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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED DREHID WIND FARM AND SUBSTATION, CO. KILDARE

VOLUME 2 – MAIN EIAR

CHAPTER 3 – DESCRIPTION OF THE PROPOSED DEVELOPMENT

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3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the proposed site location and components of the Proposed Development and provides details on the construction, operation and decommissioning of the Proposed Development in compliance with the EIA Directive. This forms the basis of the assessments presented within the EIAR.

This Chapter of the EIAR is supported by Planning Drawings accompanying the planning application and Appendix documents provided in Volume III.

As set out in Chapter 1- Introduction, the 'Proposed Development' assessed in this EIAR comprises the following elements:

- The 'Proposed Wind Farm' (consisting of 11 turbines, turbine foundations and hardstanding areas, new access tracks, underground electrical and communications cabling, drainage, temporary site compounds and associated works; The Proposed Wind Farm also includes the 'Proposed Recreation and Amenity Trail');
- The 'Proposed Substation' (110 kV substation and loop-in connection to the existing overhead lines);
- Turbine delivery route (TDR).

3.2 Overview of the Proposed Development

The development proposed by North Kildare Wind Farm Limited (the Applicant) is an 11 no. turbine wind farm and associated infrastructure including internal access tracks, hardstandings, onsite Substation and loop-in connection to the 110 kV Kinnegad-Rinawade overhead line, internal electrical and communications cabling, temporary construction compounds, drainage infrastructure and all associated works related to the construction of the wind farm as well as measures designed to protect and enhance existing habitats and a connection to the National Electricity Grid (NEG).

On 23rd April 2024 An Bord Pleanála deemed the Proposed Wind Farm Strategic Infrastructure Development (SID) by way of a notice served under section 37B(4)(a) of the Planning and Development Act 2000 as amended and the application is being made directly to the Board (case ref. ABP-314463). The Board are the competent authority for the purposes of the Environmental Impact Assessment (EIA).

On 23rd April 2024 An Bord Pleanála deemed the Proposed Substation Strategic Infrastructure Development (SID) pursuant to Section 182 of the Planning and Development Act 2000 as amended and the application is being made directly to the Board (case ref. ABP-311394). The Board are the competent authority for the purposes of the Environmental Impact Assessment (EIA).

Therefore, two concurrent applications for consent are being made to the Competent Authority, An Bord Pleanála, which will be supported by a single EIAR which will address both elements of the project i.e. the Proposed Wind Farm and the Proposed Substation.

A 10-year planning permission and 35-year operational life from the date of commissioning of the Proposed Wind Farm is being sought.

A permanent planning permission is being sought for the Proposed Substation as this will become an asset of the national grid under the management of EirGrid and will remain in place following decommissioning of the Proposed Wind Farm.

The Proposed Wind Farm has been designed in accordance with the current Section 28 Ministerial Guidelines (section 28 of the Planning and Development Act 2000, as amended), 'Wind Energy Guidelines 2006'. These current national guidelines are subject to targeted review, with the 'Draft Revised Wind Energy Development Guidelines' (draft WEGs) having been published by the Department of Housing, Planning and Local Government in December 2019.

The Proposed Development complies with the requirements of the Wind Energy Guidelines 2006 and if new and or updated Guidelines are issued prior to the determination of this application for consent, compliance with same can be demonstrated. Of note is that the Proposed Development layout proposes a minimum turbine set back of 4 times the turbine tip height from all third party properties.

Presented hereunder are the elements of the Proposed Development for which development consent is being sought and all other associated project components subject to EIA but for which planning consent is not being sought within the current application.

Elements of the Proposed Development for which Development Consent is Being Sought

The Proposed Development for which consent is being sought will consist of two planning applications as mentioned above.

The Proposed Wind Farm will consist of the following:

- Construction of 11 no. wind turbines, each with a rotor diameter of 133 m. 10 no. turbines will have a hub height of 100.5 m and a tip height of 167 m; while one turbine (T1, closest to the site entrance) will have a hub height of 81.4 m and a tip height of 147.9 m;
- Construction of permanent turbine foundations and crane pad hardstanding areas and associated drainage;
- Construction/upgrade of 1. no. main site entrance (off local road L5025), and 1 no. additional site entrance (off local road L50242);
- Construction of 1. no. site entrance (off local road L5012) to accommodate the delivery of large turbine components;
- Use of 1 no. existing Coillte entrance (off local road L5012) for pedestrian/cyclist access to an amenity trail;
- Construction of 9.67 km of new internal access tracks and associated drainage infrastructure;
- Upgrading of 951 m of existing tracks and associated drainage infrastructure;
- Establishment of 2 no. temporary construction site compounds and associated ancillary infrastructure including parking;
- Establishment of 1. No. temporary blade set down area;
- Construction of drainage and sediment control systems;
- 3 no. Watercourse Crossings;

- Upgrade and extension to an existing recreation amenity trail and installation of signage, picnic tables and bicycle stands;
- All related site works and ancillary development including signage, berms, culverts, drain crossings, landscaping, and soil excavation;
- Forestry felling (both permanent and temporary) to facilitate construction and operation
- All associated underground electrical and communications cabling connecting the wind turbines to the proposed Substation including the laying of underground cabling along the local road L50242 which traverses the site.

The Proposed Substation will consist of the following:

- Construction of a 110 kV Substation and associated works within the townland of Coolree The Substation includes a total compound footprint of 1.32 hectares. , enclosed by palisade fencing. The Substation Compound will include :
- 1 No. single storey substation control building (450 m2);
- 1 No. single storey customer MV Building (160 m2);
- Switchgear, Arc Suppression Coil, Cable Sealing Ends, Cable Chair, Circuit Breakers, Current Transformers, Disconnects, Post Insulators, Surge Arrestors, Grid Code Compliance Equipment and Voltage Transformers; and all associated ancillary works necessary to facilitate the development;
- 9 No. lightning masts to a height of 20 m;
- 2.6m high palisade guard railing with perimeter boundary fencing will be erected around the periphery of the compound for security and protection measures;
- Lighting will be provided by 9 no. lighting columns, approximately 3m in height as well as exterior wall mounted lights on the control buildings.
- Erection of 2 no. line-cable interface masts to enable a loop-in/loop-out connection to the existing Kinnegad-Rinawade 110 kV overhead line. The steel lattice masts will extend to heights of 16m above existing ground level.
- Laying of 110 kV underground cabling between the proposed substation and the proposed loop-in/loop-out masts.
- Permanent access road (ca. 7.3 km in length) which traverses the townlands of Ballynamullagh, Kilmurry, Coolree, Killyon and Drehid to allow access to the substation including a short spur (ca. 0.9 km) off the main access track to access the 2 no. line-cable interface masts. The entrance to the local road (L5025) and local road (L50242) will be shared with the proposed Drehid Wind Farm.
- 3 no. Stream Crossings.
- Associated construction works and drainage infrastructure.
- Peat deposition area immediately adjacent to the proposed substation.

Certain temporary accommodation works associated with the Turbine Delivery along the local road network are subject to this EIA but for which planning consent is not being sought within the current application. These works to facilitate the delivery of turbine components and haulage to Site are detailed further in Section 3.4.6. Works include hedge or tree trimming; temporary removal of signage and street furniture and street lighting; and temporary filling of roundabout islands to load bearing. For these locations, works associated with road infrastructure have been identified and assessed in the EIAR.

3.3 Proposed Development Location

These sections describe the lands which make up the Proposed Development.

The Proposed Wind Farm is wholly located in County Kildare and includes lands in the townlands of Ballynamullagh, Kilmurry, Killyon, Coolree, Mulgeeth and Drehid. The site is accessed from the M4 motorway until Enfield, then along the R402 for ca. 7.7 km and finally along the local road (L5025) to the entrance of the site. The site lies c. 2.8 km south of the motorway M4 at Enfield and 1.2 km southeast of the regional road R402 linking the M4 to the R420 east of Tullamore in County Offaly.

The Proposed Substation, including the loop-in connection to the existing Kinnegad-Rinawade overhead line, and the access tracks approaching from the main site entrance are wholly located in County Kildare and includes lands in the townlands of Ballynamullagh, Kilmurry, Coolree, Killyon and Drehid.

3.3.1 Development Boundary

The Proposed Wind Farm application area (i.e. the red line boundary depicting the land to which the application relates) encompasses a land area of 73.928 ha (0.739 km^2). The development footprint within the application area of the Proposed Wind Farm is 16.17 ha (0.1617 km2). Figure 3.3 shows the overall proposed wind farm and Substation together. Please refer to planning drawings for each application for the statutory redline boundaries associated with each planning application.

The Proposed Substation application area (i.e. the red line boundary depicting the land to which the application relates, which includes the 110 kV substation, access tracks and loop-in connection, encompasses a land area of 21.862 ha (0.219 km^2). The development footprint within the application area of the Proposed Substation, including all of the infrastructure listed in the previous sentence is 7.17 ha (0.072 km2). The footprint of the substation compound is 1.32 ha. Figure 3.3 shows the overall proposed wind farm and Substation together. Please refer to planning drawings for each application for the statutory redline boundaries associated with each planning application.

The Proposed Wind Farm and the Proposed Substation together, which comprise the Proposed Development, is enclosed by the 'Proposed Development Boundary' which encompasses a land area of 79.002 ha (0.79 km^2).

3.3.2 Existing Land Use

The site of the Proposed Wind Farm is located in relatively low-lying, relatively flat land with the majority of proposed turbines located beneath the 80 m contour line. The landcover is classified by Tailte Eireann's National Land Cover map as improved grassland, treelines, hedgerows, transitional forest, coniferous forest, broadleaved forest and woodland, mixed forest, scrub, bare peat, bare soil and disturbed ground, and artificial surfaces (forest roads).The National Land Cover Map for the wind farm site is illustrated in Figure 3.1. The east of the site is adjacent to a cutover bog (Timahoe Bog). The Fear English River bisects the site, flowing south to north before it enters the Blackwater River at Johnstown Bridge. The landscape is classified as being of low sensitivity from a landscape perspective.

The site of the Proposed Substation is located in commercial forestry at the northern extent of the wind farm site. The proposed loop-in connection to the existing overhead line is situated in agricultural lands, approximately 500 m northeast of the Proposed Substation compound.

A house survey conducted by the Applicant in 2024 confirmed that there are 91 no. residential/commercial receptors within 1 km of the turbines. Of these receptors, 79 no. are registered as residential, 3 no. are registered as commercial, and 9 no. are registered as both commercial and residential. The closest occupied dwelling to the current proposed layout is located 642 m from the nearest proposed turbine location and is in the ownership of an involved landowner. All receptors are located at least four times the tip height from any turbine.

