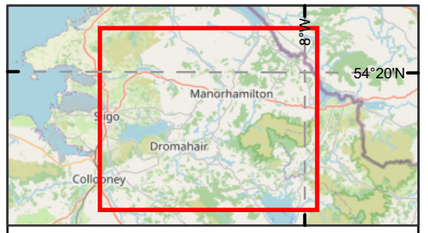

Legend

- Application Boundary
- Grid Connection Route

0 2 4
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	01/05/2026	First issue	K.K	S.R

Client:
Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-2:
Proposed Grid Connection Route

Scale @ A3: 1:100,000

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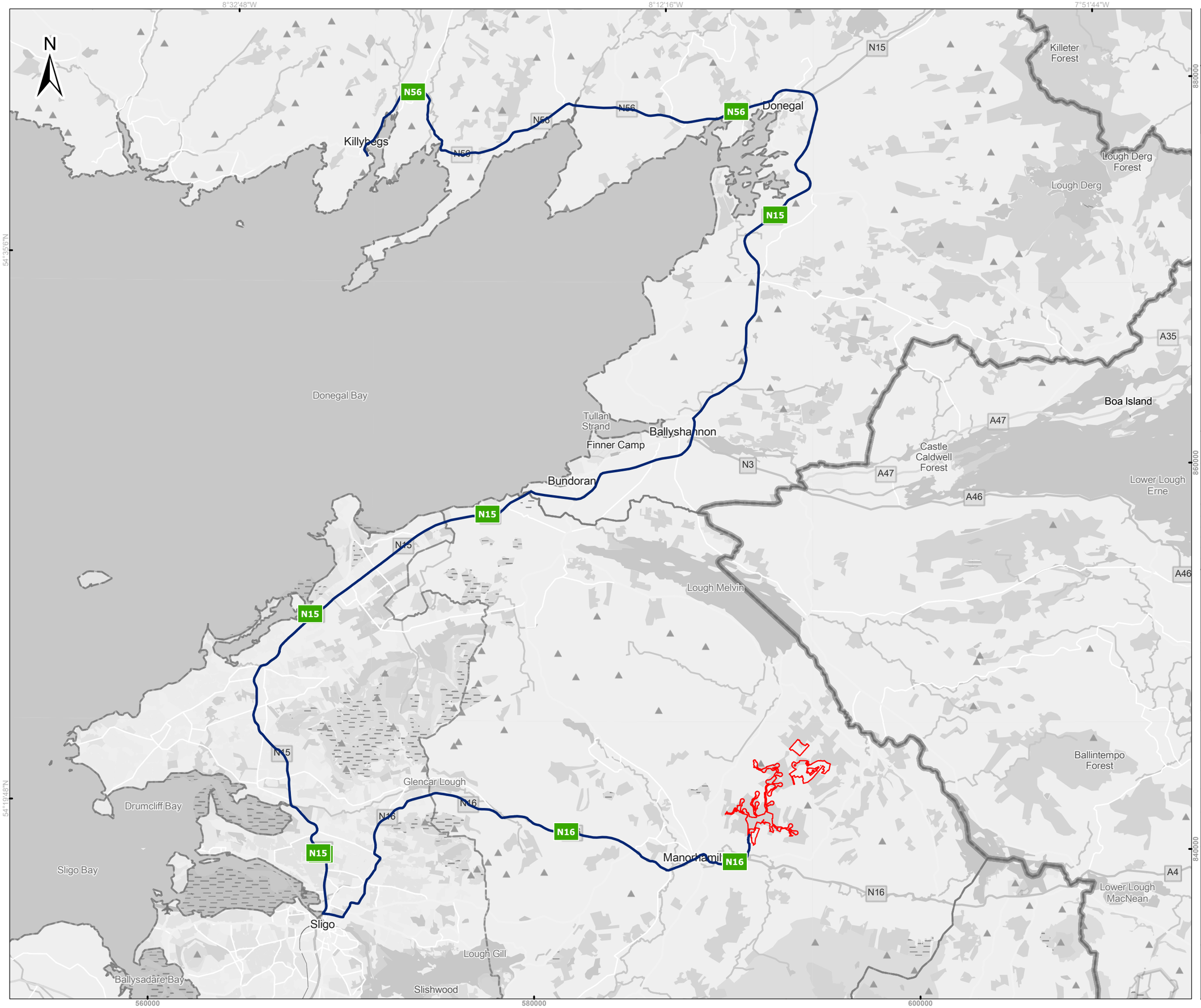
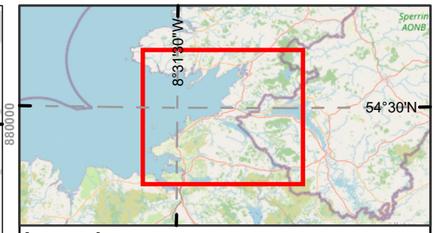
Map Ref: 10955-095-GCR-St.A-TOB-A

Draft: A





Legend

- Application Boundary
- Turbine Delivery Route

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	01/05/2026	First issue	S.P	S.R

Client:
Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-3:
Proposed Turbine Delivery Route

Scale @ A3: 1:180,000

Prepared by:	Checked by:	Date:
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Map Ref: 10955-097-TDR-P.App.BO-TOB-A

Draft: A

2.5.4 Wind Turbines

The Grid Reference co-ordinates (ITM) of the proposed turbine locations are listed in Table 2-1.

Table 2-1: Turbine Locations (ITM Co-ordinates)

Turbine ID	Easting (m)	Northing (m)
T1	592596	844330
T2	591893	844060
T3	591465	844376
T4	592752	843851
T5	592751	843332
T6	592099	843475
T7	592179	842837
T8	592310	842380
T9	591553	842883
T10	591544	842345
T11	590776	842501
T12	590885	841986
T13	593280	841205
T14	593558	840837

The proposed turbine parameters which are assessed in this EIAR are detailed in Table 2-2.

Table 2-2: Proposed Turbine Parameters

Item	Parameter	Value
Turbine	Blade Tip Height	180-185 m
	Rotor Diameter	149-163 m
	Hub Height	101-110.5 m
	Min Ground Clearance	22 m
	Colour	White/ Light Grey
	Number of blades	Three bladed
	Tower type	Tubular with horizontal axis
Turbine Foundation	Diameter	28m
	Volume of concrete	1,752 m^3 per turbine
Turbine Hardstand	Volume of stone/aggregate	4,834 m^3 per turbine (Based on plan area of(7,765 m^2)

2.5.4.1 Turbine Specification

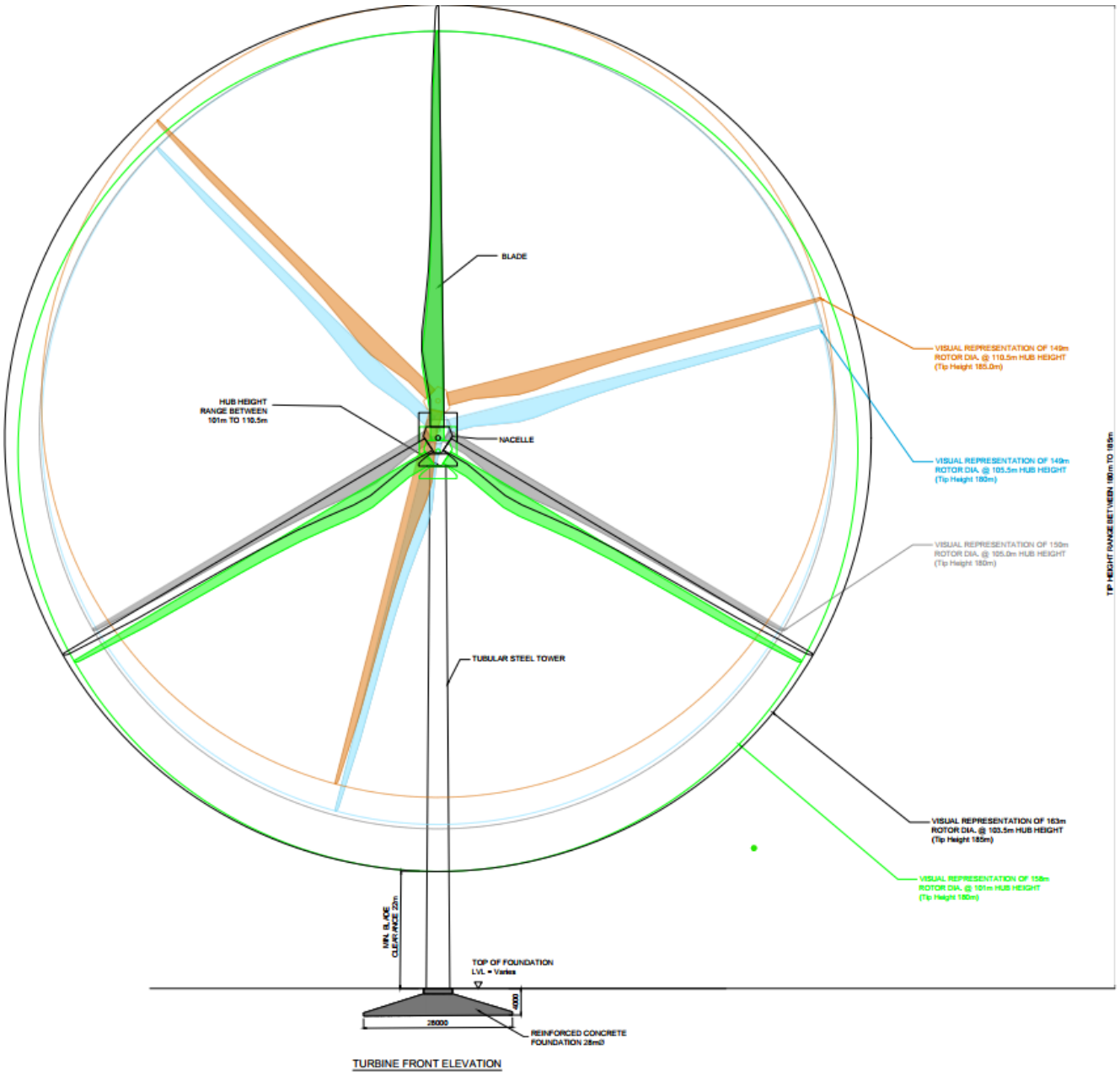
The dimensions of the proposed turbines will be within the parameters set out in the development description (i.e. blade tip height of 180-185 m, rotor diameter of 149-163 m, a hub height of 101-110.5 m), and shown in Drawing 10955-2032, excerpted as Figure 2-4.

Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics with only minor aesthetic details differentiating one from another. The turbines that will be installed will be conventional three-blade turbines, geared to ensure that the rotors of all turbines rotate in the same direction at all times.

The exact combination of rotor diameter and hub height will be dictated by the final selection of the turbine make and model at turbine selection stage/pre-construction. New turbine models or variants may be available, due to advancements in technology, that were not on the market at the pre-planning / EIA stage, but which will fit within the parameters assessed.

Each discipline within this EIAR has assessed the proposed turbine parameters, as presented in Table 2-2, to ensure all scenarios have been assessed.

Figure 2-4: Turbine Front Elevation showing tip height, hub height and rotor diameter ranges (Extract from Drawing 10955-2032)



The design is in line with the current Wind Energy Development Guidelines (2006), which are currently under review. The Revised Draft WEDG's were published in 2019.

At the time of writing, the Revised Draft WEDG's (2019) remain in draft, they have not been adopted and therefore may be subject to change before they are finalised. Nonetheless, the guidelines relating to noise, shadow flicker, visual amenity setback, environmental assessment, consultation obligations, community dividend and grid connections have been considered in the design of the Proposed Project and have been complied with to the extent that they represent

current best practice. This is discussed in more detail in each of the individual chapters in this EIAR.

- Shadow flicker – it is proposed to eliminate shadow flicker through the installation of control modules (further details provided in Chapter 10 – Shadow Flicker);
- Electrical grid connection – cables are proposed to be located underground; and
- Proximity to sensitive receptors – a minimum turbine set-back of four times the maximum tip height (185m) is provided.

At the time of writing this EIAR, the relevant guidelines remain those published in 2006.

2.5.4.2 Power Output

The proposed wind turbines will each have an assumed rated electrical power output of 5.5 – 7.2 MW depending on the turbine model constructed, which will be determined following a competitive procurement process.

For the purposes of this EIAR, a minimum rated output of 5.5 MW and a maximum rated output of 7.2 MW have been used to calculate the power output of the proposed wind farm, which will result in an estimated installed capacity of 77-100.8MW.

The following formula is used to calculate output: A x B x C = Megawatt Hours of electricity produced per year, as shown in Table 2-3.

Table 2-3: Power Output Calculation

A	No. of Hours in a calendar year	8,760 hours
B	Capacity Factor [1]	33%
C	Total Rated Output of Wind Turbines	77-100.8 MW
A x B x C	Annual Power Output in MWh	222,591 – 291,393 MWh

Based on the above, the proposed wind farm has the potential to produce 222,591 MWh to 291,393 MWh of electricity per year, which will be sufficient to supply the equivalent of 52,998 to 69,379 Irish households with electricity per year[2].

[1] The capacity factor of 33% takes into account the intermittent nature of the wind, the availability of wind turbines and array losses etc at the project location based on an EirGrid study of wind and solar energy in the region of the proposed project, classed as Region A in the study, dated 31 March 2025- ECP-2.4 - Solar and Wind Constraints Report - Results for Area A v1.0 (https://cms.eirgrid.ie/sites/default/files/publications/ECP-2.4-Solar-and-Wind-Constraints-Report-Results-for-Area-A-v1.0.pdf)

[2] The CRU Energy Monitoring Report 2023 (published November 2024) states that the average Irish household uses approximately 4,200 kWh (4.2 MWh) of electricity per year (https://www.cru.ie/about-us/news/cru-energy-monitoring-report-2023/).