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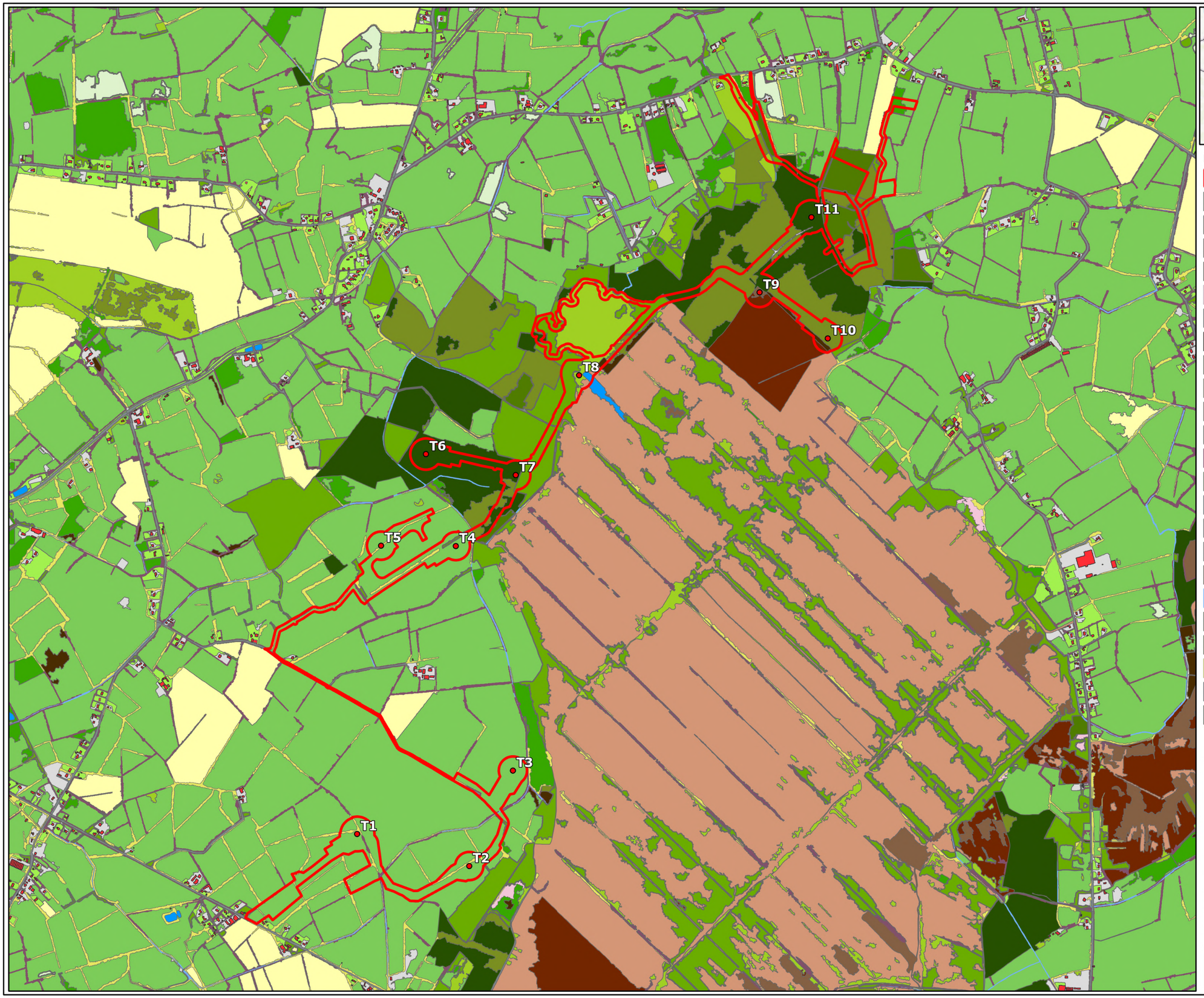

Legend

- Proposed Development Boundary
- Amenity Grassland
- Artificial Waterbodies
- Bare Peat
- Bare Soil and Disturbed Ground
- Bracken
- Broadleaved Forest and Woodland
- Buildings
- Coniferous Forest
- Cultivated Land
- Cutover Bog
- Dry Grassland
- Hedgerows
- Improved Grassland
- Lakes and Ponds
- Mixed Forest
- Other Artificial Surfaces
- Raised Bog
- Rivers and Streams
- Scrub
- Transitional Forest
- Treelines
- Ways
- Wet Grassland
- Turbine Locations

TITLE:	Tailte Éireann Land Cover		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.1		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:20,000	**REVISION:**	0
DATE:	28/04/2025	**PAGE SIZE:**	A3

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3.3.3 Land Ownership

Confirmation of landowner consent to make this application for planning permission is contained in Appendix 3.1 of Volume 3 of this EIAR. Planning permission is sought for the developments as described in section 3.4. .

3.3.4 Onsite Wind Resource

More traditional, elevated coastal areas which have typically been associated with wind energy development are becoming less available for wind energy development due to a number of reasons including environmental designated areas, visually protected areas etc. In addition to this, due to improvements in wind turbines technology, possibilities have arisen to develop commercial scale wind farms in lower lying areas with lower wind speeds which were not previously considered economically viable for commercial wind farm development in Ireland. In particular, larger rotors and bigger swept areas have opened up lands in the east and midlands of Ireland for wind farm development. There are further benefits to siting a wind farm in the east of the country such as a stronger existing grid network which has capacity to connect wind farms which will also mean less constraint for the wind farm; and the proximity to major motorways also provides a very suitable means to deliver wind farm components to the vicinity of the sites.

The layout of the Proposed Wind Farm development has been designed to minimise the potential environmental impacts of the wind farm, while at the same time maximising the energy yields of the wind resource passing over the site. Available wind speed is a key factor in determining the economic viability of potential wind energy locations. The Sustainable Energy Authority of Ireland (SEAI) Wind Speed Atlas[1] displays onshore wind speeds at between 20 and 150 metres above ground level. The 2013 SEAI Wind Speed Atlas identifies the site as having a wind speed of between 7.25 and 7.6 m/s at 75 m above ground.

3.3.5 Wind Farms in the Surrounding Area

There are no wind farms in the immediate vicinity of the Proposed Development. Figure 3.2 illustrates the wind farms within 20 km of the site. Cushaling Wind Farm is a development of 9 wind turbines, located approximately 11 km southwest of the Site, and is nearing completion of construction at the time of writing. The Cloncreen Wind Farm is the closest operational wind farm to the development (ca. 15.2 km) and comprises of 21 no. turbines. Yellowriver Wind Farm is ca. 17.4 km from the site and comprises 29 no. turbines, it has recently begun producing power at the time of writing and is expected to complete construction in year 2025. Owenstown Wind Farm (ca. 20.1 km) comprises 3 no. turbines and Mountlucas Wind Farm (ca. 22.9 km) comprises 28 no. turbines, but both projects are outside of the 20 km study area.

[1]https://www.seai.ie/technologies/seai-maps/wind-atlas-map/

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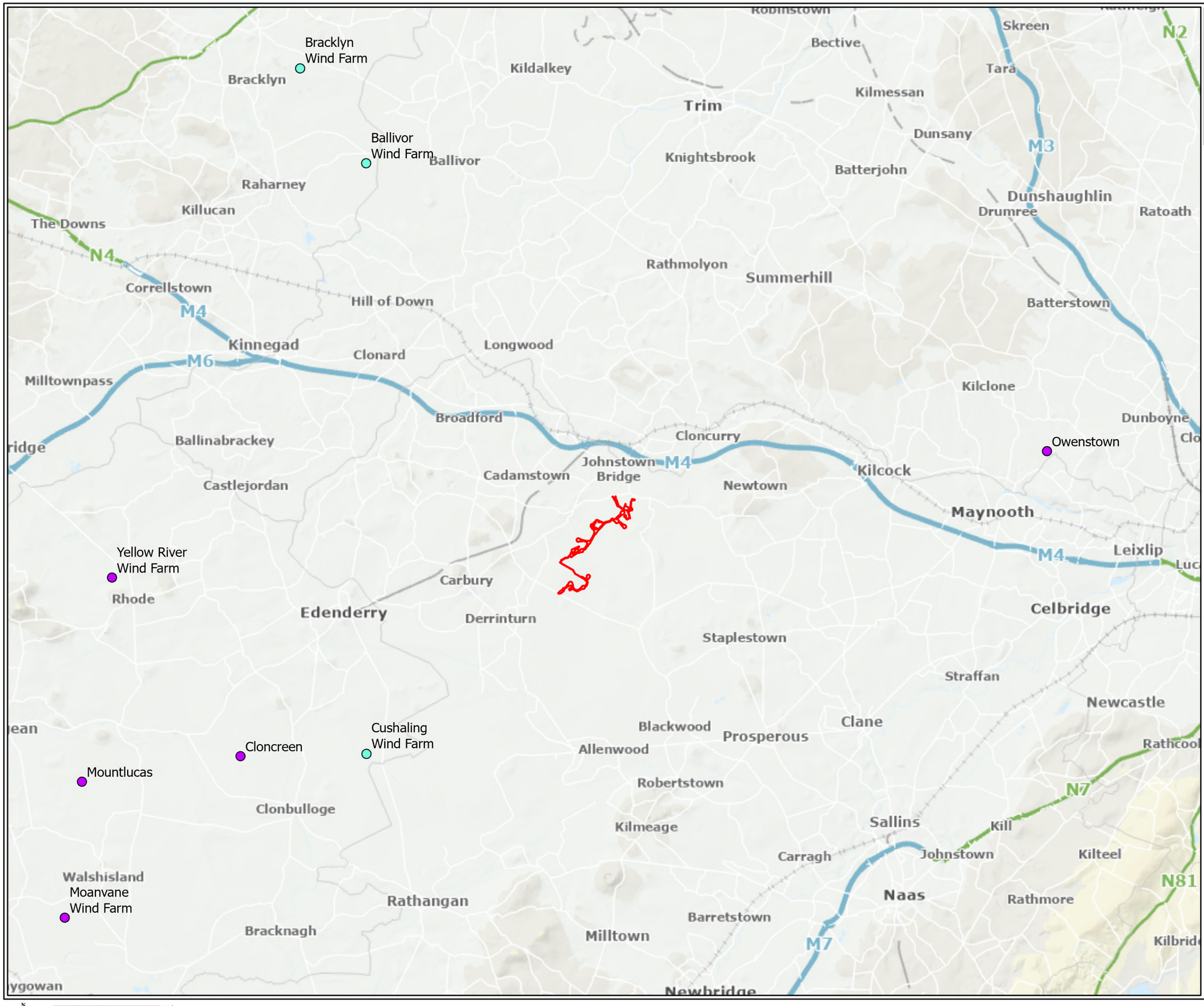

Legend

- Proposed Development Boundary
- Wind Farms (Connected)
- Wind Farms (Proposed/Consented)

TITLE:	Wind Farms in the Surrounding Area		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.2		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:175,000	**REVISION:**	0
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3.4 Site Infrastructure

3.4.1 Turbine Layout

The layout of the Proposed Wind Farm reflects the outcome of iterative engineering and environmental constraints assessments carried out during the wind farm design process aimed at eliminating or minimising adverse effects on the environment. The layout has been designed to minimise the potential environmental effects of the wind farm while at the same time maximising the energy yield of the wind resource passing over the Site.