2.5.4.3 Turbine Blades and Nacelle

The turbines will be three bladed, tubular tower model with horizontal axis. The rotor blades are bolted to the central hub, which is connected to the nacelle. The nacelle holds the following turbine components:

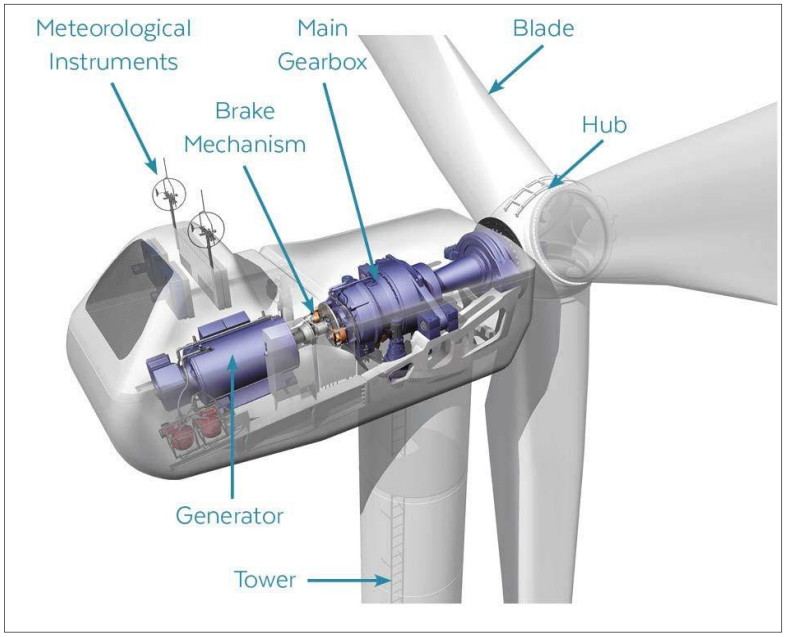
- Generator
- Electrical components
- Aviation lighting to Irish Aviation Authority specifications

The blades of modern turbines are made of fibreglass or carbon fibre reinforced polyester and are aerodynamically shaped to improve efficiency and lower noise production. The blades on this site will be fitted with serrated edges, an additional noise reduction mechanism.

A turbine blade begins generating electricity at wind speeds of 2 to 4 m/s with optimum power generation at wind speeds of approximately 9 to 16 m/s. Generation plateaus between 16 and 25 m/s and turbines shut down at wind speeds greater than 25 m/s in order to protect themselves from excessive wear, although some turbines are designed to operate at up to 30 m/s. Modern turbines turn at between 3 and 20 revolutions per minute (rpm) depending on wind speed and design of turbine.

The entire nacelle (shown in Figure 2-5) and rotor are designed to rotate, or 'yaw', in order to face the prevailing wind. A wind vane located on the nacelle of the turbine controls the yaw mechanism. Rotors of all the proposed turbines will rotate in the same direction. A control unit is located at the base of the turbine and an internal ladder or lift leads up to the nacelle where the shaft, gearbox and generator are located.

Figure 2-5: Turbine Nacelle and Hub Components



2.5.4.4 Turbine Tower

The turbine tower is a conical steel tube with multiple-layer paint finish. Towers generally comprise a steel ring at the base of the tower which is assembled on top of the concrete foundations using locally supplied concrete and then pre-stressed. The tower is delivered to site in three to six sections. The first section is bolted to the steel base, which is cast into the concrete foundation. The base of the tower is around 5m in diameter, tapering to approximately 2-3m where it is attached to the nacelle (Figure 2-5). The tower is accessed by a galvanised steel hatch door, which will be kept locked except during maintenance. The nacelle dimensions can vary depending on the final hub height and the model which is used. The exact details of the turbine tower will be dictated by final selection of the turbine make and model, but it will be within the proposed range of parameters outlined in Table 2-2 and assessed in this EIAR.

2.5.4.5 Turbine Transformer

When operating, the rotational energy of the blades is utilised to drive the wind turbine generator. The generated power is in the form of low voltage (approximately 660 volts) and connected via low voltage cables to the wind turbine transformer located within the tower or in the turbine nacelle. This transformer steps up the generated low voltage to medium voltage (approximately 33kV) which supports a reduction of electrical losses when transmitting power over large distances. The medium voltage from the wind turbine transformers connects to the proposed on-site substation which again will be stepped up to high voltage (110 kV) for connection to the transmission system.

2.5.4.6 Turbine Foundations

Each wind turbine will require a reinforced concrete foundation comprising a base slab bearing onto rock or other competent substrata with a central upstand to support the tower. The foundations for each turbine will be designed by the appointed Civil Designer. The exact size of the foundation will be dictated by the turbine manufacturer, and the final turbine selection will be the subject of a competitive tender process but will be of approximately 28m in diameter with thickness of 4m at the collar, tapering towards the edge. Different turbine manufacturers use different shaped turbine foundations, ranging from circular to hexagonal and square, depending on the requirements of the final turbine supplier. Based on a foundation design of 28m diameter and up to 4m thickness, a total of approximately 24,528 m^3 of concrete (1,752 m^3 per turbine) will be required.

Construction of the turbine foundations and hardstands will require excavation of the surrounding soil from the foundation and crane hardstanding area to founding level with access being provided from adjacent access tracks at or near the surrounding ground level. The soil will be replaced with granular fill where required.

The turbine foundation transmits any load on the wind turbine into the ground. After the foundation level of each turbine has been formed, the bottom section of the turbine tower or "can" is levelled (Plate 2-1 below). Reinforcing steel is then built up around and through the can (Plate 2-2 below), and the outside of the foundation is shuttered with demountable formwork to allow the pouring of concrete.

Plate 2-1: Levelled turbine tower "can"

Plate 2-2: Steel reinforcement being added

2.5.4.7 Turbine Colour

The turbines are multi-ply coated to protect against corrosion. Turbines will be of an off-white or light grey colour to blend into the sky background and minimise visual effects as recommended by industry best practice and guidance set out in the 2006 WEDG's and Nature Scot (2017) *Siting and Designing Windfarms in the Landscape*.

2.5.4.8 Turbine Design Flexibility

The following describes the details of the proposed project that cannot be confirmed at planning application stage and for which design flexibility is sought:

- The wind turbine blade tip height to range from 180m– 185m inclusive;
- The wind turbine rotor diameter to range from 149m – 163m inclusive;
- The wind turbine hub height to range from 101m to 110.5m inclusive.

The proposed range of wind turbine parameters is limited to a variation of 5m in tip height, 14m in rotor diameter and 9.5m in hub height.

The planning application and accompanying documents and drawings will contain the necessary information and details of the parameters set out above on which the application can be made and decided.

2.5.4.9 Crane Hardstands

The turbine supplier will have a requirement for a crane hardstand area to be constructed beside each turbine to facilitate access, turbine assembly and turbine erection. The hardstand layout chosen is an amalgamation of the requirements of a number of turbine suppliers to ensure versatility should the supplier be changed without altering the planning requirements. The layout of the hardstand is designed to accommodate the delivery of the turbine components prior to their erection and to support the cranes during erection. The hardstands are left in situ for the operational life of the turbine for maintenance purposes.

Each hardstand consists of levelled and compacted hardcore around the turbine base. It is used to accommodate large cranes used in the assembly and erection of the turbine,

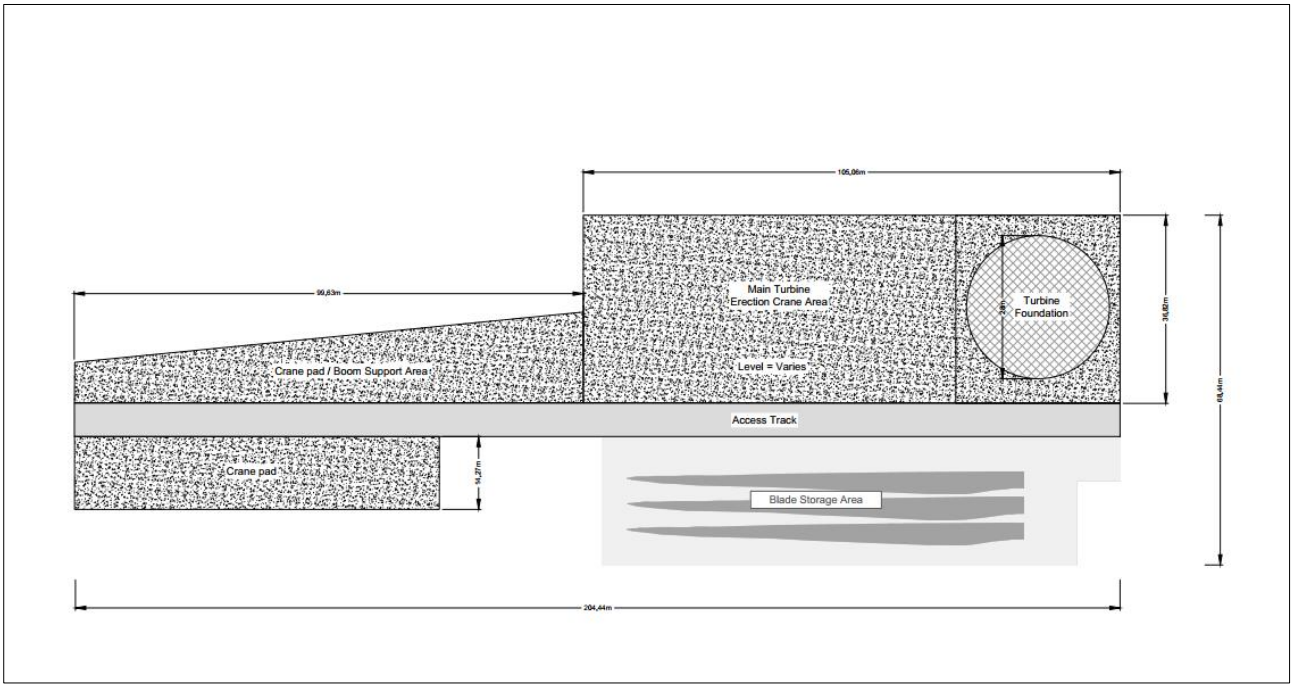
offloading and storage of turbine components, and generally provide a safe, level working area around each turbine position. The hardstands are extended to cover the turbine foundations once the turbine foundation is in place. The hard-standing area is intended to safely accommodate a large 350-750 tonne SWL crane during turbine assembly and erection.

Levelled assembly areas will be located on either side of each hardstand. These are required for offloading turbine blades, tower sections and hubs from trucks until such time as they are ready to be lifted into position by cranes. They will be partly surfaced with Clause 804 hardcore material or similar and partly cleared of vegetation / levelled. They cover an area of 105m x 37m. The hardstand area also includes two secondary crane pads on the opposite end of the hardstand to the turbine and a blade storage area adjacent to the hardstand, constructed from compacted hardcore material

The size of hardstand assessed for the purposes of this EIAR is detailed in Table 2-2, and it accounts for the proposed range of turbine parameters. The design of the hardstand crane pads and blade storage area are shown on Drawing 10955-2031 and Figure 2-6.

Occasional surface maintenance will be required in the operational phase of the proposed wind farm, but this is anticipated to be very minimal and infrequent.

Figure 2-6: Crane Hardstand Layout



2.5.5 Access from Public Roads & Internal Access Tracks

2.5.5.1 Accesses from Public Roads

There are seven (7) proposed permanent accesses to the proposed wind farm site:

Permanent Access 1

Located on the L61801 local road to the south of the proposed substation. This is an existing Coillte forest entrance, which will be upgraded to provide vehicular access for construction of the wind farm. This will provide access to the site for material and equipment deliveries (i.e. delivery of stone, steel, concrete and all materials) and staff during construction and also during operation and decommissioning. It will be used by maintenance vehicles during the operational phase, as well as for ongoing forestry and agricultural activities and will remain in place during decommissioning.

Permanent Accesses 2, 3, 4, 5, 6, 7

There are six (6) locations where the L6184 Local public road must be accessed to facilitate the internal movement of vehicles of turbine and material delivery vehicles and general construction traffic within the proposed wind farm site (referred to as Permanent Access 2, 3, 4, 5, 6 and 7 on Drawing 10955-2070). At the end of the construction phase, barriers will be erected to control access. Construction traffic arriving from off-site will not be permitted to enter or exit the proposed wind farm site at these locations, and will be instructed to use either the L61801 or L61844 accesses.

Temporary Access 1

There will be a temporary access on the L61844 local road to the south of Turbines 13 and 14. This is an existing Coillte forest entrance, which will be upgraded to provide vehicular access for construction of the wind farm. This will provide access to the site for material and equipment deliveries (i.e. delivery of stone, steel, concrete and all materials) and staff during construction.

Temporary Access 2

There will be a temporary access on a minor local road diverging from the L6184 in the townland of Cherrybrook to facilitate turbine delivery vehicles during construction only. There will be 2 crossings of the L6184 and the minor road at this location. The access will be used for turbine component deliveries only and will then be gated.

All permanent accesses have been designed to provide adequate visibility in accordance with TII guidance. Visibility splays for the permanent access points are shown on Drawings 10955-2071 to 2077.

Access locations are shown on Figure 2-7. Further details are provided in Chapter 16 - Traffic and Transportation, Appendix 16-1 Traffic Management Plan and Drawing 10955-2070.

2.5.5.2 Internal Access Tracks

The proposed wind farm has been designed to utilise existing Coillte forestry tracks as far as possible. Of the 16.3 km of internal access tracks required, over 50% or 8.35 km will consist of upgraded existing tracks and 7.95 km will consist of newly constructed tracks.

The internal access tracks will be constructed during the construction phase of the wind farm and will remain in situ for the operational life of the wind farm.

Access tracks will have a running width of approximately 5 m (5.5m including shoulders), with wider sections at passing bays, some corners and on the final approaches to turbine hardstands and substation compound. At areas with oversail, and at site entrance junctions with the public roads, additional areas will be hard-surfaced, as shown on Drawings 10955-2071 to 2079.

Required road base will be sourced from the proposed on-site borrow pits, where possible, and supplemented by local quarries as required. The final graded surface material will be sourced from local quarries listed in Table 2-4.

Excavated spoil/peat from road construction will either be placed and profiled on either side of constructed roadways or used to reinstate the borrow pits as detailed in the Spoil and Peat Management Plan (Appendix 2-5).

All new tracks will be constructed with a 2% camber to aid drainage and surface water runoff and will be excavated to suitable formation level. As peat depths beneath the proposed new tracks do not exceed 1 m, no floated roads will be required.

Details of the drainage design along the access tracks are provided in Drawings 10955-2050 to 2056.

All road-worthy vehicles will not be permitted to travel off road within the proposed wind farm site, unless for short distances using bog mats. Only specialised vehicles required for construction are permitted off-road.

Occasional surface maintenance of access tracks will be required during the operational phase, but this is anticipated to be minimal. During the operational phase, all vehicles will use the permanent access on the L61801, as described above.

8°8'30"W

8°5'5"W

54°20'24"N

54°19'12"N

590000

840000

N

T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14

Legend

- Application Boundary
- Turbine Layout
- Site Access Tracks
- Site Access Entrance / Crossing Locations

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	07/05/2026	First issue	K.K	S.R

Client:

Ireland FuturEnergy

Project:

Lissinagroagh Wind Farm

Title:

Figure 2-7:
Site Entrances and Access Points

Scale @ A3: 1:18,000

Prepared by:	Checked by:	Date:
K.Kale	S.Ryan	May 2026

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Map Ref: 10955-100-S.EnT-Access-TOB-A

Draft: A

2.5.7 On-Site Electrical Substation

It is proposed to construct an on-site 110kV electrical substation within a compound with an area of 11,600 m^2 secured by a 2.6m high palisade fence to transform and transmit the electricity generated by the turbines to the proposed grid connection node. The substation will be located adjacent to the L61801 access, as shown on Figure 2-1 and Drawings 10955-2010 and 2071.

The substation has been designed by TLI to EirGrid and ESB specifications, as shown on Drawings 05773-DR-130, 133, 134, 135, 136, 137, 138, 141, 150 and 151 and will be constructed in accordance with these specifications.

The construction methodology is summarised in Section 2.8.5 below and full details are provided in Appendix 2-3.

The substation compound will contain an Independent Power Producer (IPP) Medium Voltage (MV) Switch room (approximately 450m^2), an Eirgrid control building, a Transformer compound and Busbar compound and other electrical equipment. The IPP building will also contain offices and welfare facilities.

Internal fences will also be provided to segregate different areas within the compound. Lighting will be required on-site and this will be provided by lamp standards located around the substation and exterior wall mounted lights on both buildings equipped with sensors. The lights will normally remain off and be controlled by a switch at the gate when entered the compound.

The main control building and smaller switchgear building will include the Independent Power Producer and ESB control room, as well as office space and welfare facilities for staff during the operational period. Toilet facilities will be installed with a low-flush cistern and low-flow wash basin. There will be a very small water requirement for occasional toilet flushing and hand washing during periodic maintenance visits. A rainwater harvesting system will be installed to supply water to toilet facilities and bottled water will be provided for potable use.

It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off-site by a permitted waste collector to a suitable wastewater treatment plant. It is not proposed to treat wastewater on-site. The collection period for the tank will be agreed with the permitted waste collector on installation. The tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. Full details of the proposed tank alarm system will be submitted to Leitrim County Council in advance of any works commencing on-site. The wastewater storage tank alarm will be integrated with the on-site electrical equipment for alarm notification that will be monitored remotely 24 hours a day, 7 days per week.

2.5.7.1 Internal Underground Cabling

The turbines will be connected to the on-site substation by underground MV cables. Fibre-optic cables will also connect each turbine to the turbine control system located within the

control building. The electrical and fibre-optic cables running from the turbines to the on-site substation compound will be run in cable ducts approximately 1 metre below the ground surface within the proposed internal tracks and/or their verges or within clear span bridge decks where a watercourse is required to be crossed.

2.5.8 Grid Connection

The proposed on-site substation will connect via a 110 kV underground cable to an existing ESBN substation in Srananagh, Co. Sligo. A connection agreement will be sought from the grid system operator by application to EirGrid.

The total length of the connection is approximately 32 km, of which 30.6 km will be in the public road corridor, as shown in Figure 2-2. The remainder is located within Coillte lands and other private lands and a short section is within the proposed wind farm site.

The grid connection has been designed by TLI to EirGrid and ESB specifications, as shown on Drawings 05773-DR-100 to 148 and will be constructed in accordance with these specifications.

The connection will consist of three (3) 160mm diameter HDPE power cable ducts, two (2) 125mm diameter HDPE communications ducts and one (1) 125mm earth continuity conductor duct to be installed in an excavated trench, typically 825mm wide by 1,315mm deep, with variations on this design to adapt to bridge crossings, service crossings and watercourse crossings.

2.5.8.1 Watercourse Crossings

Eleven (11) existing bridge crossings are required, of which eight (10) will involve in-road HDD (Horizontal Directional Drill), two (2) will involve off-road HDD and one (1) will be a standard crossing within the bridge deck. Details of HDD crossings are provided in Drawing 05773-DR-152 to 162. There will also be eight (8) existing culvert crossings using open trenching with either an undercrossing or an overcrossing, depending on the depth of the culvert to be confirmed during pre-construction surveys. Details of culvert crossings are provided in Drawing 05773-DR-126 and 127.

The construction methodology is summarised in Section 2.8.5 below and full details are provided in Appendix 2-3.

2.5.8.2 Joint Bays

Joint bays are to be installed approximately every 700m to 850m along the route to facilitate the jointing of two lengths of cable to form one continuous cable, as shown on Drawing 05773-DR-144 and 145. They are typically 2.6m x 6m x 1.75m pre-cast concrete structures installed below finished ground level. Joint Bays will be located in the non-wheel bearing strip of roadways where possible, however given the narrow profile of local roads this may not always be possible.

In line with the Department of Transport (2026) '*Interim Guidance to Road Authorities regarding the proposed placement of Medium or High Voltage electricity assets, including ducts, cables, and associated infrastructure under public roads*', joint bays will be installed

at a minimum of 600 mm below finished road level and shall have a precast concrete cover installed prior to backfilling back up to road level.

In association with joint bays, communication chambers will be installed at each joint bay location to facilitate communication links between the proposed on-site substation and the 110/220 kV substation at Srananagh. The communications chambers will be 1.3 m x 0.98 m x 1.37 m pre-cast concrete structures.

Further details are provided in Appendix 2-3.

2.5.9 Turbine Delivery Route (TDR)

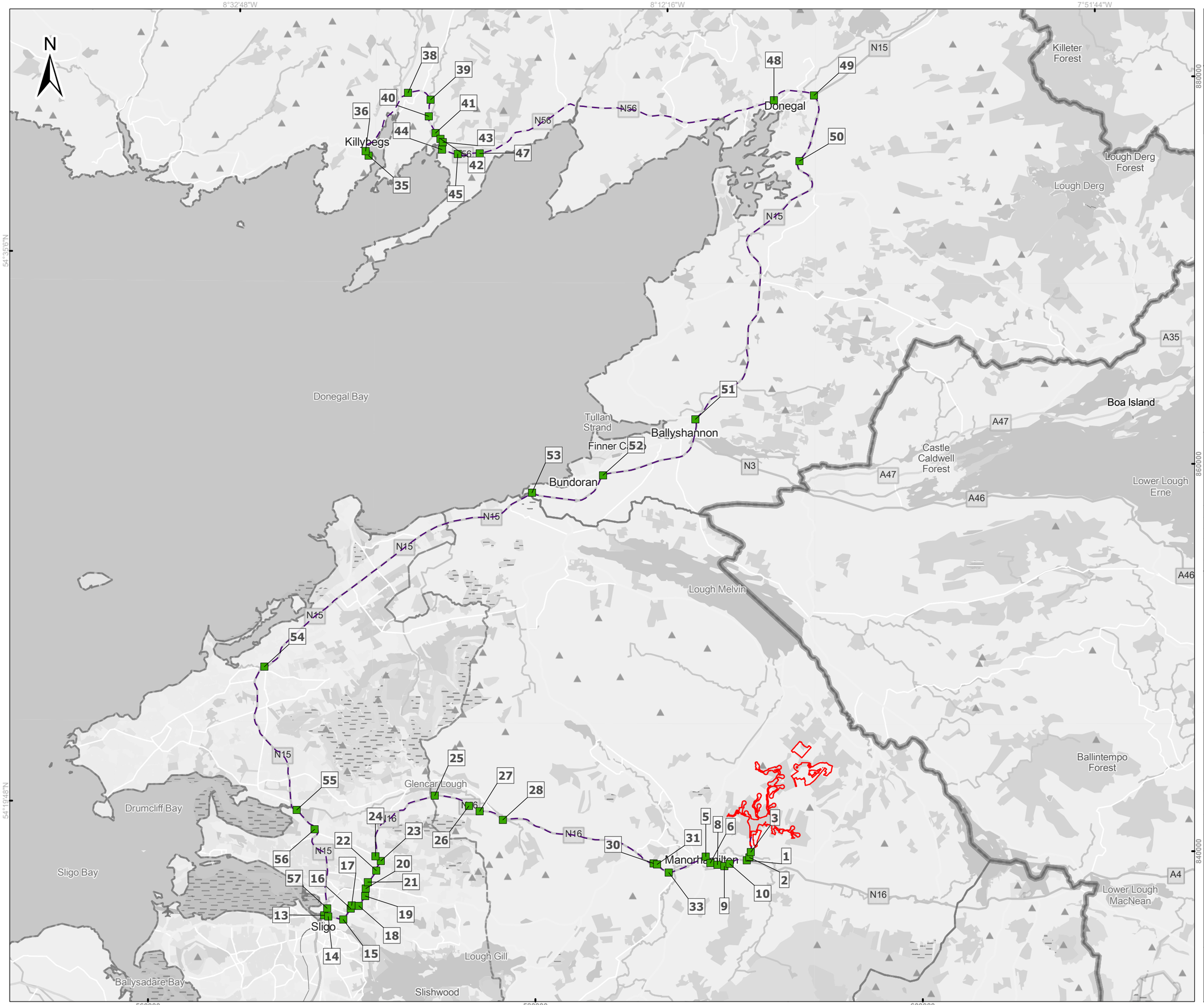
The proposed wind farm site is located approximately 2.5km north of the N16 National Primary Road at its closest point providing relatively straightforward access to the national road network in the northwest of the country. The port of entry chosen for turbine delivery is Killybegs Port in Co. Donegal, which is the closest port of entry to the site. This port has also been successfully used for the delivery of wind turbines for other Irish wind farm projects.

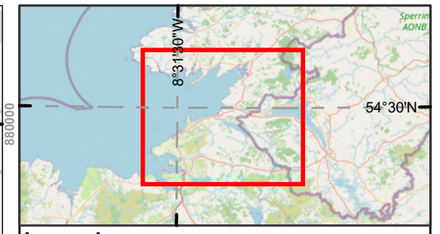
At Killybegs Port, the route travels along the R263 Regional Road before joining the N56 National Secondary Road and running south eastwards towards Donegal Town. East of Donegal Town, the route joins the N15 National Primary Road running south-westwards towards Bundoran. Southwest of Bundoran on the N15, the route enters Co. Leitrim and continues south eastwards towards Sligo Town. At the junction of the N15 and N16 in Rathquarter, Sligo Town, the route turns left onto the N16 National Primary Road travelling northeast through Manorhamilton on the N16 for 2.5 km before exiting the N16 on the L6184 Local Road for 0.6 km to the proposed wind farm southern access point. The total length of the route is 122 km. The route is shown in Figure 2-8.

The route extends through the functional areas of three local authorities – Donegal County Council, Sligo County Council and Leitrim County Council.

An assessment of the route between Killybegs Port and the proposed wind farm site was undertaken by Collett and Digital Land Surveyors. A number of potential pinch points (nodes) along the route were identified and assessed. Further assessment was carried out through topographical survey and *Autodesk Vehicle Tracking*™ to determine what, if any, accommodations are required at these pinch points to allow the turbine components to be transported to the site. Accommodations range from hedgerow trimming/clearing to facilitate oversail of turbine blades to the temporary placement of hardcore to allow the oversize vehicles to pass. Further details are provided in Appendix 2-1.

These accommodations do not form part of the current planning application although they are assessed in this environmental impact assessment. If planning consent is required for the proposed temporary accommodations for turbine delivery, a further consenting process will be used to obtain permission for the accommodations. All works associated with the route have been assessed as part of this EIAR. The decommissioning phase for the project would not require the use of the TDR as the turbine components would be cut up on site to sizes that would fit on standard articulated trucks.