The design rationale and evolution of the wind farm layout is described in Chapter 2 - Site Selection and Alternatives.

Turbine location co-ordinates in Irish Transverse Mercator (ITM) are detailed in Table 3-1:

Table 3-1: Proposed Drehid Wind Farm Turbine Co-ordinates

Turbine ID	ITM_X_Coor	ITM_Y_Coor
1	673844	734350
2	674448	734178
3	674684	734692
4	674376	735901
5	673973	735903
6	674215	736397
7	674699	736284
8	675043	736821
9	676015	737268
10	676382	737020
11	676294	737672

3.4.2 Power Output

The Proposed Wind Farm will have a Maximum Export Capacity (MEC) of 52.8 MW. Turbines of the exact same make, model and dimensions can have different power outputs depending on the capacity of the electrical generator installed in the turbine nacelle.

A rated output of 4.8 MW has been used below to calculate the maximum power output of the Proposed Wind Farm, which would result in an estimated installed capacity of 52.8 MW. Assuming an installed capacity of 52.8 MW, the Proposed Wind Farm has the potential to produce up to 161,885 MWh (megawatt hours) of electricity per year, based on the following calculation:

A x B x C = Megawatt Hours of electricity produced per year

where:

A = The number of hours in a year: 8,760 hours

B = The capacity factor, which takes into account the intermittent nature of the wind, the availability of wind turbines and array losses etc. A capacity factor of 35% is applied here

C = Rated output of the wind farm: 52.8 MW

The 161,885 MWh of electricity produced by the Proposed Wind Farm would be sufficient to supply approximately 38,500 Irish households with electricity per year, based on the average Irish household using 4.200 MWh of electricity (this latest figure is available from the March 2017 CER Review of Typical Consumption Figures Decision).

The 2022 Census of Ireland recorded a total of 88,997 households in Co. Kildare. Per annum, based on a capacity factor of 35%, the Proposed Wind Farm would therefore produce enough electricity for the equivalent of approximately 43% of all households in Co. Kildare.

EirGrid in their All Island Generation Capacity Statement (2017-2026) estimates a capacity factor of approximately 31% for onshore wind. The 35% capacity factor applied for the Proposed Wind Farm is greater than the EirGrid estimation as a result of the turbine type proposed for the site i.e. tall turbines (tip height of 147.9 to 167 m) with greater rotor diameters. This turbine type allows for the use of fewer, taller turbines with an increased efficiency and in return greater economic benefit to the consumer.

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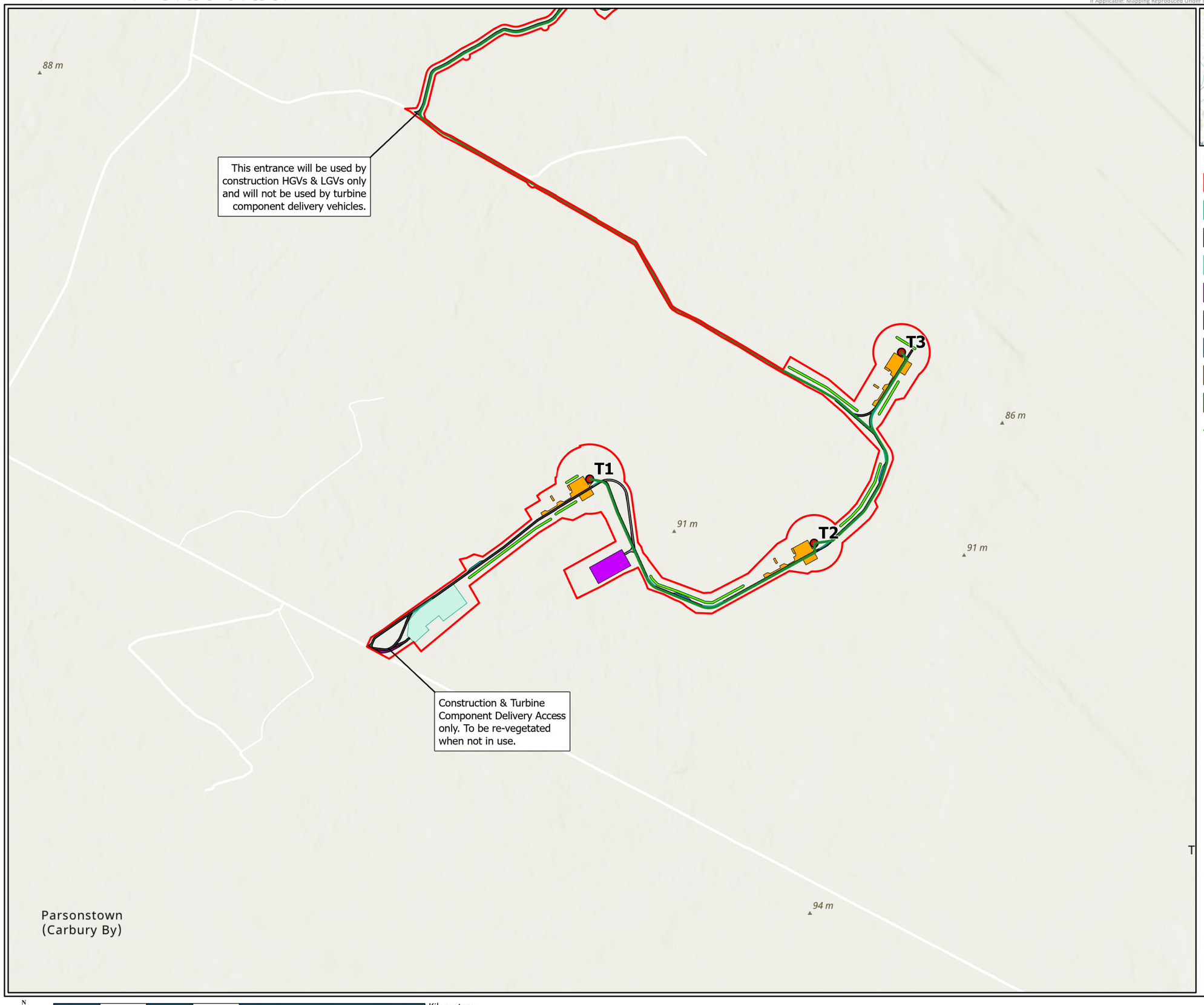

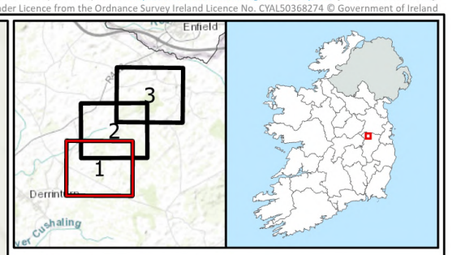

Legend

- Proposed Development Boundary
- Road widening - Access tracks
- Road widening - Temp. Access Tracks
- Blade Transfer Area
- Construction Compound
- Access Track
- Passing Bays
- Turbine Hardstanding
- Berms
- Cable Route
- Turbines

TITLE:	Layout of the Proposed Development - Page 1		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.3		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:10,000	**REVISION:**	0
DATE:	27/05/2025	**PAGE SIZE:**	A3

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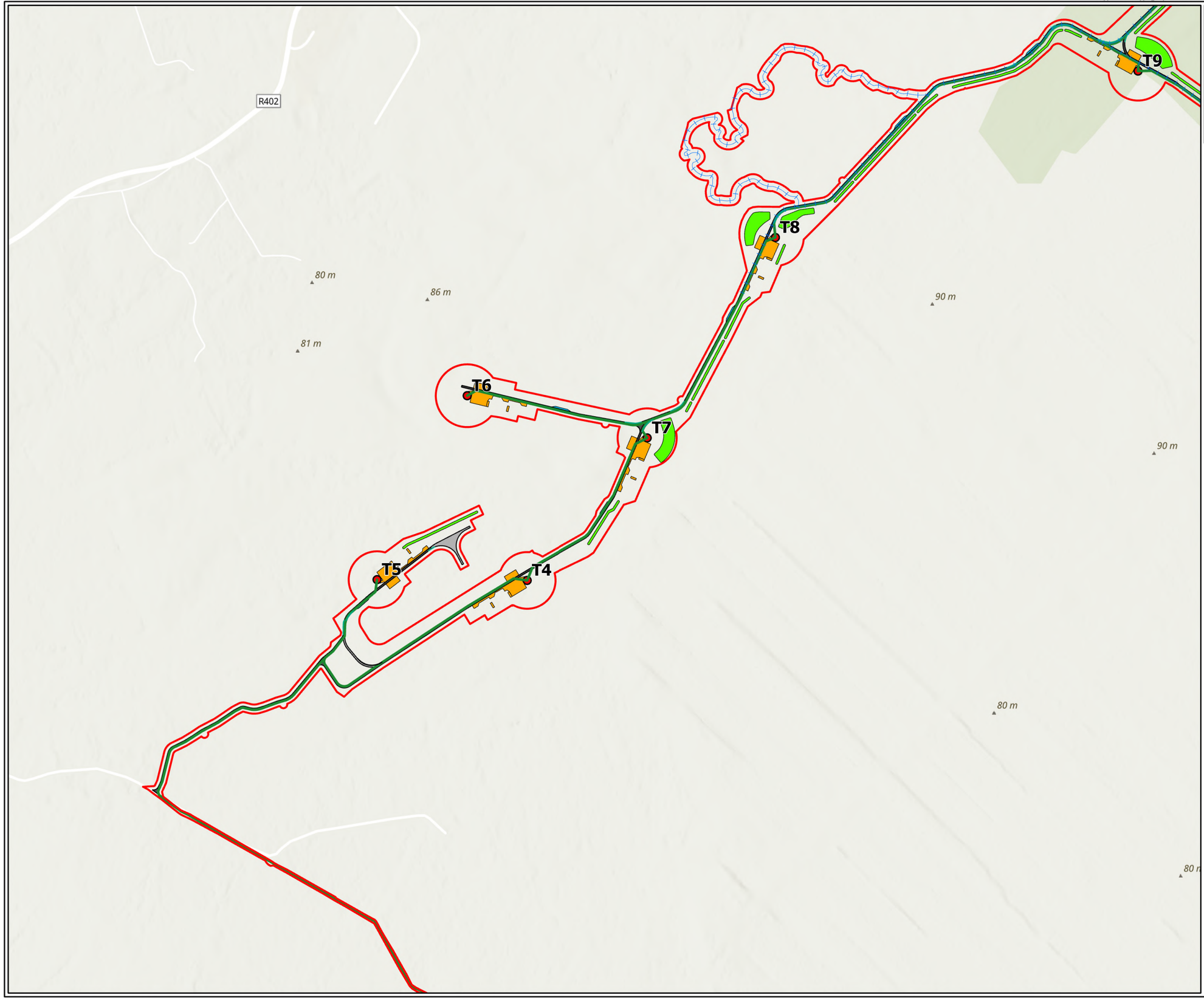