Legend

- Application Boundary
- Turbine Delivery Route
- Accommodations

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client:
Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-8:
TDR showing Accommodation/Pinch Point Locations

Scale @ A3: 1:180,000

Prepared by:	Checked by:	Date:
S.Pezzetta	S.Ryan	May 2026

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Map Ref: 10955-089-TDR-POIs-TOB-A

Draft: A

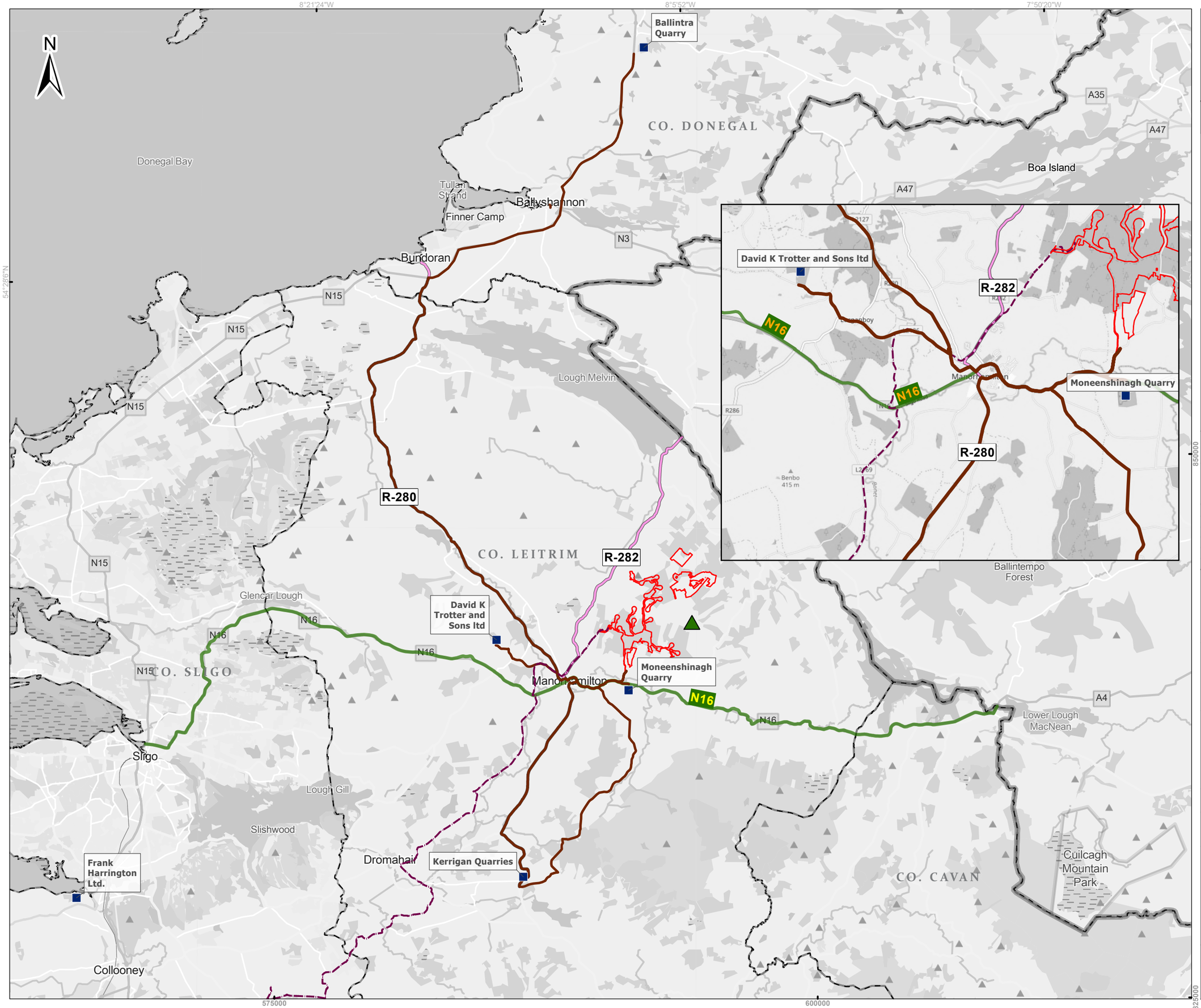
2.5.11 *Material Delivery Routes*

It is proposed that construction materials coming from the north and west will approach along the N16 and R282 accessing the western site entrance via the L61801 and materials coming from east and south will approach along the N16 and L6184 accessing the southeastern site entrance via the L61844. Material providers will be instructed to only use these routes to approach the site, regardless of their source.

The proposed quarries and delivery routes are detailed in Table 2-4 and Figure 2-9.

Table 2-4: Quarries and Delivery Routes

Quarry	Location	Access Route
Roadstone Ballintra	Ballintra, Co. Donegal	N15-R280-R282- L61801 or N16- L6184
Moneenshinagh Quarry	Moneenshinagh, Co. Leitrim	N16-L61801 or N16- L6184
Kerrigan Quarries	Dromahair, Co. Leitrim	R287-N16-R282- L61801 or N16-L6184
Frank Harrington Quarry	Abbeytown, Co. Sligo	N59-R290-R287- N16-R282- L61801 or N16-L6184
David K Trotter and Sons	Lurganboy, Co. Leitrim	L4134-L2136- R282-L61801 or N16- L6184



Legend

- Application Boundary
- Grid Connection Route
- Quarries Locations
- Construction Haul Routes
- Dough Mountain

Roads

- National Roads
- Regional Roads
- County Boundaries

0 4 8
Kilometers

Spatial Reference
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Project: Lissinagroagh Wind Farm

Title: Figure 2-9: Construction Material Delivery Routes

Scale @ A3: 1:160,000

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Map Ref: 10955-096-Haul.R-P.App.BO-TOB-A

Draft: A

There will be 8 passing bays constructed on the L6184 which will be used to allow safe passing of vehicles on this road through all phases of the project, particularly the construction phase when HGV traffic will be highest (refer to Drawing 10955-2080). The passing bay design is in accordance with the TII Publication DN-GEO-03031 Rural Road Link Design (May 2023). The passing bays are proposed to be 40m long (including 10m tapers) and the overall width including the carriageway to be 6.5m (maximum).

2.5.12 Meteorological Mast

It is proposed to install a permanent meteorological mast, 100 m in height, within the site at the location shown on Figure 2-1. The mast will be equipped with wind monitoring equipment at various heights to provide wind data to the wind farm operator.

The mast will be a slender, free-standing lattice structure with a lightning finial extending above it and will be constructed beside a hardstanding area of 40m x 15m, which will be used to erect the mast, as shown on Drawing 10955-2036.

2.5.13 Temporary Construction Compounds

Two temporary construction compounds will be constructed to provide office space, welfare facilities, car parking and hardstands for storing materials. One will be located at the southern end of the site (south of T11), while the second will be at the northern end (north of T6). These will measure 9,100m^2, respectively, and the locations are shown on Figure 2-1 and Drawing 10955-2030.

2.5.14 Other Ancillary Infrastructure and Works

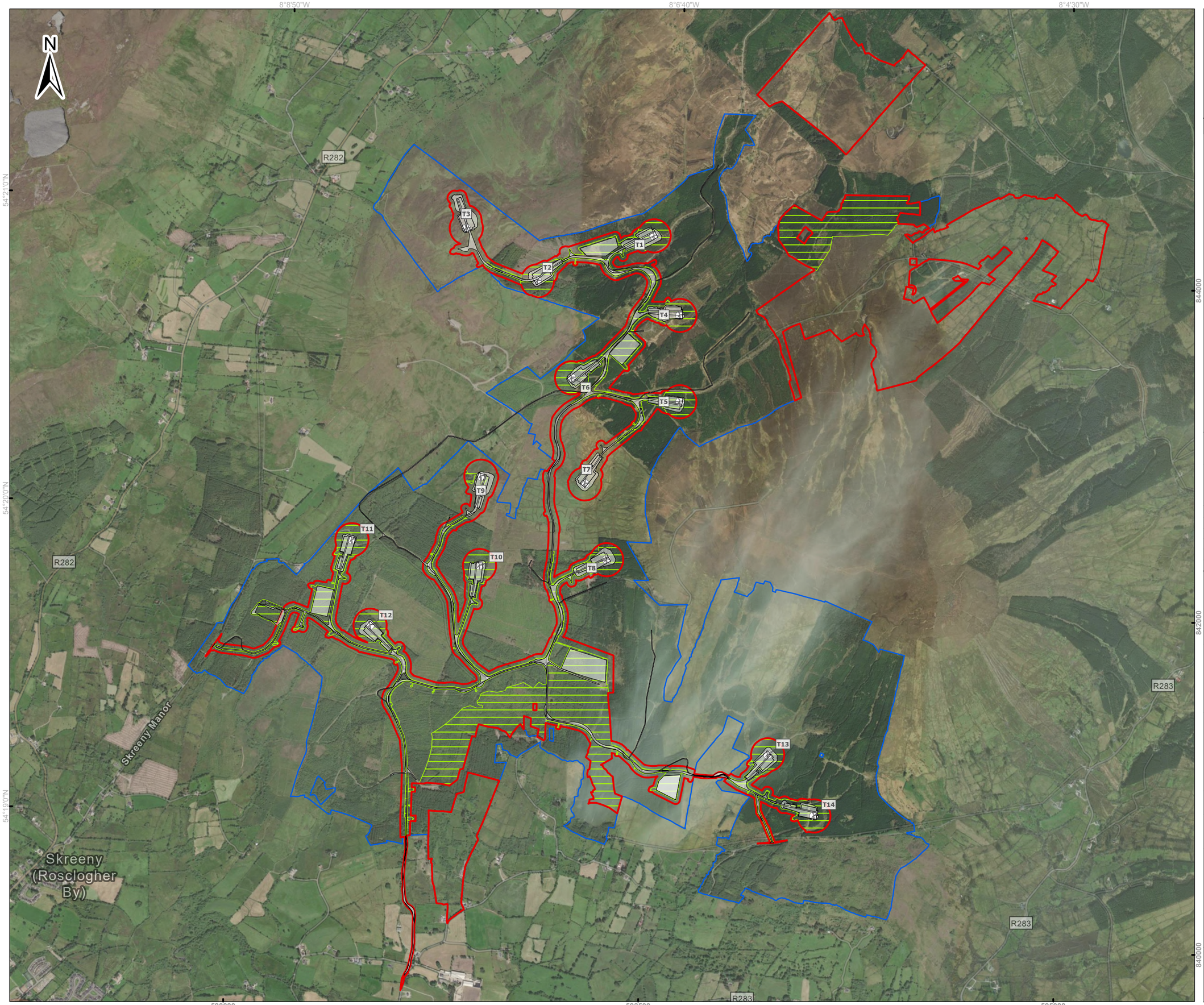
2.5.14.1 Borrow Pits

Three (3) borrow pits have been identified within the proposed wind farm site. It is proposed to utilise these to provide an on-site source of stone for construction. Borrow Pit (BP) 1 is located west of Turbine 1, BP2 is located to the south of Turbine 8, and BP3 southwest of Turbine 13. These locations were identified based on geological mapping and site investigations with areas of shallow bedrock, or suitable material. The total volume of material estimated to be available in the identified borrow pits is 248,167 m^3 (refer to Drawings 10955-2090, 2091 and 2092). The presence of a borrow pit on-site will significantly reduce materials transport to site and will minimise the depth to which the borrow pit excavations will be required. Further details of the borrow pit selection and assessment are provided in Chapter 8 - Land, Soils and Geology.

The borrow pits will be at locations with very gently sloping terrain, and any peat excavated during site excavations will be used to reinstate them. There will be no requirement for any retaining structures to be built in order to do this, as the volume of peat excavated will be relatively small (101,911 m^3), and it will be possible to store it all below the lowest point of the borrow pit edges (i.e. it will be entirely contained within the borrow pits and therefore slippage out of them will not be possible). Their reinstatement will also utilise mineral soil and stone excavated as part of the proposed project. Refer to Appendix 2-5 Spoil and Peat Management Plan for further details.

2.5.14.2 Forestry Felling

Approximately 72% of the proposed wind farm site is forested. Some of this area is located within Coillte lands, while some is located within private lands. There will be a requirement to fell forestry in the areas to accommodate the wind farm infrastructure. The total area of forestry to be felled is approximately 133 ha as shown in Figure 2-10. As a commercial crop, this forestry is scheduled to be felled in the future regardless of the proposed project being constructed or not.



Legend

- Survey Area of the proposed Wind Farm Site
- Application Boundary
- Site layout footprint
- Turbine Locations
- Forestry Felling Areas

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client: Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-10:
Forestry Felling Areas

Scale @ A3: 1:21,000

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For the footprint of the infrastructure and associated felling buffers, there will be full tree removal. There will also be felling in an area within the wind farm site for biodiversity enhancement. Due to the fact there are many age classes that are to be felled i.e. commercial and non-commercial timber, it is envisaged that any commercial timber will be removed from the site for haulage to a timber sawmill.

It should be noted that the clearfelling of trees requires a felling licence from the Minister for Agriculture, Food and the Marine under the Forestry Act 2014. The associated afforestation of alternative lands equivalent in area to those lands being permanently clearfelled requires an afforestation licence.

The Forest Service, Department of Agriculture, Food and the Marine is Ireland's national forest authority and is responsible for all forest licensing. In light of the above requirements, the Applicant commits that the location of any replanting (alternative afforestation) associated with the project will be greater than 10km from the proposed wind farm site and also outside any potential hydrological pathways of connectivity, i.e. outside the catchment within which the proposed project is located. On this basis, it is reasonable to conclude that there will be no more than imperceptible indirect, or in-combination effects associated with the replanting.

Furthermore, the Applicant commits to not commencing the project until both felling and afforestation licences are in place, and this ensures the afforested lands are identified, assessed and licensed appropriately by the relevant consenting authority.

The Applicants proposed approach to the afforestation requirements is outlined in Appendix 2-8.

2.5.14.3 Drainage and Surface Water Management

Temporary and permanent drainage and sediment control systems are required to manage surface water arising in the construction areas and ensure that existing drainage is tied into. Refer to Drawings 10955-2050 to 2056, Drawings 10955-2065 to 2066 and Appendix 2-7 Surface Water Management Plan.