Legend

- Proposed Development Boundary
- Road widening - Access tracks
- Road widening - Temp. Access Tracks
- Access Track
- Passing Bays
- Turbine Hardstanding
- Berms
- Recreation and Amenity Trail
- Cable Route
- Turbines

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TITLE:	Layout of the Proposed Development - Page 2
PROJECT:	Drehid Wind Farm and Substation
FIGURE NO:	3.3
CLIENT:	North Kildare Wind Farm Ltd.
SCALE:	1:10,000
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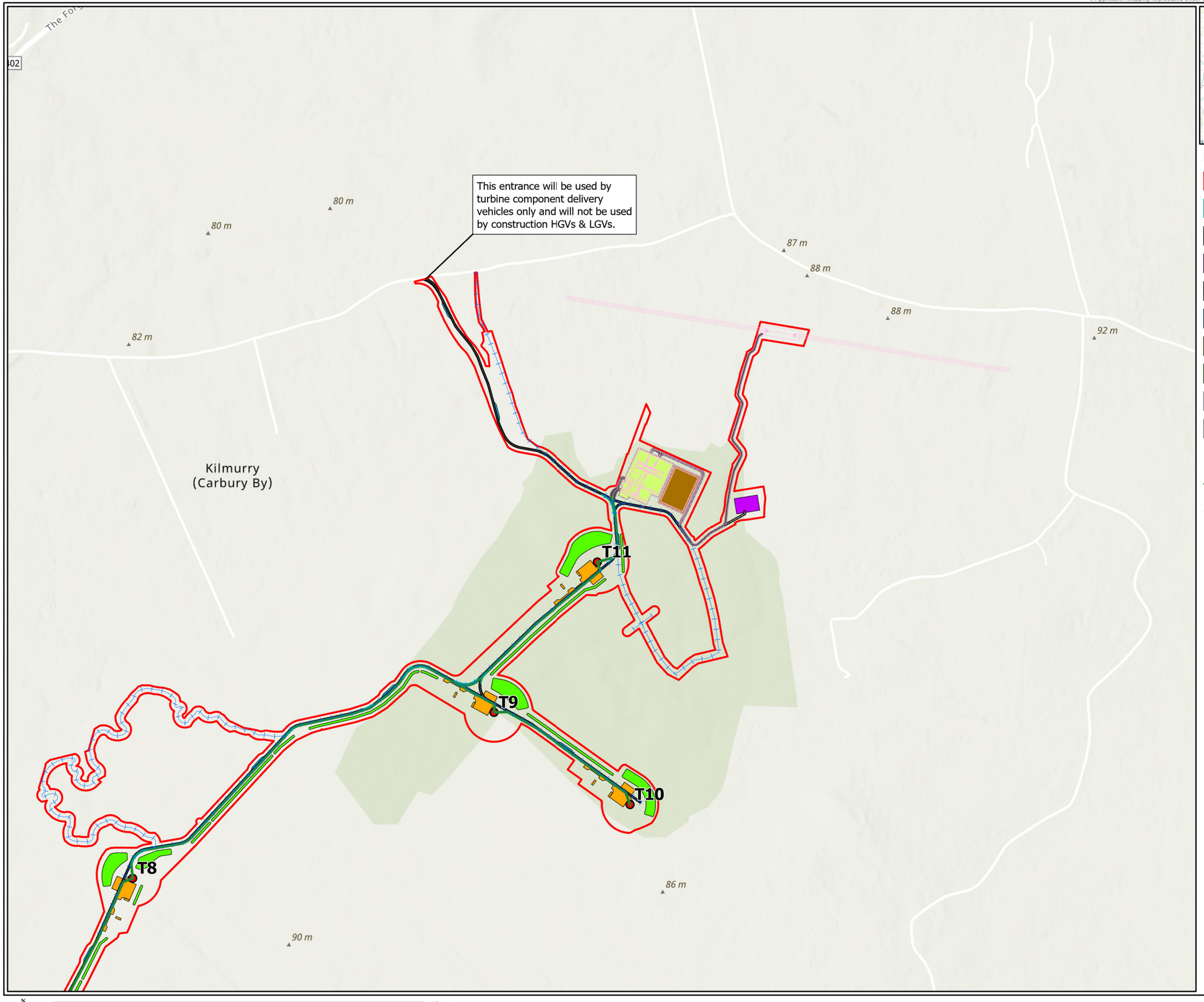

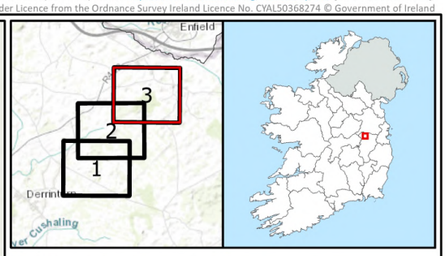

Legend

- Proposed Development Boundary
- Road widening - Access tracks
- Road widening - Temp. Access Tracks
- Construction Compound
- Access Track
- Passing Bays
- Turbine Hardstanding
- Berms
- Peat Deposition Area
- Substation
- Recreation and Amenity Trail
- Cable Route
- Substation Detail
- Turbines

TITLE:	Layout of the Proposed Development - Page 3		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.3		
CLIENT:	North Kildare Wind Farm Ltd.		
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3.4.3 Turbine Description

The final choice of turbine model is a Nordex N133 model wind turbine. This turbine model has been included for the purposes of EIAR and planning approval. The Nordex N133 is a conventional three-blade horizontal axis turbine with a rotor diameter of 133 m. Schematic drawings of the candidate turbine accompany the planning application. The plans and particulars are precise and provide specific dimensions for the turbine structures which have been used in this assessment. The turbine specification for T1 will have a hub height of 81.4 m and a tip height of 147.9 m; while the ten remaining turbines (T2 to T11) will have a hub height of 100.5 m and a tip height of 167 m. All eleven turbines will have a rotor diameter of 133 m.

Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics with only minor cosmetic differences differentiating one from another.

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

- Generator
- Electrical components
- Control unit

A glass fibre reinforcing polyester hood covers the nacelle. This is sound insulated, ensuring minimal noise and emissions. Earthing and isolation protect all components from lightning strikes.

3.4.3.1 Turbine Blades

The blades of a modern turbine are typically made up of glass fibre reinforced polyester. They typically turn at between 5 and 15 revolutions per minute depending on wind speed and make of turbine. The candidate turbine for the Proposed Wind Farm is the Nordex N133.

Turbines begin generating electricity at a wind speed of 3 to 4 m/s depending on turbine type, with rated power generation at wind speeds of approximately 12 to 14 m/s.

The turbines usually shut down at wind speeds greater than 25 m/s, although some machines are designed to operate at up to 30 m/s. The Nordex N133 has a cut-in wind speed of 3 m/s and a cut-out wind speed up to 28 m/s.

The yaw machine mechanism turns the nacelle and blades into and out of the wind. A wind vane on the nacelle controls the yaw mechanism. Blades are pitched to match the wind conditions.

3.4.3.2 Turbine Tower

The tower of the turbine is a conical steel tube, with multiple paint finish. It is generally delivered to site in four or five sections. The first section is bolted to the steel base, which is cast into the concrete foundation.

The turbine foundation will be 23 m in diameter and 3 m in depth. The upper sections of the tower are bolted to the lower ones in sequence. The base of the tower is 5 m in diameter, tapering to approximately 2-3 m, where it is attached to the nacelle. The first floor of the tower is approximately 2-3 m above ground level it is accessed by a galvanised steel staircase and a steel hatch door which will be kept locked except during maintenance.

3.4.3.3 Turbine Foundation

Given the depth of peat in the northwestern portion of the Site, piled turbine foundations will be used on three of the turbines (T08, T09 and T10). Gravity foundations will be used for all other turbines.

Turbine foundations will be designed to Eurocode Standards. Foundation loads will be provided by the wind turbine supplier, and factors of safety will be applied to these in accordance with European design standards:

- EN 1992-1-1: Eurocode 2: Design of concrete structures.
- BS EN 61400-1:2005: Wind Turbines Design Requirements.

3.4.3.3.1 Gravity Foundation

Gravity foundation will comprise a reinforced concrete base designed to distribute the loads to the ground directly. Foundation bases will consist of circular concrete base which will be approximately 23 m in diameter and 3 m in depth with a central circular raised plinth which will be used to anchor the turbine tower at its base. Gravity foundation will be constructed as follows:

- The extent of the excavation will be marked out.
- Around the perimeter of the foundation formation a shallow interceptor drain will be formed and settlement pond / swale constructed.
- The base of the foundations will be excavated to competent bearing strata.
- Excavated soil will be managed in accordance with the Soil Management Plan, within the CEMP Appendix 3.2.
- Where necessary, temporary pumps and sumps may be required to maintain a dry, clean formation. Pumped water will be directed to the settlement ponds prior to entering the drainage system.
- A layer of concrete blinding (lean mix) will be laid 75 mm thick directly on top of the newly exposed formation to provide a level platform.
- Formwork and reinforcement will be fixed.
- Ductwork will be installed as required for cables, and formwork erected around the steel cage.
- Concrete will be placed using a concrete pump in accordance with the requirements of the Structural Engineer and compacted using vibrating pokers.
- Concrete (nominally 800 m3 per foundation) would typically be in two pours, the first pour being the main base, which is approximately 90% of the foundation; the second and remaining 10% forming the plinth section which sits on the top of the main base.
- Upon completion of the concreting works the foundation base will be covered against precipitation.
- Steel shutters will be used to pour the upper plinth section.
- Once the concrete is set the earthing system is put in place and the foundation is backfilled with suitable material to tie in with the required level of the hardstanding.

- The foundation will be backfilled with a cohesive material, where possible using the material arising during the excavation.

3.4.3.3.2 Piled Foundations

The piled turbine foundations will be constructed using standard reinforced concrete construction techniques. For the piled foundations it will be necessary to embed the piles directly into the bedrock using rock sockets. The pile toe level will depend on the depth to bedrock, expected depth is 25 m as detailed in Chapter 9. These will be further established by detailed ground investigations prior to the construction of the Proposed Development. The piles to be constructed will be large diameter reinforced concrete piles (1m diameter as described in Chapter 9).

It is intended also that the crane pads are provided with a piled foundation at turbines T8, T9 and T10. Similar concrete volumes will be required for either a gravity or piled solution at crane pad locations.

Preparatory work for piling will include the following:

- Site clearance and setting out of the works area followed by soil stripping (which will be managed in accordance with the Soil Management Plan) in order to reach a suitable formation level for the piling platform.
- Around the perimeter of the foundation formation a shallow interceptor drain will be formed and settlement pond / swale constructed.
- Construction of a piling platform (also referred to as pling mat) which is a work platform used for piling rigs providing a stable base from which they can operate, and typically comprise gravels or crushed rock compacted in layers. The piling platform will be designed based on the rig size and specific ground conditions at each turbine location. The piling platform will be incorporated into the hardstand as part of construction.

Rock socket piles will be used to embed the piles into solid rock. This technique involves drilling into the rock layer to create a socket which is slightly larger than the pile. This creates a void around the outer edge of the pile which is filled with grout / cement. This 'socket' in the rock provides the pile with stability by providing resistance against lateral loads and uplift forces. The method requires that piles are bored using a continuous auger until such point as rock-head is met. The auger drill head is then changed to penetrate into the intact rock head. This is followed by rotary piles: an auger core which is followed by a temporary outer steel casing / sleeve to maintain support in the bored excavation. As the casing is inserted, an auger / core-barrel is used to excavate and 'muck-out' inside the casing. When the predetermined pile toe level has been achieved, a prefabricated reinforced steel cage is introduced into the bore, and concrete is poured by means of a tremie-pipe (such that concrete is filled from the bottom of the bore upwards). The temporary casing is then removed. Where the appointed geotechnical engineer or engineering geologist for the works deems that there is a risk of concrete wash out into the environment during piling, the bored pile will be cast within a permanent casing or geotextile sock/bag to prevent the loss of concrete or drilling fluids such as bentonite and vinyl-polymer.

Note that for piled foundations the water level within the pile shaft will be maintained at or above the surrounding ground water level to ensure that there is no differential head encouraging piping/boiling[2] of the soil at the base of the excavation.

Once all the piling for base has been completed the piles are checked to ensure that their cut off level is appropriate for the required base of the foundation. If this is not the case some pile head cutting may be required. When all piles are to the required level the area is lean-mixed and the foundation base rebar is tied and concrete is poured for the foundation whereby the foundation comprises a reinforced concrete base designed to distribute the loads across the piles. The foundation base will consist of circular concrete base which will be 23 m in diameter and 3 m in depth with a central circular raised plinth which will be used to anchor the turbine tower at its base. Concrete will be placed using a concrete pump in accordance with the requirements of the Structural Engineer and compacted using vibrating pokers. Steel shutters will be used to pour the upper plinth section. Ductwork will be installed for cables. Upon completion of the concreting works the foundation base will be covered against precipitation. Once the concrete is cured the earthing system is put in place and the foundation is backfilled with suitable material to tie in with the required level of the hardstanding. The foundation will be backfilled with a cohesive material, where possible using the material arising during the excavation.

3.4.3.4 Turbine Transformer

The turbine will have a transformer located within the tower. The turbine will generate electricity at approximately 660 volts. The turbine transformer will step up the voltage to approximately 33 kV to reduce the electrical loss on the cabling connector circuits that connect to the site substation.

3.4.3.5 Turbine Colour

The turbines have a multiple coating to protect against corrosion. They are coloured off-white or light grey to blend into the sky background. This minimises visual impact, as recommended by the following guidelines on wind energy development:

- "Wind Energy Development – Planning Guidelines" (2006), Department of the Environment, Heritage and Local Government
- "The Influence of Colour on the Aesthetics of Wind Turbine Generators", ETSU W/14/00533/00/00
- PAN 45, The Scottish Office Environment Department
- PPG22, Department of the Environment - Welsh Office
- Technical Advice Note 8, Welsh Assembly, 2005

[2] Piping/boiling of the soil is a seepage failure due to groundwater flow

3.4.4 Access Tracks and Hardstandings

3.4.4.1 Internal Access Tracks

951 m of internal access tracks will be required to be upgraded as part of the Proposed Development and 9.67 km of new internal access tracks will be required. Figure 3.3 illustrates the internal access tracks within the Proposed Development. The proposed internal site track layout will permit access for vehicles during the construction phase, for maintenance during the operational phase and for vehicles to decommission the turbines at the end of the life of the development. Existing access tracks have been utilised where possible for the Proposed Development. The Recreational Amenity Trail will partly use the upgraded wind farm track.

All access tracks will be 4.5 m wide along straight sections and wider at bends and as required. The tracks will be finished with a well graded aggregate. The drainage system will be installed adjacent to the internal access tracks.

Access tracks will be of a floating road design. Floating roads are constructed without excavating the existing ground. They will consist of a layer of combined geotextile and geogrid laid directly on the existing surface. Layers of stone will then be placed on top with additional geogrid reinforcement as required. A layer of compacted Cl 804 material will be placed on top to provide a suitable running surface.

It is anticipated that the stone required for the construction of the internal access roads will be sourced from quarries in the vicinity.

Typically, the track formation will consist of a minimum 500 mm hardcore on geo-textile membrane. The likely construction methodology for newly constructed tracks will be as follows:

- The formation will be prepared to receive the geotextile membrane.
- Stone will be placed and compacted in layers to minimum 500 mm depth.
- A drainage ditch will be formed along sides of the track.
- Surplus excavated material from across the site will be placed along the side of sections of the tracks and dressed to blend in with surrounding landscaping and partially obscure sight of the track.

Floating roads minimise impact on the peat, particularly peat hydrology. As there is no excavation required no peat arisings are generated.

During construction, the site will be accessed by the main site entrance on the L5025. Located to the south of the site There will also be a site entrance constructed off the L5012 (north of the site), immediately west of the existing Coillte entrance, for the purposes of turbine delivery only. However, all other construction traffic will be via the main site entrance. Turbines T04 to T11 and the Proposed Substation will be accessed via the L5025 site entrance and then through the site to the secondary site entrance off the L50242 (cul de sac road located centrally on site).

Both the main site entrance and the secondary site entrance will be of a bellmouth design, with the main site entrance achieving sight lines of 160m to the north and a sightline of 155m to the south; and the central, secondary site entrance achieves sight lines of 90 m in both directions. More details of the site entrances can be seen on the site entrance drawings P22242-0300-0015 and P22242-0300-0016.

3.4.4.2 Watercourse Crossings

There are 3 no. watercourse crossings required within the Proposed Development site. It is proposed to construct clear span bridges at these locations to minimise the environmental impacts and avoid any instream works. Drawings P22242-0300-0021, P22242-0300-0022 and P22242-0300-0023 illustrate the proposed bridge structures and their locations within the site.

The bridges will be of adequate length and will be designed to ensure that no in-stream works will be required and that the existing stream banks are not disturbed during construction. Sufficient free-board will be allowed for in the proposed bridge designs to allow for 1 in 100-year fluvial flood conditions.

In order that flood flows would not be obstructed, the stream crossings will be sized to convey a 1 in 100-year flood flow with a 20 % allowance for Climate Change.

So as not to interfere in any way with the bed or bank of the watercourse, bridge foundations will be designed and positioned at least 2.5 m from the river bank.

Rock armour will be used to provide bank protection upstream and downstream of new structures, to ensure no undercutting or destabilisation of the structure. This rock armour will be at the structure, and will not involve any in-stream works. Silt fencing will be erected at the location of each crossing.

For the construction of the bridge crossings, the following outline methodology shall apply:

- All environmental mitigation measures will be implemented locally in advance of the works, in accordance with the measures outlined in the CEMP (Appendix 3.2).
- Bank protection will be installed as necessary to ensure that the existing stream banks are not disturbed during construction.
- The line of the access track and crossing will be marked out on site by a site engineer.
- On approach to the crossing, flow connectivity pipe drains will be installed at 50m centres in accordance with the final drainage design.
- The extent of the excavation for bridge supports will be marked out and will include an allowance for trimming the sides of the excavation to provide a safe working area and slope batter. Bridge foundations will be designed and positioned at least 2.5 m from the river bank.
- The excavated material will be stored at agreed locations within the site in accordance with the Soil Management Plan.
- A layer of concrete blinding will be laid directly on top of the newly exposed formation, tamped and finished with a screed board to leave a flat level surface, followed by placement of the concrete blinding layer for the bridge supports.

- Steel reinforcement will be fixed in accordance with the designer's drawings & schedules and the supports will be shuttered.
- Concrete will be placed and compacted to the levels and profile indicated on the construction drawings.
- Upon completion of the concreting works the bridge supports will be covered from the elements and left to cure for a sufficient period in accordance with the design specification.
- The bridge supports will be backfilled using the material arising during the excavation and landscaped using the top-soil set-aside during the excavation. The suitability of backfill material is to be approved by the project geotechnical engineer.
- Following curing, MY3 pre-cast bridge beam sections will be lifted into place by a crane or HIAB truck in accordance with an approved lifting plan.
- The bridge parapets will be steel-fixed, shuttered and poured to tie in with the pre-cast bridge deck beams and the upper section of the bridge deck will be poured and finished using ST1 concrete.
- Ductwork will be installed within the bridge deck in accordance with the design to carry the grid connection cables across the watercourse.
- A timber post and rail fence will be installed, affixed to the bridge parapets, to run the length of the bridge deck.

3.4.4.2.1 Drain Crossings

There are four drain crossings required for the turbine delivery track in the northern portion of the site. These drains are man-made drains and two of these four are part of the OPW arterial drainage network and will be crossed with temporary crossing structures which will provide a clear-span crossing of the drains. The OPW were engaged in pre-application consultations and were made aware of the intention to provide these temporary crossings.

It is expected that all other drain crossings within the site will be crossed using piped culverts. Piped culverts will only be used over very short stretches i.e. at track crossings. Pipe culverts will be sized to take the 1 in 100-year flood flow with a 20% allowance for Climate Change. Concrete or HDPE pipes may be used depending on the size of the drain to be crossed. The locations and sizes of culverts can be found in Appendix 10.1.

Pipe culverts will be installed in accordance with the typical design shown in planning application drawing P22242-0501-0002.

For a typical drain crossing using a piped culvert, the following outline methodology will be used.

- The access track construction will finish at least 10 m from the nearside bank of the drain.
- All environmental mitigation measures will be implemented locally in advance of the works, in accordance with the measures outlined in Section 4 of the CEMP in Appendix 3.2.
- Pipe culvert installation will only take place during dry periods.
- The bed of the drain will be prepared using a mechanical digger and hand tools to the required levels in accordance with the design.
- A bedding layer will be laid in the base of the drain using Class 6 aggregate material and blinding to the desired levels in accordance with the design.
- The pipe is laid in one lift or in sections using a crane in accordance with an approved lift plan.
- Bedding material is placed and compacted around the pipe to the desired levels in accordance with the design.

- Culverts will be installed with an invert level 500 mm below the existing drain bed level. The embedded section will be allowed to fill naturally.
- The pipe is covered using compacted Class 6N fill material in accordance with the design up to the levels required by the access track sub formation.
- Rock armour headwalls will be constructed where necessary to protect pipe ends and the base of slope embankments on either side of the track.
- For small drain crossings, pipes of suitable diameter will be laid directly into the bed of the drain.