2.5.14.4 Clear Span Bridges & Culverts

To facilitate construction of internal access tracks between the turbines and other infrastructure locations, eleven (11) watercourse crossings are required. This will involve the installation of ten (10) clear span bridges at various locations on the internal access track network and the extension of one (1) existing culvert, as shown on Drawing 10955-2010.

2.5.14.5 Electricity Supply

As part of the proposed project, a medium voltage local electricity supply will be required as a power supply to the proposed substation for light, heat and power purposes, and to the proposed met mast. The local supply will be designed and constructed by ESB Networks.

No significant works are anticipated for this (placement of local poles with cable from a nearby power line), as it will be similar to what normally occurs for new house connections. Should permission be granted the details (regarding the exact location of each pole) of the connection route and works will need to be determined by ESB Networks prior to

construction, but as it will be a local electrical connection, the works will be minimal in nature.

2.5.15 Construction Material Requirements

A significant amount of stone and aggregate fill material will be required during construction. This will be used under and around key infrastructure including the turbines, substation, site roads, hardstands and construction compounds.

The following are the estimates of the material requirements at the various main infrastructure locations:

Table 2-5: Construction Material Quantities

Infrastructure	Total Quantity (m^3)
Access Tracks	22,531
Substation & Construction Compounds	15,165
Turbines & Hardstands	93,432

Stone from off-site sources will be used for surface dressing, while stone sourced on-site will be used for the initial capping layer. By sourcing the majority of the required stone volume from the on-site borrow pits as described in Table 2-5, the volume of traffic that will occur on public roads in the area will be significantly reduced.

Further information on the proposed traffic volumes and effects are discussed in Chapter 16 - Traffic and Transportation, while further information on the offsite/external sources being considered is provided in Section 2.9.4.4.

2.6 CONSTRUCTION METHODOLOGIES

The following sections detail the construction methods that will be employed for the following infrastructure:

- Turbine Hardstands and Foundations;
- Turbine Installation;
- Internal Access Tracks;
- 110kV Substation and Internal Cabling;
- 110kV Underground Grid Connection;
- Meteorological Mast;
- Borrow Pits;
- Temporary Construction Compounds; and
- TDR Accomodation Areas.

2.6.1 Turbine Hardstands and Foundations

At each turbine location, the topsoil will be stripped where the hardstands are to be sited. The hardstands will be built up to create a level base which will be <0.5m above existing ground level.

Ground investigations in the form of trial pitting, probing, and use of augers have been carried out along the proposed turbine locations and hardstanding locations to inform the depth of excavation and upfill required (refer to Appendix 2-6A, B and C Ground Investigation Reports). The volume of fill required for the hardstands and turbine foundations is approximately 67,672 m^3 and 25,760 m^3 of stone material, respectively. This material volume will be obtained primarily from the on-site borrow pits with only the surface 150mm layer to come from local quarries which are within reasonable proximity to the site.

Each of the turbines to be erected on site will have a reinforced concrete base. Overburden will be stripped off the foundation area to a suitable formation using a 360° excavator and will be stored as detailed in Section 2.9.4.8, the CEMP (Appendix 2-4) and the Spoil and Peat Management Plan (Appendix 2-5). The sides of the excavated areas will be sloped sufficiently (2:1 for mineral soil, 1:1 for rock) to ensure that slippage does not occur. Excavations will be approximately 4 m deep.

The formation level is reached at a depth lower than the depth of the foundation, the ground level will be raised with Clause 804 hardcore material and/or lean mix concrete, compacted in layers as required. An interceptor drain will be formed around the upgradient perimeter of the turbine and hardstand to divert the clean water away from the works. This will outfall out at the lowest point to a level spreader. Water within the excavation will be treated via a settlement pond and level spreader. If the water has a heavy silt load, then an additional measure such as a *Siltbuster* will be employed to further reduce silt content.

An embankment approximately 600mm high and a fence will be constructed around the perimeter of each turbine base to prevent construction traffic from driving into the excavated hole and also to demarcate the working area. All necessary health and safety

signage will be erected to warn of deep excavations. Access to and from excavated bases will be formed by excavating a gangway to a standard 1:12 grade, thereby allowing safe passage into/out of the foundation area.

Approved lifting equipment will be used to unload reinforcing steel to required areas. The bottom mat of steel will be fixed prior to the tower cans, if used, being lifted into position and reinforcing steel will be positioned and fixed in accordance with the turbine suppliers' requirements.

Formwork to concrete bases will be propped/supported sufficiently to prevent failure by compacting stone around the outside of the forms in addition to straps to prevent expansion. Each turbine foundation will require approximately 1,724 m^3 of concrete which will be sourced from off-site suppliers. No batching of concrete will occur on site. Piling is not anticipated. Concrete for bases will be poured using a concrete pump. After a period of time when the concrete has set sufficiently, the top surface of the concrete surface will be finished with a power float.

Once the base has had sufficient curing time it will be filled with suitable fill (i.e. hardcore) up to existing ground level. The working area around the perimeter of the foundation will be backfilled with suitable material (hardcore). These hardstand areas around the turbines will be levelled, compacted and finished with a suitable surface material for traffic (Clause 804 or similar) as per the site access tracks and remainder of the hardstand areas.

2.6.2 Turbine Installation

Turbines will be installed in suitable weather windows (i.e. low wind speed). Following crane setup, the turbine tower sections will be delivered by truck and hoisted into place. This is followed by the nacelle and finally each blade. In accordance with an agreed lifting plan, turbine sections will be lifted by crane into place. Wind speeds will be monitored at all times during lifting operations. Turbine sections will be fitted together by workers within the structure. Following installation of the turbine, lightning protection, lighting and other ancillary components will be installed on the turbine and commissioned.

The turbines will be decommissioned using a similar methodology as the construction except in reverse.

2.6.3 Internal Access Tracks

2.6.3.1 New Tracks

New tracks will be excavated to formation level as per Drawing 10955-2033 (Type 1 and 2) using tracked excavators. When the topsoil has been removed and/or the formation layer (bedrock/firm subsoils) has been reached, stone from the onsite borrow pits will be placed to form the track foundation. The sub grade will be compacted with the use of a roller or other similar approved compaction method. The top dressing will be added to the track at this point. As a final measure to ensure long term stability, this layer will be checked and repaired as required after all turbine bases have been poured (i.e. after the heavy wearing traffic is largely finished).

Surplus excavated material will be managed as set out in the CEMP (refer to Appendix 2-4, EMP 1) and the Spoil and Peat Management Plan (Appendix 2-5).

All access tracks will be maintained for the duration of the construction, operational and decommissioning phases of the project. Following decommissioning of the wind farm, they will be retained for use in forestry and agricultural activities.

2.6.3.2 Upgrade of Existing Tracks

Widening of existing tracks, where required, will be carried out on both sides, and the construction methodology will be similar to that outlined in Section 2.6.3.1 above (excluding excavating the existing track material). Refer to Type 3 - Drawing 10955-2033. Surplus excavated material will be managed as outlined in Section 2.6.3.1.

There are no significant known constraints running alongside the tracks to be upgraded, but where forest or roadside drainage channels are present alongside the track (as they occur frequently through the site), they will be re-routed as required during dry weather periods where there is no moving water present within. Replacement drains will be constructed as per best practice for forestry drains (Forestry Standards and Procedures, January 2015. Forest Service, Department of Agriculture, Food and the Marine), as outlined in Appendix 2-7 Surface Water Management Plan.

All access tracks will be maintained for the duration of the construction, operational and decommissioning phases of the project. Following decommissioning of the wind farm, they will continue to be used in forestry and agricultural activities.

Further details of the construction methodology for upgrading existing site roads are provided in the Appendix 2-4 CEMP and further detail is provided in Appendix 2-5 Spoil and Peat Management Plan.

2.6.3.3 Clear Span Bridges and Culverts

The use of clear span bridges as a watercourse crossing method avoids in-stream works entirely. Therefore, there will be no direct effect on the watercourse at the crossing location or downstream. The clear span bridge will be sufficiently above the watercourse to allow unrestricted flow of water beneath.

The site access tracks will firstly be constructed to allow easy access to the works area (as described in Section 2.6.3.1 and 2.6.3.2). Sediment control measures consisting of a triple silt fence will be installed prior to commencement of the works. Following this, the topsoil will be stripped from the foundation footprint on either side of the watercourse, taking care to avoid disturbing any part of the river/stream bed or banks. Material will be removed immediately using dumpers travelling on the newly constructed roads.

Only tracked machines will be permitted to travel off the road surface. No excavations will be permitted within the watercourse channel. Suitable stone fill material (Clause 804 or similar) will be added in layers and compacted to form the base of the foundation. The precast clear-span bridge will be placed onto this either as one or more pieces using a mobile crane. There will be no requirement for large-scale casting of wet concrete. The construction work (in particular the initial excavation and stone compaction) will only take

place during a dry weather period. Following the bridge construction, barriers will be attached to the sides of the bridge structure, and the site access tracks will be constructed over the structure. Further details relating to surface water management is provided in the CEMP (Appendix 2-4)

Culverts will be used where site roads or hardstands cross minor forest drain networks. The use of culverts will only be employed for minor field/forest drains. Where culverts are required, precast concrete or plastic culverts of between 300-900mm in diameter will be provided, as shown in Drawing 10955-2066.

2.6.4 110 kV Substation and Electrical Works

The 110kV substation has been designed by TLI and will be constructed in accordance with EirGrid/ESB specifications and standards.

An area will be levelled and built to the required level with stone fill material, capped by high quality compacted stone. Two control buildings will be constructed using traditional techniques for constructing small buildings (i.e. concrete block walls, timber and slate tile roof). Foundations will be built for all of the proposed electrical infrastructure. All the electrical equipment will be installed to EirGrid/ESB requirements. Perimeter fencing will be constructed around the substation compound for security and safety purposes. Further information and drawings of the substation and electrical infrastructure are provided in Drawings 05773-DR-130, 133, 134, 135, 136, 137, 138, 139, 141, 150, 151 and the construction methodology detailed in Appendix 2-3.

A local electricity supply will be made from the nearest suitable power lines at the time of construction in the same way that residential houses are connected. Standard overhead electricity poles and cables will be installed avoiding sensitive habitats and using a minimal footprint. See Section 2.7.7 for further information.

Internal cables connecting the wind turbines to the on-site substation will be laid within or immediately adjacent to the onsite access roads. All cables will be laid in underground ducts. Ducts will be installed by open trenching. Information on trench construction methodology is provided in Section 2.8.4.

2.6.5 110kV Underground Grid Connection

Once fixed into position, the internal site cabling (between turbines and the substation), the substation and the electrical grid connection will all be commissioned. They will remain powered off until the turbines are being commissioned and the wind farm enters into service.

Details of the design of the underground grid connection, including joint bay location and design, watercourse crossings location and design, are provided in Drawings 05773-DR-100 to 129, 142 and 143. The construction methodologies for the various elements of the proposed GCR are summarised below.

The 110kV cables will be installed on the internal access track leading from the on-site substation to the L61801 local road. From there, the majority of the route is within the existing public road corridor as described in Section 2.7.6 below. Works within the public

road corridor will also be subject to further consents/agreements with the relevant local authorities (Leitrim and Sligo County Councils), for example Road Opening Licences, as appropriate.

The 110kV underground cable will be laid beneath the ground surface and/or public road using the following methodology:

- The area where excavations are planned will be the subject of a confirmatory survey, prior to the commencement of works, with a cable locating tool and all existing underground services will be identified.
- A road condition verification survey for all parts of the route within the public road and all bridge and culvert crossings will be carried out in advance of works commencing. Details of this survey will be agreed with the local authority in advance of the survey.
- Traffic management will be put in place before any works on public roads. A Traffic Management Plan has been prepared for the proposed project and is included as Appendix 16-1. This is a live document and will be updated ahead of construction, if required, to address any additional requirements of Leitrim County Council and any relevant conditions of planning.
- All cables will be laid in underground ducts. Ducts will be installed mostly by open trenching.
- A trench will be opened using an excavator to accommodate the required depth and width.
- The excavated material will be cast to the side to be reused as backfilling material where appropriate. This material will not be stored in the vicinity of any watercourse and will be smoothed with the back of an excavator bucket to minimise runoff. It will be cast on the upgradient side of the trench, so if any runoff did occur it will run into the down gradient trench. Excess material will be used on the site of the proposed wind farm for borrow pit reinstatement and local landscaping. In the case of any material deemed as contaminated, a licenced waste carrier will transfer to an appropriate waste facility.
- Silt fences will be installed alongside the road/works areas as required near streams.
- Clay dams/plugs will be installed at regular intervals (depending on the gradient) to prevent conduit flow of water within the trench. These utilise low porosity clays over the full depth of the trench at regular intervals to prevent water moving along the trench.
- Works will not be carried out during periods of heavy precipitation. In the event that some surface water does accumulate in the trench, this will be allowed to percolate into the ground naturally.
- The trench will be surfaced in accordance with the road surface specifications of the local public road, or (in the case of off-road section) an EirGrid/ESB specification gravel access track to allow very occasional access for maintenance vehicles if required.
- Cable joint pits will be located at regular intervals as shown in 05773-DR-118. Each joint pit will be approximately 2.5m x 6m in size with a communications chamber and an earth link box in close proximity to the joint pit). They will be constructed off narrow sections of the public road where this is possible (i.e. before/after it enters the road corridor, in lay-bys, etc.) A temporary surface is provided over these for safety and to allow easy

access until the cables are pulled, after which time the area will be permanently reinstated/surfaced as appropriate.

- It is anticipated that construction will be carried out by a single team (with plant items likely to include excavators and dumpers) along the route, but there is a possibility to use two separate teams to speed up the construction. It is expected that each team will lay approximately 100m of the route per day.