The Proposed Substation will cross a length of man-made OPW arterial drainage by way of a pipped culvert. The OPW have been engaged in pre-application consultations regarding this proposed culvert and the OPW have advised that the culvert design will be subject to a Section 50 application, post planning.

All of the drain crossings described in this section will cross drains of low ecological value.

3.4.5 Temporary Site Facilities

During the construction phase, it will be necessary to provide temporary facilities for the construction personnel. The location of the temporary site compounds are shown on Figure 3.3.

Facilities to be provided in the temporary site compounds will include the following:

- Site offices to include meeting rooms, canteen and welfare facilities complying with latest legislation, of Portacabin type construction
- Portable container toilets
- Areas for storage of materials and fuel including bunded fuel storage
- Waste management areas
- Footpaths
- Employee parking
- Potable water supply
- A water tanker to supply water used for other purposes
- Contractor lock-up facility
- Temporary power and lighting

A wheel wash facility will be provided at the main site entrance. The temporary facilities will be removed on completion of the construction phase.

Turbine Delivery Route

The proposed turbine delivery route is presented in Figure 3.4. A Delivery Route Selection and Assessment was carried out by Pell Frischmann to identify the optimum delivery route to site and is presented as Appendix 13.1 of this EIAR. It is proposed to deliver turbines to the site from the M4 motorway and then the R402 to the junction of the L402/L5025 and follow the L5025 to the main site entrance.

From the main site entrance, the components being delivered for turbines T01, T02 and T03 can be delivered directly to their respective hardstanding locations. However, an alternative delivery route is required for delivery of the components of the remaining turbines (T04 to T11).

The proposed access route is as follows:

- Loads will depart the M4 at Junction 9 and will join the R402, southbound;
- Loads will pass through Johnstown Bridge and Kilshancoe;
- All loads will turn off the R402 onto the L5025, turning left at The Sweep Crossroads junction;
- Loads will continue on the L5025 heading southeast to the site access junction. At the site access junction, loads will turn left into a purpose designed junction;
- Blade loads for the northern turbines will be transferred onto a blade lifting trailer. All other northern turbine loads (for T4 to T11) will undertake a U-turn and will rejoin the L5025, proceed northwest;
- Northern turbine loads will turn right onto the R402 and will proceed northbound;
- At the Raven Junction, loads will turn right onto Kilshanroe Road and will continue eastbound to the northern access junction.

Due to the oversized nature of the wind turbine components, some alterations will be required along the route. These points along the route are termed points of interest (POIs). There are fifteen POIs along the route which are listed below.

- POI 1: Loads will oversail the entry verge where two road signs should be removed. Loads will require an over-run surface on the central island of the roundabout where one chevron sign should be removed. On exiting the junction, loads will over-run the splitter island where three road signs should be removed. Verge vegetation trimming is required on the exit.
- POI 2: At the roundabout with Johnstown Road, loads will over-run the entry splitter island, central island and exit splitter island of the roundabout. Load bearing surfaces are required. Two road signs on the entry splitter island, two chevron signs on the central island and two signs on the exit splitter island should be removed.
- POI 3: Loads will oversail the inside of the junction where a left turn is made off the R402 onto the L5025. Two road signs and a barrier should be removed here. All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 4: Loads will oversail both verges on the L5025 at the first bend along this stretch. Tree canopy trimming will be required here. All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.

- POI 5: Loads will oversail both sides of the road at the next bend along the L5025. Hedge trimming will be required on the western verge along with an area of load bearing surfacing. Tree canopy trimming is required. A minor area of load bearing surface is required in the eastern verge along with the removal of a utility pole. All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 6: Further along the L5025, north of the Kilooney Bridge, loads will oversail both verges. Tree canopy trimming will be required here. All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 7: Further along the L5025, south of the Kilooney Bridge, loads will oversail both verges. Tree canopy trimming will be required here. All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 8: At the main site entrance, the delivery will require the removal of a section of fence, access gate and hedge (to enable construction of the site entrance). All overhead utilities on the L5025 should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 9: At Raven Junction on the R402, loads will oversail the inside of the junction where verge vegetation trimming will be required.
- POI 10: On Kilshanroe Road, loads will oversail both verges at the first bend along this road. Tree canopy trimming will be required here. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 11: Further along Kilshanroe Road, loads will oversail both verges at the second bend. Tree canopy trimming will be required here. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 12: Further along Kilshanroe Road, loads will oversail both verges at the third bend. Tree canopy trimming will be required here. A section of verge hedge should be trimmed on the northern verge. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 13: Further along Kilshanroe Road, loads will oversail both verges at the fourth bend. Tree canopy trimming will be required here. Two lengths of hedge should be trimmed on the northern verge. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 14: Further along Kilshanroe Road, loads will oversail both verges at the fifth bend. Tree canopy trimming will be required here. A minor area of load bearing surface is required in the northern verge. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.
- POI 15: Where the delivery route enters the northern, temporary site entrance, removal of a number of trees will be required to construct the temporary site entrance. The loads will oversail both verges and therefore tree canopy trimming will also be required. All overhead utilities on Kilshanroe Road should be lowered or relocated to enable the raised blade for the northern turbines to pass along the road.

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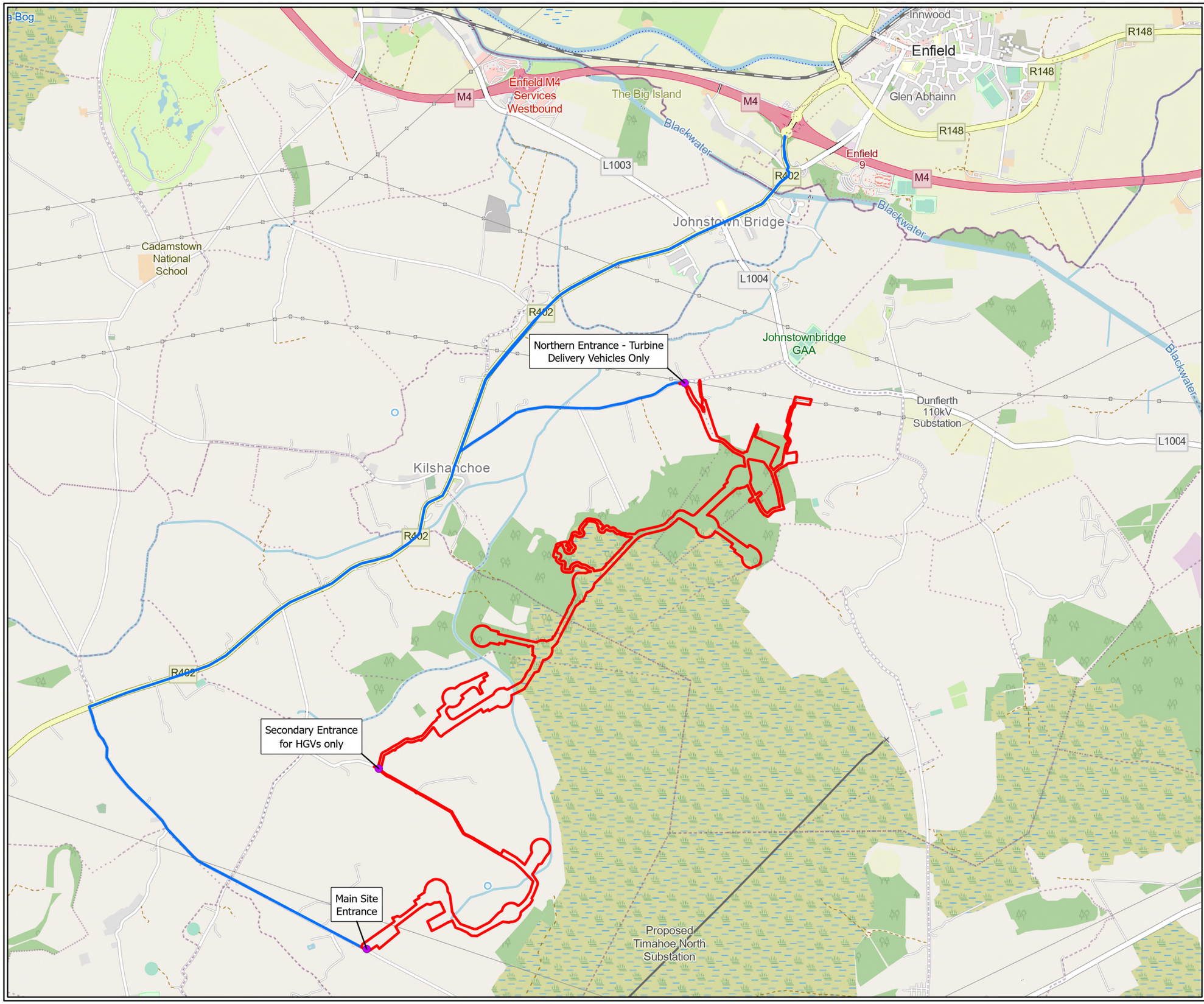

Legend

- Proposed Development Boundary
- Turbine Delivery Route
- Site Entrances

TITLE:	Turbine Delivery Route		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.4		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:30,000	**REVISION:**	0
DATE:	29/05/2025	**PAGE SIZE:**	A3

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3.4.6 Hardstandings

A hardstanding area, including temporary areas, is 192 x 58.5 m in size. This area will accommodate a main crane and an assist crane during the assembly of the turbine, as well as during occasional maintenance during the operation of the wind farm. The area of the hardstanding provided is deemed suitable for the assembly of a turbine with the dimensions proposed. Figure 3-5 illustrates a hardstanding area.

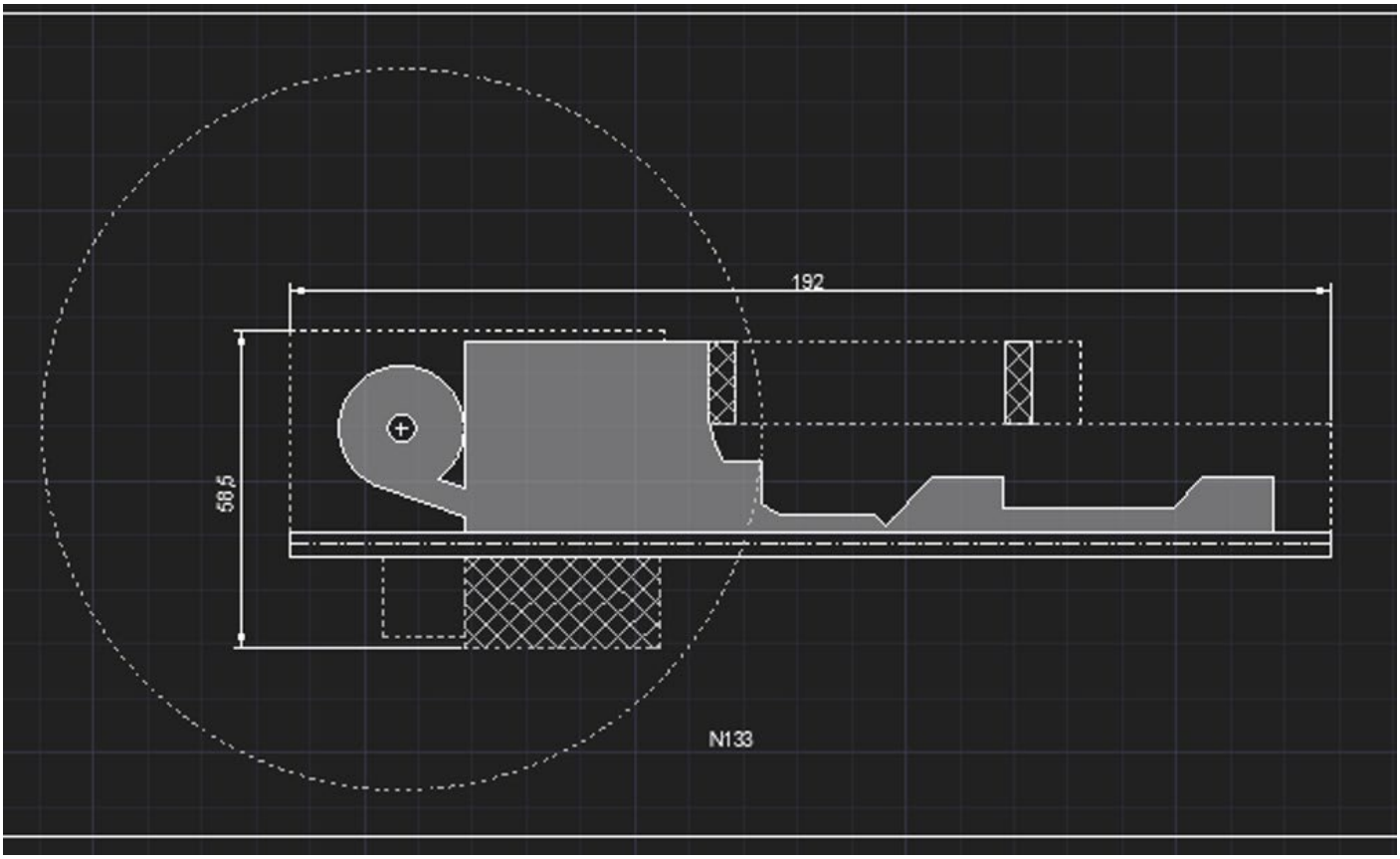

Figure 3-5: Turbine hardstanding

3.4.7 Berms

Any peat excavated for the construction of infrastructure within the site will be re-used on site as landscaping berms; within the clearfell areas around turbines and along the margins of the access roads. A peat deposition area is also provided adjacent to the Proposed Substation, as shown in the Planning Drawings which accompany the application for the Proposed Substation. More information is provided in Section 3.5.5.

3.4.8 Recreation and Amenity Trail

It is proposed to enhance the existing walking trail from the local road (L5012) to the north of the site. Access to the amenity trail will be from the existing Coillte entrance off the L5012. The trail will consist of 2 routes – a shorter 1.2km loop in the northern section of the site and a longer route incorporating this route and other existing tracks and new site roads which is ca. 4km. The Amenity Trail will include an area for safely storing bikes and picnic areas with interpretative information provided to add to the experience. The amenity trail route is illustrated on the layout drawings in the planning pack and details of the benches, signage and bike storage can be seen the planning drawing P22-242-0501-0004. More information on the amenity trail is in Section 3.7.5.

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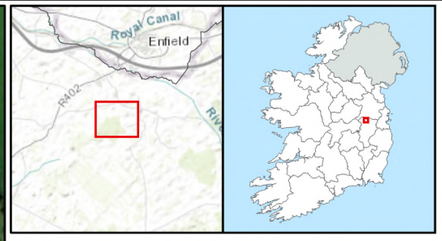

Legend

- Proposed Development Boundary
- Peat Deposition Area
- Substation
- Substation Detail
- Existing 110kV Overhead Line
- Grid Connection Route

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0 50 100 200 Meters

TITLE: Proposed Substation			
PROJECT: Drehid Wind Farm and Substation			
FIGURE NO:	3.6		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:5,500	**REVISION:**	0
DATE:	29/05/2025	**PAGE SIZE:**	A3

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3.4.9 Proposed Substation and Grid Connection

It is proposed to construct 1 no. onsite electricity substation within the Proposed Development site as shown in Figure 3.6. This will provide a connection point, via loop-in/loop-out infrastructure, between the Proposed Wind Farm and the 110 kV Kinnegad-Rinawade overhead line.

The Proposed Substation will comprise of two separate compounds and buildings, an Eirgrid compound and an Independent Power Producer (IPP) compound, necessary to export the electricity generated from the Proposed Wind Farm to the national grid. The compounds are made up of a hardstanding permeable crushed stone surface and surrounded by a palisade fence. The hardstanding area measures approximately 1.32 hectares.

The Eirgrid substation building will cover a footprint of approximately 450 sq.m with a pitched roof and an overall height of 8.55 m. The IPP switchgear room will consist of a building of approximately 160 sq.m with a pitched roof and an overall height of 5.85 m.

The substation compound is surrounded by a 2.6 m high palisade fence with associated gates for access. Eirgrid specification lightning masts will also be included as a safety measure. These will consist of 20 m monopoles.

A wastewater holding tank will be provided within the IPP Compound . The wastewater holding tank will be a sealed storage tank with all wastewater tankered off site as required by an authorised waste collector to a wastewater treatment plant. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007, will be employed to transport wastewater away from the site. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. The wastewater storage tank alarm will be part of a continuous stream of data from the site's turbines, wind measurement devices and electricity substation that will be monitored remotely. This approach for managing wastewater on site has become standard practice on wind farm sites, which are often proposed in areas where finding the necessary percolation requirements for on-site treatment can be challenging and has been accepted by numerous Planning Authorities and An Bord Pleanála as an acceptable proposal. When the final destination of the wastewater is known (following the appointment of an authorised waste collector), this information can be submitted to the Kildare County Council where required.

An Operations Compound will be provided with the Proposed Substation. This compound will comprise:

- Welfare facilities, in accordance with the Safety Health and Welfare at Work Regulations 2013 and the appropriate regulations pursuant to that act
- Storage area (i.e. one 20-foot storage container and one 20-foot bunded container)
- Waste area (containers and skips)
- Power and communications (fibre optics to the substation_
- Parking facility

3.4.9.1.1 Grid Connection

The Proposed Development will have a Maximum Export Capacity (MEC) of 52.8 MW. Connection for this project was granted through the Enduring Connection Process (ECP), ECP-2.1, the first of a number of annual batches part of the second stage of the ECP policy. The project received an offer for a new loop-in connection to the Kinnegad-Rinawade 110 kV overhead line in September 2021.

To connect to the existing Kinnegad-Rinawade OHL, a new outdoor 110 kV substation will be constructed on site in order to ramp up the voltage to the 110 kV voltage required to loop-in to the existing OHL. 2 no. line-cable interface masts are necessary to enable this loop-in connection to the existing OHL. The steel lattice masts will extend to a height of 16 m above existing ground level. A 998 m length of 110kV underground cable will be required to connect the new 110 kV substation and interface masts, into the existing OHL. The proposed grid connection is shown in Figure 3.6.

3.4.9.2 Substation Drainage

The substation will be drained by a network of piped stormwater drains to a full retention interceptor. Foulwater will be directed to a holding tank as described in 3.4.10. A drainage layout drawing for the substation is presented as planning drawing 23727 MWP 00 00 DR C 2100.

The access tracks approaching the substation will be drained by a network of swales and stilling ponds and is further described in section 3.5.6 Surface Water Management and Site Drainage.

3.4.9.2.1 Peat Deposition

The peat excavated for the construction of the substation foundation will be deposited adjacent to the substation compound, in an area shown on the planning drawings as the “Peat Deposition Area”. The Peat Deposition Area will be 100 m by 68 m in area, 2 m in height and will be enclosed by engineered rock berms of 2m height and 3 m top width. More details of the Peat Deposition Area can be seen in the Compound Layout drawings (23727 MWP 00 00 DR C 0101) and Peat Deposition Area section drawings 23727 MWP SS ZZ DR C 1010 and 23727 MWP SS ZZ DR C 1011. More details on soil and peat management are provided in Section 3.5.5.

Electrical cabling

Proposed Substation

Underground electrical cables will connect the wind turbines to the Proposed Substation which will then connect to the existing Kinnegad-Rinawade 110 kV OHL. The proposed cable route from the Proposed Substation to the existing overhead line is presented in Figure 3-6 and measures 998 m in length.

The electricity will be transmitted as a three-phase power supply so there will be three individual conductors (or individual cables) in each cable circuit. The three conductors will each be laid in separate ducts (within the same trench) which will usually be laid in a trefoil formation but may also be laid in a flat formation. The specification for the cables and cable-laying will be in accordance with EirGrid requirements. A copy of the EirGrid requirements is available in Appendix 3.3 of Volume 3.

Internal Proposed Wind Farm cabling

The typical width of a cable trench with a trefoil formation will be approximately 650 to 850 mm, a flat formation would require a wider trench width. Cables will primarily be laid within the wind farm site, with a section of cable between the southern portion of the site and the northern portion of the site on the L50242 public road (1.38 km) and will be laid to a minimum depth of 950 mm to the top of the upper duct in field locations. The diameter of the ducting will be selected to suit the range of cross-sectional areas of electrical cables and is likely to be either 125 mm or 160 mm in diameter.

3.4.9.3 Joint Bays

Joint bays are pre-cast concrete chambers where individual lengths of cables are joined to form one continuous cable. joint bays will be located at various points along the ducting route at approximately 500 m – 1000 m intervals.

A joint bay will be constructed in a pit. The bay will be 6.0 m x 2.53 m x 1.2 m deep. A reinforced concrete slab will be constructed in the bay to accommodate the jointing enclosure.

Communication chambers, which are similar to small manholes, will also be installed at the joint bay locations to facilitate connection of fibre-optic communication cables. There will be a requirement to install two joint bays on the L50242 as shown on planning drawings 22-242-0101-0010 and 22-242-0101-0011.

3.4.10 Drainage

The drainage system for the Proposed Wind Farm will be constructed alongside all turbines, internal access tracks, hardstandings, substation, the blade transfer area and the temporary construction compounds. The drainage system for the existing tracks and roads will largely be retained. Where the roads require widening, this will involve the slight re-location of existing roadside swales to allow for widening. Further details on the hydrology and drainage are contained in Chapter 10 Hydrology and Water quality, in the CEMP in Appendix 3.2 and in the Planning Drawings.

The drainage system for the Proposed Substation has been described above in 3.4.10.1.2.