2.6.5.1 Watercourse Crossings

Eleven (11) existing bridge crossings are required, of which eight (10) will involve in-road HDD (Horizontal Directional Drill), two (2) will involve off-road HDD and one (1) will be a standard crossing within the bridge deck. Details of HDD crossings are provided in Drawing 05773-DR-152 to 162. There will also be eight (8) existing culvert crossings using open trenching with either an undercrossing or an overcrossing, depending on the depth of the culvert to be confirmed during pre-construction surveys. Details of culvert crossings are provided in Drawing 05773-DR-126 and 127.

The construction methodologies for the crossings are provided below. The route also contains minor forestry/field/road drains which are usually dry and only contain water during periods of heavy rainfall. These will be crossed using open trench crossings during dry periods.

Crossing Methodology – In-Road Horizontal Directional Drilling

Horizontal Directional Drilling (HDD) is an efficient, trenchless method for installing underground utilities such as pipelines and cables.

It requires the excavation of a launch and reception pit at either side of the feature to be crossed.

- Each launch and receiver pit measures approximately 1m wide, 2m long and 1m deep. Two ducts will be required at each crossing location.
- A specialised directional drill machine will be anchored to the ground and will drill at a suitable shallow angle to allow it to achieve the required depth for the bore.
- If ground conditions are unfavourable, the drilling process will be repeated using progressively larger drill heads until the required size is achieved.
- The drilling process involves pumping a drilling fluid through the drill head which is inert, natural and biodegradable (e.g. Clear BoreTM). This fluid will be used sparingly and only as required to avoid an excess and will be appropriately stored offsite in a sealed container >50m from watercourses when not in use.
- This fills voids locally around the drill head and enables the drill to progress without the hole collapsing.
- Should any excess drilling fluid occur, it will be contained and removed for disposal at a licensed waste facility.
- The duct will be positioned, and the launch and reception pits will be refilled.

Crossing Methodology – Off-Road Horizontal Directional Drilling

The methodology for the off-road HDD crossings will be similar to the in-road methodology except that that the launch and receiver pits will be located adjacent to the road carriageway rather than within it.

Full details of the construction methodologies are provided in Appendix 2-3.

2.6.6 Meteorological Mast

The met mast installation works will be carried out by a small crew and are described as follows, as illustrated on Drawing 10955-2036.

- An access track will be extended towards the mast location from the existing forestry track. The access track will be 3.5m in width. Associated drainage infrastructure will be extended also.
- A small stone crane pad will be constructed in front of the proposed mast location.
- General construction methods for the above access track and hard standing will match those described for wind farm access tracks and hard standings.
- The foundation will be excavated followed by shuttering, steel fixing and finally concrete pouring by ready mix truck. Excavation and concrete operations will be carried out in accordance with the CEMP (Appendix 2-4). The foundation will be 10m x 10m x 1.8m in size.
- Following crane setup, the mast sections will be delivered and unloaded by truck.
- In accordance with an agreed lifting plan, mast sections will be lifted by crane into place. Wind speeds will be monitored at all times during lifting operations by the lead climber and crane operator.
- Mast sections will be bolted together by climbers.
- Following erection of main mast sections, lightning protection and other ancillary components will be fixed to the mast. Guy wires are not planned as part of the met mast design.

The mast will be decommissioned using a similar methodology as the construction except in reverse.

2.6.7 Turbine Delivery Accommodation Areas

Where works are needed along the public road corridor to facilitate deliveries to site, they will be agreed in advance with the local authority and carried out to the appropriate road design standard (TII, purple book, etc.) to ensure they will be safe and durable in design.

- Where a temporary surface is required to facilitate overrun by turbine delivery vehicles, works will start with the clearing of vegetation (grass, hedgerows and scrub), and the topsoil will be stripped and either used locally for landscaping purposes for later use in local reinstatement or used for borrow pit reinstatement onsite.
- Where local use for landscaping does occur, it will be smoothed off with the back of a bucket and seeded with a suitable grass seed mix.
- Silt control curtains will also be employed where works are within 50m of a surface watercourse.

- Excess spoil will be taken to a local licensed/permitted waste facility if found to contain any contaminants such as bitumen.
- Suitable fill material (broken stone and Clause 804) will be used to create a firm running area for the passage of turbine delivery vehicles.
- The areas will be fenced off as appropriate when the delivery is not occurring.
- After the delivery of turbines to site, the site will be reinstated to the original condition with removal of the temporary surface, and any removed vegetation will be reseeded/replanted with a similar native species composition.

2.6.8 Temporary Construction Compounds

At the commencement of the construction phase, two (2) temporary compounds will be constructed, one in the west of the site near the substation and the second in the north of the site between T6 and T4.

Any mineral soils removed during construction will be stored for later use in reinstatement. At the end of the construction phase, the compounds will be removed, with any stone being used towards reinstatement of the nearest onsite borrow pits. After removal of the compound, the area will be recovered in soil and replanted with forestry.

2.6.9 Borrow Pits

Material will be extracted from three (3) on-site borrow pits to avoid the need for large stockpiles of material. There will be some small stockpiling of material as rock is broken/crushed, but these will be kept to a minimum. Further detail on the construction of the borrow pits is provided in Chapter 7 - Land, Soils and Geology.

Once the required rock has been extracted from each borrow pit, they will be reinstated using any excess excavated material from the site. Rock and fill material will need to be extracted from a number of proposed turbine foundation locations. In that case, this material will be used where possible to replace the material requirements from borrow pits. The borrow pits will be excavated into the ground and on completion of reinstatement they will be no higher than existing ground level.

There is an absence of peat at the borrow pit locations, so any soils/subsoils removed from here to open up the borrow pits will not have a significant slippage risk because they will be temporarily stockpiled in accordance with best practice. During the extraction of the first borrow pit, removed spoil will be stored in a temporary stockpile with appropriate gradient and appropriate mitigation will be used to ensure the protection of downgradient watercourses (e.g. the use of silt fences).

2.6.9.1 Rock Extraction

The rock will be extracted from the proposed borrow pits by rock breaking. Rock breaking is suitable considering the geology and soil conditions there (see Chapter 7 - Land, Soils and Geology). The absence of notable peat depths near the proposed borrow pits means that there will be no implications for peat stability around the borrow pits.

2.7 CONSTRUCTION MANAGEMENT

2.7.1 Construction Activities and Timing

It is anticipated[3] that approximately 100 personnel will be employed during the peak construction period (See Chapter 4 – Population and Human Health) and it is estimated that the construction phase will take approximately 24 months from initial site clearance and enabling works to commissioning of the turbines and substation. With the exception of commercial forestry felling, vegetation clearance will commence outside the breeding bird season, which runs from 1st March to 31st August. If any minor clearance or trimming is required within those dates, or if the initial vegetation clearance extends past 1st March due to unsuitable weather conditions, the works will be preceded by a confirmatory ecological survey (from a qualified and suitably experienced ecologist) to ensure there are no sensitivities associated with the action.

The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will be restricted to between 7:00hrs and 19:00hrs Monday to Friday (excluding public holidays) and between 07:00hrs and 14:00hrs on Saturdays.

However, during the following critical periods longer hours will be required:

- Concrete pours for turbine foundations;
- During turbine installation when the weather is suitable (i.e. light winds);
- Delivery of oversized loads;
- In the unlikely event of an emergency.

Any such out of hours working will be agreed in advance with Leitrim County Council apart from in the case of an emergency and in line with the Schedule of Mitigation requirements of this EIAR (Chapter 19).

Due to the volume of concrete required for each turbine foundation, and the requirement for the concrete pours to be continuous, deliveries are often carried out outside normal working hours. Such activities are limited to the day of turbine foundation concrete pours, which are completed in a single day per turbine (can take >12 hours). Because of the scale of the main concrete pours that will be required to construct the proposed wind farm, the main pours will be planned weeks in advance and refined in the days leading up to the pour. Concrete pours are required for fourteen (14) wind turbines so they will require 14 days of longer working hours. A similar number of days with longer working hours will be needed for installation of the turbines during a period of calm weather (this is mostly limited to on-site activity).

To accommodate delivery of large turbine components along public routes it could be necessary on occasion to work outside of the core hours, with delivery of these oversized loads proposed to be carried out in the late evening. It is expected 23-38 delivery events will be needed on a maximum of 23-38 days for delivery of these oversized loads which usually travel in convoys of 3-5 vehicles with a Garda escort.

3 http://www.ewea.org/fileadmin/files/library/publications/reports/Wind_at_work.pdf

The construction phase can be broken down into five (5) main phases as follows (there will be overlap between these):

- 18 months – Civils (including forestry felling and vegetation clearance, drainage, construction of site roads, hardstands, turbine foundations)
- 9 months – Electrical grid connection/substation installation and commissioning
- 12 months – Site electrical (installing between turbines and substation, pulling cables)
- 4 months – Turbine deliveries and erection
- 2 months – Commissioning

The phasing and scheduling of the main construction task items are outlined in Figure 2-11, where March 2028 has been selected as a start date for construction activities (based on likely timeframe to secure planning consent, complete pre-construction design and tendering work, etc.). Where there is overlap between phases, this reflects the anticipated progression of work through the site, with different areas within the site at different stages of completeness.

2.7.1.1 Wind Farm Construction Sequencing

It is proposed that works will commence at the southern end of the proposed wind farm site, where peat is either absent or extremely shallow, and the topography is flattest. The borrow pit in the southeastern area of the site near Turbines 13 and 14 will be used to source stone material for the southern half of the site, while the second borrow pit in the centre of the site will be used to temporarily deposit excess inorganic soils. As the construction moves to the northern half of the proposed wind farm site where the topography is steeper and there is slightly more peat in some locations (albeit still shallow at mostly <0.5m), the third borrow pit will be utilised as a source of stone after any temporarily stock-piled material is transferred to the first borrow pit. Any peat that is stripped at this stage will then be deposited straight into the first borrow pit, below ground level avoiding the potential for any slippage.

2.7.2 Construction Environmental Management Plan

The requirement for a Construction and Environmental Management Plan (CEMP) to be prepared in advance of any construction works commencing on any wind farm site and submitted for agreement to the Planning Authority is now well-established. A CEMP has been prepared for the proposed project and is included in Appendix 2-4.

The CEMP will be updated prior to commencement of development to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the planning authority for written approval.

The construction contractor will be responsible for implementing the mitigation measures specified in the EIAR and CEMP and for communicating the requirements with all staff on-site. Their implementation of the mitigation measures will be overseen by the supervising site staff, including the Environmental Clerk of Works, Ecological Clerk of Works, site supervisor, archaeologists and/or geotechnical engineers, as appropriate.

The surface water drainage system will be inspected weekly and daily depending on the construction phase works to ensure that it is working optimally. Settlement ponds will be inspected and cleaned regularly where sediment collects. The drainage and treatment system for the proposed wind farm will be monitored more frequently during/after heavy rainfall events during the construction phase. A programme of inspection and maintenance will be designed and dedicated construction personnel assigned to manage the inspection programme.

The CEMP will be a key construction contract document, which will ensure that all mitigation measures, which are considered necessary to protect the environment are implemented. The commitments in the EIAR will be fully complied with by the contractor.

			2028			2029				2030
ID	Task Name	Task Description	Q1 Mar-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	2031 Q1 Jan-Mar
1	Site Health and Safety									
2	Site Compounds	Forestry felling & vegetation clearance (avoid Mar – Aug), Construct site compounds, site access, fencing, gates								
3	Access Tracks	Forestry felling & vegetation clearance, construct roads, install drainage measures, install clear span bridges, install water protection measures								
4	Turbine Hardstands	Forestry felling & vegetation clearance, excavate base, construct hardstanding areas								
5	Turbine Foundations	Fix steel, erect shuttering, concrete pour								
6	Substation Construction & Electrical Works	Construct substation and grid connection, underground cabling between turbines								
7	Backfilling & Landscaping									
8	Turbine Delivery and Erection									
9	Substation Commissioning									
10	Turbine Commissioning									

Figure 2-11: Indicative Construction Schedule

2.7.3 Surface Water Management

The proposed surface water drainage system utilises sustainable drainage devices and methods. Refer to Drawings 10955-2050 to 2056 and 2065 to 2066. SuDS are defined as "a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques". They are designed to manage rainfall as close to where it falls, encourage natural groundwater recharge and encourage evapotranspiration from vegetation and surface water. SuDS therefore are considered an "embedded mitigation" measure as they are incorporated into a development design. SuDS measures are designed to be applied during the construction stage but will remain in place for the operational and decommissioning phases.

Surface water management on wind farm construction sites utilises well-established and well-understood techniques. These management methods are standard in the industry and they have a long-term record of a high level of efficacy. Wind farm construction has been ongoing in Ireland for over 30 years, and where the mitigation and methods are correctly implemented, adverse effects on water quality should not occur.

A Surface Water Management Plan (SWMP) has been prepared (refer to Appendix 2-7). The purpose of this plan is to ensure that all works are conducted in an environmentally responsible manner to minimise any potential adverse impacts from the proposed project on surface water quality. The plan incorporates the following specific objectives:

- Provide overall surface water management principles and guidelines for all phases of the proposed project;
- Address erosion, sedimentation and other water quality issues; and
- Present measures and management practices for the prevention and/or mitigation of potential downstream impacts.

The management measures proposed have been developed based on the CIRIA (Construction Industry Research and Information Association) C648 (Control of water pollution from linear construction projects) guidance, and that guidance has itself been developed based on site experience in Ireland and the UK over recent decades.

Construction Phase

During the construction phase, all run-off from construction areas will be controlled and treated to reduce suspended solids concentration prior to being discharged into the existing drainage network or overland.

Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. These flows will discharge diffusely overland, within the buffer zone before entering any watercourse. Regular cross flow and energy dissipation devices will be installed to divert overland flows and prevent these flows from entering the peat deposition areas. An overview of the surface water drainage system is provided below (Figure 2-12).

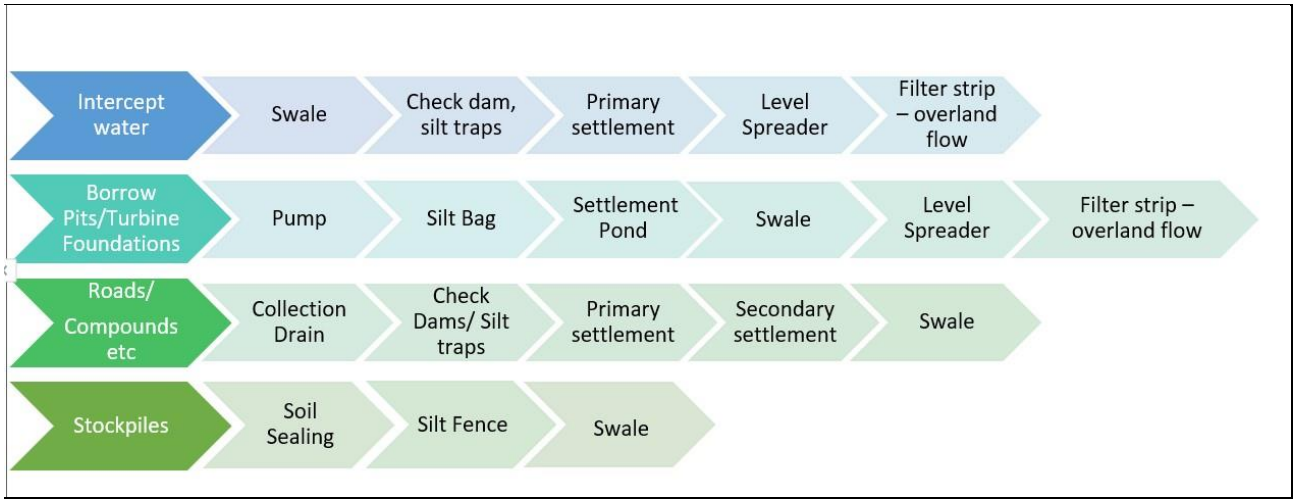


Figure 2-12: Surface Water Management & Sediment Control Flow Chart

A number of temporary settlement ponds will be established during the construction phase along roadways and in areas of high construction activity (adjacent to turbine foundations, construction compounds etc) to minimise silt laden run-off entering the drainage network (example shown on Plate 2-3). The settlement ponds will be designed to provide sufficient retention time and a low velocity environment to allow suspended solids to fall out of suspension prior to allowing the water to outfall to the receiving environment. Further information on the runoff calculations and site drainage is provided in Chapter 8 – Hydrology and Hydrogeology. The proposed locations of the permanent and temporary settlement ponds, and details of same are shown on Drawings 10955-2050 to 2056 and 2065 to 2066 and Appendix 2-7 Surface Water Management Plan.

Surface water runoff from hardstanding areas will be collected and discharged to associated settlement ponds adjacent to the proposed infrastructure. It will then be managed by gravity flow at greenfield runoff rates (i.e. the runoff of the site at natural rates without development). These level spreaders/diffusers will be used where overland discharge of water is carried out. The level spreader will prevent soil erosion at these locations by spreading out and slowing down the water, as shown in Figure 2-13.

Plate 2-3: Example of a Three-Tiered Settlement Pond with Stone Filter

A total of 25 settlement ponds will be located downstream of road swale sections and at hardstand locations, to manage/buffer volumes of runoff discharging from the drainage system during periods of high rainfall, thereby reducing the hydraulic loading to watercourses. Settlement ponds are designed in consideration of the greenfield runoff rates. The settlement pond design is based on primary settling out of suspended solids from aqueous suspension. Further details are provided in Appendix 2-7 and Drawing 10955-2065.

Track edge drainage/swales will be implemented to control run-off from the running surface to lower water levels in the subgrade, to control surface water and to carry this flow to outlet points. Swales will be installed along the internal access tracks in advance of the main construction phase. Swales will provide additional storage of storm water, located along gradient. Given the steep longitudinal gradients on some sections of access track, regular check dams will be employed within the trackside swale on these sections to reduce the flow velocity and provide settlement opportunity.

Examples of the above silt control measures are shown in Plate 2-4.

Plate 2-4: Examples of Silt Control Measures

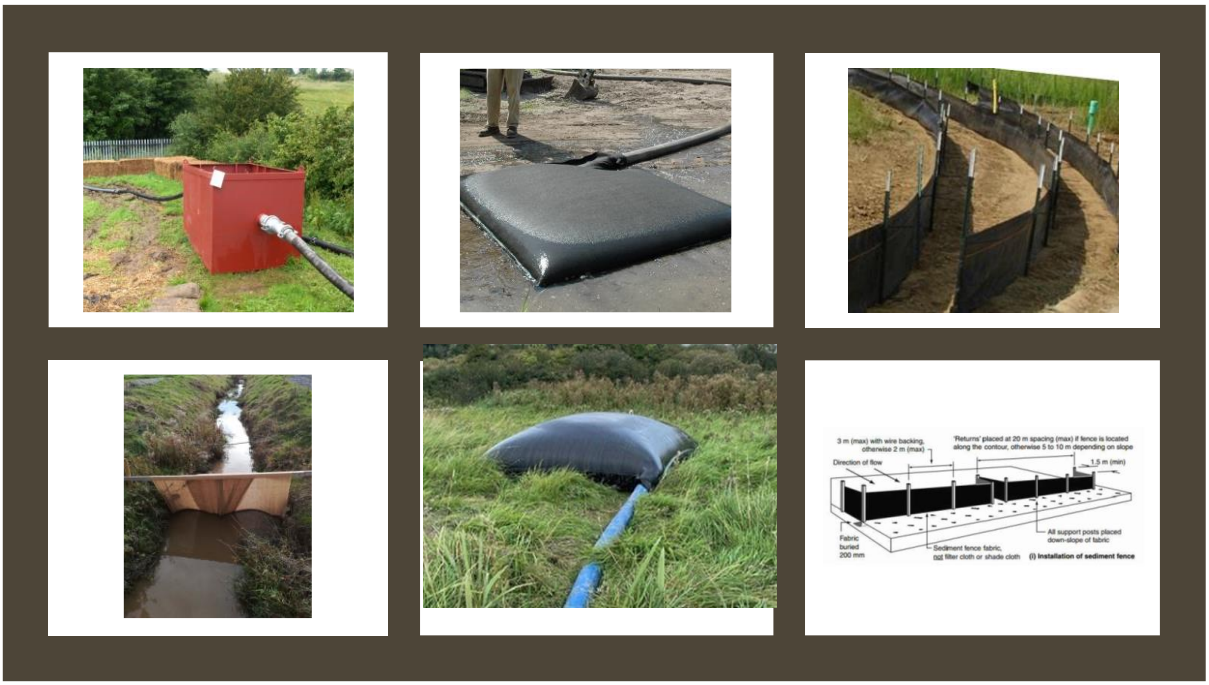
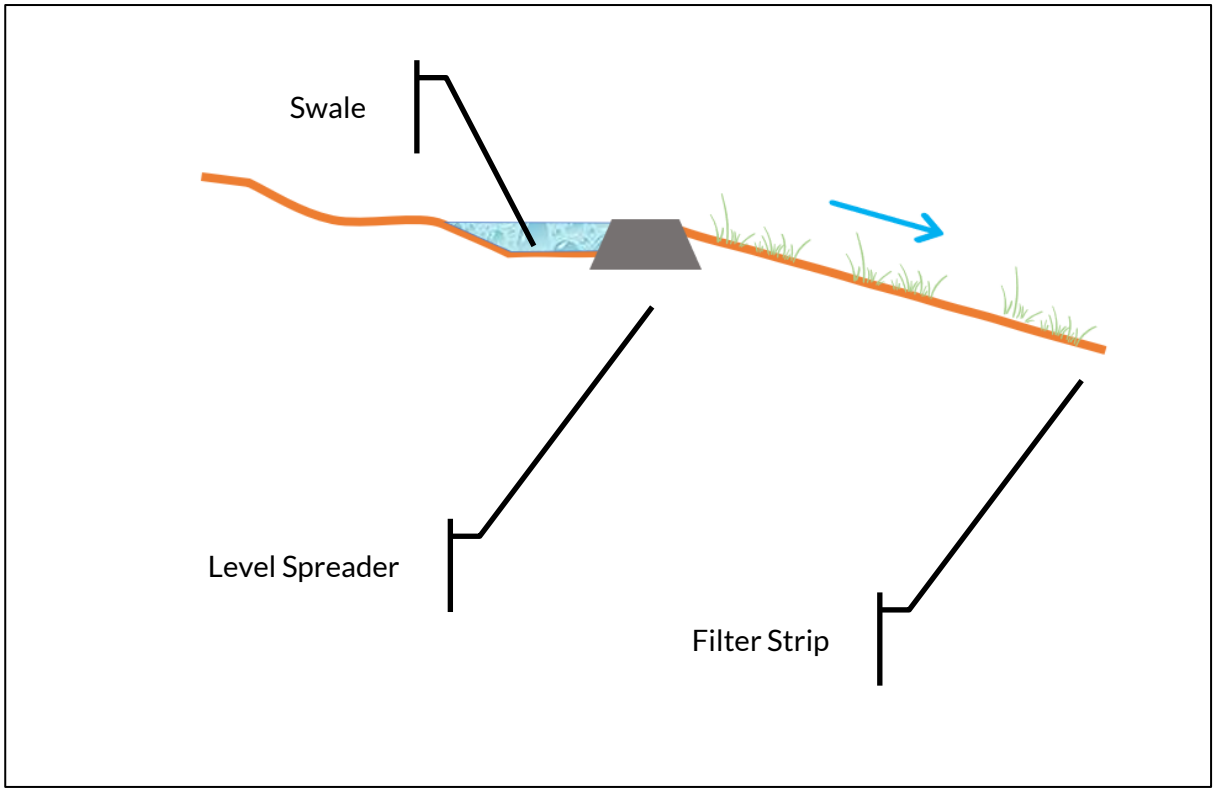


Figure 2-13: Conceptual Level Spreader and Filter Strip



Operational Phase

The drainage layout for the operational stage of the proposed project has been designed to collect surface water run-off from roads, crane pads and hardstanding areas for treatment and to

maintain the existing site discharge rates. Run-off arising from the proposed project will discharge into settlement ponds specifically constructed for managing surface water from the wind farm. Temporary settlement ponds for the construction phase (i.e. borrow pits, construction compounds) will be removed at the end of the construction phase upon reinstatement of those features. Details and locations of the proposed settlement ponds are shown on Drawings 10955-2050 and 2065.

Once treated in the settlement pond the treated surface water will then be allowed to spread across the adjacent vegetated lands via a level spreader /diffuser which will minimise any risk of soil erosion and allow further filtration of any remaining sediment particles. Level spreaders and existing vegetation will help slow and distribute runoff evenly. This treated water will ultimately percolate to ground or travel over-ground through vegetation and be assimilated into a drain or stream onsite at appropriate greenfield run-off rates (i.e. the runoff of the site at natural rates without development). There will be no direct discharges from the wind farm. The measures outlined for this project are based on the CIRIA C648 (Control of water pollution from linear construction projects) guidance, and that guidance has itself been developed based on site experience in Ireland and the UK over recent decades.

Decommissioning Phase

The decommissioning phase will not require any significant works that will impact on the drainage network, as the drainage system will remain in place to serve the access roads.

The proposed surface water management system is described in further detail in Chapter 8 - Hydrology and Hydrogeology and Appendix 2-7 Surface Water Management Plan.

2.7.4 Environmental Management

2.7.4.1 Concrete Deliveries & Pouring

Primarily ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks. Localised mixing will be used for small tasks such as blockwork for building the substation. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks from large scale on-site batching. When concrete is delivered to site, only the chute of the delivery truck will be cleaned, using the smallest volume of water necessary, before leaving the site. Concrete trucks will be washed out fully at the batching plant, where facilities are already in place. The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a temporary lined impermeable containment area. These residual liquids and solids will be collected by an appropriately licensed waste collector. Where temporary lined impermeable containment areas are used, such containment areas are excavated and lined with an impermeable membrane. This washout will be located near the site entrance and also at any significant concrete pour locations (e.g. at turbine hardstand during a foundation pour) so that it is easily accessed when departing. An example of a concrete washout is shown in Figure 2-14.

Figure 2-14: Example of a Temporary Concrete Washout Facility

Although unlikely to happen any disposal of surplus concrete after completion of a pour will be off-site at the concrete production facility. Localised mixing of concrete for blockwork, etc. will only be carried out as needed, but any small volume of surplus will be disposed of in the concrete washout area.

The CEMP (Appendix 2-4) provides further details of best practice and environmental considerations in relation to concrete deliveries and concrete pouring.

2.7.4.2 Refuelling

Any easily manoeuvrable road-going vehicles (i.e. cars, jeeps, lorries, etc.) will be refuelled off-site. For any vehicles which are slow moving or tracked or those for whom regular trips off-site to refuel will not be practical, on-site fuelling will be required.

A limited amount of fuel will be stored on the site within the construction compounds for this purpose, and this will be within a double skinned and bunded mobile tank which can be moved around the site using a 4x4 vehicle to refuel. This will be stored in the construction compound when not in use.

A spill kit in the form of a supply of fuel absorbent material and mats and a drip tray will be kept with the tank at all times. The drip tray and fuel absorbent mats will be used at all times during refuelling. Similar spill kits will be stored in each construction compound, and at the on-site substation in case of emergency.

No refuelling will be carried out within 50m of a watercourse.

Only designated trained and competent operatives will be authorised to refuel plant on site.

In the event of an accidental fuel spill, the source of the spill will be fixed, fuel will be contained and cleaned as quickly as possible using the fuel absorbent material in the spill kits. The incident will be reported to the site manager and Environmental Clerk of Works, and appropriate remediation will be carried out (i.e. soil removal for safe disposal at a licensed waste facility by licensed waste collectors.

The CEMP (Appendix 2-4) provides further details of best practice and environmental considerations in relation to this.

2.7.4.3 Dust Suppression

In periods of extended dry weather, dust suppression will be implemented along haul roads and along the site roads to ensure dust does not cause a nuisance to any residential properties long the route. If necessary, during a period of extended dry weather, water will be taken from settling ponds in the site's drainage system and will be pumped into a bowser or water spreader to dampen down haul roads and site compounds to prevent the generation of dust. Silty or oily water will not be used for dust suppression, because this will transfer the pollutants to the haul roads and generate polluted runoff or more dust. Water bowser movements will be carefully monitored, as the application of too much water would lead to increased risk of runoff. The CEMP (Appendix 2-4) provides further details of best practice and environmental considerations in relation to this.

2.7.4.4 Waste Management

The CEMP provides an overview of the best practice in waste management during all phases of the proposed project, with a view to reducing, reusing, recycling and recovering waste produced, in that order of preference. Waste disposal will be avoided where possible. The Waste Management Plan and waste management practices associated with the proposed project are provided in the CEMP and will be in accordance with relevant provisions of the Waste Framework Directive (Directive 2008/98/EC on waste), the Waste Management Act 1996 as well as all other Irish and EU legislation.

The main site contractor will appoint an Environmental Clerk of Works who will ensure that all waste contractors have the correct permits for any waste streams they are removing from site, and that they are taking it to the appropriately licensed/permitted waste facilities. They will also ensure that all parts of the Waste Management Plan will be implemented onsite.

2.7.4.5 Vehicle Management

Vehicles will be kept on site access roads for the vast majority of the construction phase, however in the initial construction phases, there will be some requirement for off-road vehicle movements (for forestry felling, ground works, etc.). For forestry felling, standard practices and equipment/vehicles will be used.

For ground works and other off-road activity, the use of specialist vehicles that are tracked or use large low ground pressure tyres or bog mats which distribute their weight evenly across a large surface area will be used. These will minimise ground disturbance, particularly where there is a presence of peat and therefore minimise the risk of sediment entering downstream watercourses.

All vehicles will be restricted to the areas where works are required, and unnecessary off-road movements around the wider site will be avoided. Where there are any sensitive habitats present around a proposed work area, these areas will be marked out so that vehicles will not enter and damage them.

2.7.4.6 Vehicle Washing

Wheels or vehicle underbodies will be washed before leaving the site to prevent the build-up of mud on public (and site) roads. Site roads will be already formed using on-site materials before other road-going trucks begin to make regular or frequent deliveries to the site (e.g. with steel or concrete). The site roads will be well finished with compacted hardcore, and so the public road-going vehicles will not be travelling over soft or muddy ground where they might pick up mud or dirt.

However, in the interest of best practice and to avoid the potential for the transfer of alien invasive plant species into the site, it is proposed to install a self-contained wheel-wash system near the project site entrance. Drawing 10955-2039 contains details and proposed location of a proposed self-contained wheel-wash system which will be installed as part of the construction phase of works. Water will be supplied for this using a water bowser. An Invasive Species Management Plan is also provided as Appendix 5-6.

A road sweeper will be available if any section of the surrounding public roads becomes soiled by vehicles associated with the proposed project.

The CEMP provides further details of best practice and environmental considerations in relation to this.

During the operational phase, the onsite access tracks will be maintained in good condition, and any vehicles that need to access the site will be generally keeping on these surfaces. As a result of this, and the low volume of traffic expected on site, it is not anticipated that a wheel washing facility will be required during the operational phase.

2.7.4.7 Major Accidents and Natural Disasters

A review of the potential for the proposed project to be a source of hazard or interact with other sources of hazard, and that could result in a major accident and/or disaster during all phases was undertaken. The potential for a major accident or natural disaster to impact on the proposed project was also considered.

This is addressed in Chapter 17 - Major Accidents and Natural Disasters.

2.7.4.8 Excavated Spoil and Peat Management

The use of the borrow pits will be phased. This will allow materials to be permanently placed in the first borrow pit while the second is in use, thereby minimising the volume of soils requiring temporary storage. In order to further reduce temporary storage requirements, soils and turves will be reinstated around infrastructure as part of restoration and landscaping works. This will be carried out during the construction phase, as soon as is practical after the completion of the works in any one area of the site. Approximately 248,167 m^3 will be excavated from the borrow pits onsite. Peat and other excess spoil will be placed at the borrow pits below the existing ground level to ensure containment. A total of 101,911.5 m^3 will be used to reinstate the borrow pit area as well as for landscaping.

Where the proposed project footprint is located on any mineral-based soil, this material will be placed adjacent to, and profiled as close to, the excavation areas as practical. In the case of peat, or where other adjacent infrastructure or constraint features might prevent adjacent placement, it will be used to reinstate the borrow pits. The sides of the excavated areas will be battered/sloped sufficiently to ensure that slippage does not occur (2:1 for mineral soil). The material will be smoothed with the back of an excavator bucket and surrounded by silt fences to minimise the potential for sediment-laden run-off occurrence. Placement will not occur within 50m of a watercourse. The placed material will be used later in backfilling the working area around the turbine foundations, or for landscaping locally or reinstatement elsewhere on site (such as the borrow pits). Further and more detailed information on the spoil and peat management is provided in Appendix 2-5 Spoil and Peat Management Plan.

Where placement in-situ is not possible, topsoil and sub-soil will be stockpiled separately. Turves will be stored turf side up and will not be allowed to dry out. Stockpiles will be isolated from any

surface drains and a minimum of 50m away from watercourses and will be located at points with easy access to internal roads within the proposed borrow pit areas which have not yet been extracted. Measures that will be employed will consist of interceptor ditches around these areas (with sediment traps within these – refer to Drawings 10955-2090, 10955-2091 and 10955-2092) deployment of double silt curtains and seeding of the piles will be incorporated to prevent runoff of suspended solids and soil erosion. No permanent spoil or stockpiles will be left on site. No stockpiles will be located on peat areas. Peat material will be used to reinstate the borrow pits (see Section 2.8.8 and Appendix 2-4 CEMP for information on sequencing of work).

Where available, vegetative sods/turves or other topsoil in keeping with the surrounding vegetation type will be used to provide a dressing for the final surface. Where sods/turves are not available, some seeding with native species will be carried out. This method for restoration of excavated or disturbed areas is to encourage stabilisation and early establishment of vegetation cover.

To prevent erosion and run-off and to facilitate vegetation reinstatement, any sloped soil embankment will be graded such that the slope angle is not too steep (i.e. 1:3) and that embankments match the surrounding ground profile. See Section 2.8.9 for further information on sequencing and spoil management.

2.7.4.9 Traffic Management

As described further in Chapter 16 - Traffic and Transportation, the successful completion of this project will require significant co-ordination and a comprehensive set of traffic management measures to be implemented before and during the construction and operational phase in order to minimise the effects of the additional traffic generated by the proposed project. A Traffic Management Plan proposed for the project is provided as Appendix 16-1.

2.8 HEALTH AND SAFETY

The proposed project will be constructed, operated and decommissioned in accordance with all relevant Health and Safety Legislation as described in the CEMP (Appendix 2-4).

Aspects of the development that will present health and safety issues include:

- Health and safety aspects of construction activities;
- General construction site safety (e.g. slip/trip, moving vehicles etc);
- On site traffic safety (during construction and operational phases) associated with localised high road embankments;
- Traffic safety during the transport of oversized loads to the site;
- Lifting of heavy loads overhead using cranes;
- Working at heights; and
- Working with electricity during commissioning.

The scale and scope of the project requires that a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) will be appointed in accordance with the provisions of the Safety, Health and Welfare at Work (Construction) Regulations. The PSDP role for the project is Egan Safety Solutions up to the end of the planning stage.

The PSDP and PSCS appointed for the project will be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations.

None of the construction, operational or decommissioning phases of the project are anticipated to cause a significant negative impact to safe practice of agricultural, forestry and commercial activities outside the development footprint.

It is not anticipated that the operation of the wind farm will present a danger to the public and livestock. Rigorous safety checks are conducted on the turbines during design, construction, commissioning and operation to ensure the risks posed to staff, landowners and general public are negligible.

Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits.

Signs will be erected at suitable locations across the site as required for the ease and safety of operation of the wind farm. Further details are provided in the CEMP (Appendix 2-4).

The components of a wind turbine are anticipated to have a useful lifespan of 35 years or more and are equipped with a number of safety devices to ensure safe operation during their lifetime. During the operation of the wind farm regular maintenance of the turbines will be carried out by the turbine manufacturer or appointed service company. A project or task specific Health and Safety Plan will be developed for these works in accordance with the site's health and safety requirements.

2.9 OPERATION

The proposed project has a lifespan of 35 years. This is the anticipated useful lifespan of wind turbines which are being produced for the market today. The lifespan of wind turbines has been increasing steadily in recent years and allowing this duration will improve the overall carbon balance of the development, therefore maximising the amount of fossil fuel usage that will be offset by the wind farm. Leaving the wind turbines in-situ until the end of their useful lifespan would make the most sense from an environmental viewpoint, particularly in relation to carbon savings. During this operational period the wind turbines will generally operate automatically, responding by means of equipment, measuring the speed of wind, and control systems to changes in wind speed and direction.

The wind turbines will be interconnected and data relayed from the wind turbines to a control centre off-site. Each turbine will also be monitored off-site by the wind turbine supplier or Operations and Maintenance (O&M) service provider. The monitoring of turbine output, performance, wind speeds, and responses to any key alarms will be monitored at a control centre 24-hours per day.

Each turbine will be subject to a routine maintenance programme involving a number of checks and changing of consumables, including oil changes. In addition, there will be a requirement for unscheduled maintenance, which could vary between resetting alarms to major component changes requiring a crane. Regular maintenance traffic will consist of four-wheel drive vehicles or vans. The electricity substation components and site roads and drainage will also require periodic maintenance in accordance with appropriate operation maintenance plans, procedures and health and safety plans.

Once operational, it is estimated that the wind farm will support 2-3 long term, high quality technical jobs on site in operation and maintenance as well as a more significant number of jobs in ancillary functions (estimated to be a total of between 22-32 jobs between direct and indirect

employment based on research[4]). See Chapter 5 - Population and Human Health for further information.

2.10 COMMUNITY BENEFIT PROPOSAL

The proposed project has the potential to bring significant positive benefit to the local community. The project will contribute approximately € 1.2 to 1.5 million in annual rates to Leitrim County Council and a community benefit fund will be put in place for the lifetime of the project to provide direct funding to areas surrounding the project. The RESS Terms and Conditions were published in 2025 and provide details on the Government requirements for community benefit funds for renewable energy projects that participate in the scheme. Successful RESS projects must comply with the Rulebook for Community Benefit Funds Under RESS[5]. For this project, depending on the number and details of any turbines permitted, it is expected that a significant annual community benefit fund of over €500,000 per year for the first 15 years of the project will be established in line with Government policy which will include funding for both wider community initiatives and a Near Neighbour scheme focused on houses in close proximity to the project. For the remaining lifetime of the wind farm, the Applicant commits to contributing an additional €1/MWh, which is estimated to be over €250,000 per year. Therefore, over the expected 35-year lifetime of proposed project, the Community Benefit Fund will be in the order of €12.5 million.

The Community Benefit Fund belongs to the local community. The premise of the fund is that it should be used to bring about significant, positive change in the local area. To make this happen, a benefit fund development working group will be formed that clearly represents both the closest neighbours to the project as well as nearby communities. This group will then work on designing the governance and structure of a community entity that will decide what type of projects will be supported by the fund and manage the administration of the Community Benefit Fund. In accordance with the Rulebook mentioned above, the Fund will deliver initiatives that are in alignment with the UN Sustainable Development Goals.

2.11 DECOMMISSIONING

As stated previously the wind turbines are expected to have a lifespan of 35 years. Following the end of their useful life, the wind turbines will be decommissioned fully, with the exception of the electricity substation and site roads and drainage.

Upon decommissioning of the proposed wind farm project, the wind turbines will be disassembled in reverse order to how they were erected. All above ground turbine components will be separated, cut up to allow them fit on a standard articulated lorry and removed off-site for recycling.

Turbine foundations will remain in place underground and along with hardstands will be allowed to revegetate naturally. Leaving the turbine foundations and hardstands in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete and stone from the ground could result in potentially needless environment nuisances such as noise, dust

[4] https://opus.lib.uts.edu.au/bitstream/10453/43718/1/Rutovitzetal2015Calculatingglobalenergysectorjobsmethodology.pdf

[5] https://assets.gov.ie/static/documents/Rulebook_for_CBFs_under_RESS_branded.pdf [Accessed April 2026

and/or vibration. There would be no real environmental benefit from removing the foundations, as the concrete is underground, stable and inert. The site roadways will be in use for additional purposes to the operation of the wind farm (e.g. for forest/agricultural access) by the time the decommissioning of the project is to commence, and therefore it is more appropriate to leave the site roads in situ for future use.

The on-site substation and 110kV grid connection will not be removed at the end of the useful life of the wind farm project as it will form part of the national electricity network. Therefore, the substation will be retained as a permanent structure and will not be decommissioned.

An outline decommissioning plan is contained within the CEMP (refer to Section 15, Appendix 2-4). A detailed decommissioning plan will be agreed in advance of works taking place with Leitrim County Council and any other relevant authorities.