3.4.11 Temporary Stockpile Areas

Due to the possibility of soil-borne diseases, all topsoil recovered from each farm property will remain on site. These stockpiles will be covered and where required, temporary silt fencing will be put in place. The topsoil will be re-used for landscaping and will also be used for reinstatement purposes around turbine bases and hardstanding areas.

3.4.12 Tree Felling

An area of the Proposed Development site comprises of commercial coniferous forestry. Felling of approximately 28.4 ha of wooded habitats (comprised of 21.2 ha of woodlands dominated by or mainly comprised of conifers, and 7.2 ha of broadleaved wooded habitats) is required within and around the wind farm infrastructure to accommodate the construction of some turbines, hardstands, crane pads, access tracks and the proposed onsite substation. Turbines T6, T7, T8, T9, T10 and T11 are located within forestry and consequently tree felling will be required as part of the project.

It is proposed to fell approximately 28.4 ha of wooded habitats for the Proposed Development, which will be the subject of a Felling Licence Application to the Forest Service prior to construction as per the Forest Service's policy on granting felling licenses for wind farm developments. The proposed areas to be felled are illustrated on Figure 3.7.

The Forest Service Policy requires that a copy of the planning permission for the wind farm be submitted with a felling licence application therefore the felling licence cannot be applied for until planning permission is received for the Proposed Development site. The licence will include the provision of relevant replant lands to be planted in lieu of the proposed tree felling on the site as discussed in Section 3.4.13 below. It should be noted that the forestry within the Proposed Wind Farm site was originally planted as a commercial crop and will be felled in the coming years should the wind farm proceed or not.

To ensure a tree clearance method that reduces the potential for sediment and nutrient runoff, the construction methodology will follow the specifications set out in the Forest Service Forestry and Water Quality Guidelines (2000) and Forest Harvesting and Environmental Guidelines (2000).

Before any harvesting works commence on site all personnel, particularly machine operators, will be made aware of the following and will have copies of relevant documentation, including:

- the felling plan, surface water management, construction management, emergency plans and any contingency plans;
- environmental issues relating to the site;
- the outer perimeter of all buffer and exclusion zones;
- all health & safety issues relating to the site.

3.4.13 Replant Lands

Replacement replanting of forestry in Ireland is subject to license in compliance with the Forestry Act 2014 as amended. The consent for such replanting is covered by the Forestry Regulations 2017 (S.I. No. 191 of 2017). The total amount of felling proposed for the project is 28.4 hectares. It should be noted that the clearfelling of trees in the State requires a felling licence. The associated afforestation of alternative lands equivalent in area to those lands being permanently clearfelled is also subject to licensing ('afforestation licensing').

The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority and is responsible for all forest licensing. 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.

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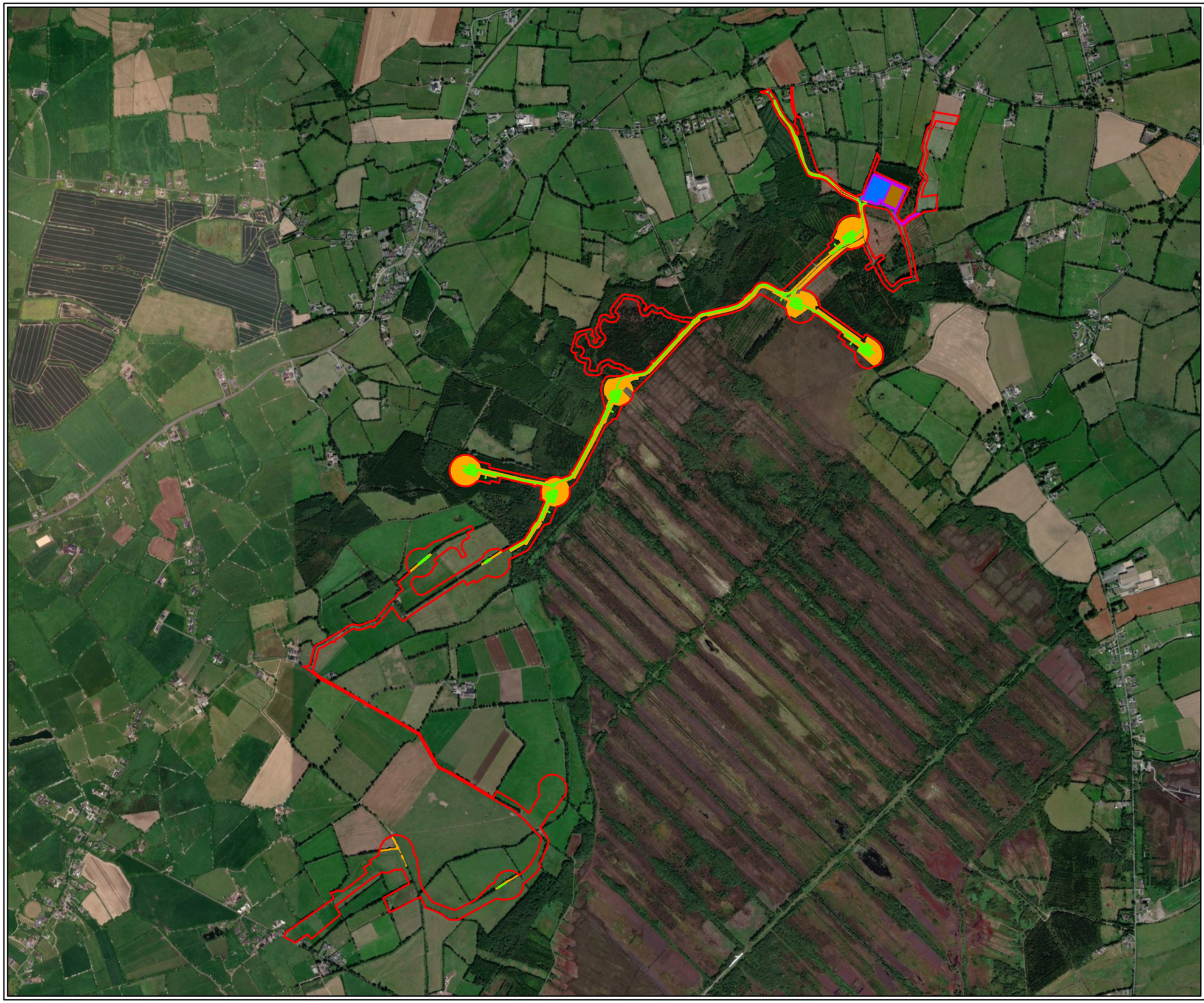

Legend

- Proposed Development Boundary
- Wind Farm Felling outside infrastructure
- Wind Farm Infrastructure Felling
- Substation Felling Outside Infrastructure Footprint
- Peat Deposition Area Permanent Footprint
- Substation Grid Permanent Footprint

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TITLE:	Felling Area		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.7		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:20,000	**REVISION:**	0
DATE:	29/05/2025	**PAGE SIZE:**	A3

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3.5 Project Construction

3.5.1 Construction Activities

In the event that the Board decides to grant planning permission for the Proposed Development, tree felling, upgrading of existing site tracks and the provision of new site tracks will precede all other activities. Drainage infrastructure will be constructed in parallel with the track construction. This will be followed by the construction of the turbine foundations and the provision of the hardstanding areas. In parallel with these works the on-site electrical works i.e. the sub-station and internal cable network as well as connection works to the national grid will be completed. Construction techniques are outlined in the CEMP in Appendix 3-2.

The hours of construction activity for the project will be limited to avoid unsociable hours as set out in the CEMP in Appendix 3-2 and will be agreed with the local authority in advance on commencing works. It should be noted that it may be necessary to commence turbine base concrete pours earlier due to time constraints incurred by the concrete curing process. Delivery of oversized wind turbine components (i.e. blades, nacelles and towers), will occur outside of these times to minimise traffic nuisance and in line with any typical abnormal load license conditions imposed by the various relevant granting Local Authorities. Also, for turbine erection phase due to weather constraints it might be needed to carry out works outside the construction times. Work on Sundays or public holidays will only be conducted in exceptional circumstances or in an emergency. Additional emergency works may also be required outside of normal working hours as quoted above. Further details on working hours and restrictions of same are provided in the CEMP in Appendix 3-2.

3.5.2 Construction Programme

The construction of the Proposed Development in its entirety is expected to take 18 months. The proposed construction programme upon which assessments in the EIAR have been based is presented hereunder.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Main Construction Element																		
Site Establishment																		
Site Roads																		
Hardstands 11no																		
Foundations 11no																		
Internal Collector System																		
Substation Construction and LILO connection																		
WTG Delivery 11no																		
WTG Install 11no																		
Comissioning																		
Site Reinstatment and Demob																		

3.5.3 Construction and Environmental Management Plan

A Construction and Environmental Management Plan (CEMP) is contained in Appendix 3-2 of Volume 3.

The CEMP sets out the key environmental management measures associated with the construction, operation and decommissioning of the proposed project, to ensure that during these phases of the project, the environment is protected, and any potential impacts are minimised. The final CEMP will be developed further at the construction stage, on the appointment of the main contractor to the project to address the requirements of any relevant planning conditions, including any additional mitigation measures that are conditioned.

The CEMP document is divided into six sections:

Section 1: *Introduction* provides details on the existing site and the proposed project.

Section 2: *Existing Site Environmental Conditions* provides details of the main existing geotechnical, hydrological, ecological and archaeological conditions onsite. These conditions are to be considered by the Contractor in the construction, operation and decommissioning of this proposed project.

Section 3: *Overview of Construction Works*, this section provides an overview of the construction works proposed and drainage and sediment controls to be installed.

Section 4: *Environmental Management Plan (EMP)*, this section outlines the main requirements of the EMP and outlines controls for the protection of the environment for example soil management, waste management, traffic management, site drainage management, site reinstatement & decommissioning, habitat and archaeology management etc.

Section 5: *Safety & Health Management Plan,* this section defines the work practices, procedures and management responsibilities relating to the management of health and safety during the design, construction and operation of the proposed project.

Section 6: *Emergency Response Plan* contains predetermined guidelines and procedures to ensure the safety, health and welfare of everybody involved in the project and to protect the environment during the construction phase of the proposed project.

3.5.4 Traffic Management

A careful approach will be taken to planning the works to ensure minimal impacts on road users and the general public. There will be a small section of cable installed over circa 1.38km of the public road L50242 required in order to connect the northern and southern turbines. It is important to note that the road works and the associated impact will move as the works progress and therefore the impact along this one stretch of road will be temporary. Reasonable access to local dwellings, farms, and businesses is to be maintained at all times through trenching the cable in the grass verge adjacent to the carriageway for a section of the route. This prevents the requirement for full road closures throughout the cable route and allows for local access to be effectively maintained.

All other cabling for the Proposed Development will be contained within the red line boundary of the site. Careful traffic management will be required during the construction phase of the wind farm and substation.

A Traffic Management Plan is contained in the Construction Environmental Management Plan (CEMP) which is included in Appendix 3.2 of Volume 3.

Quarries and Associated Haul Routes

Statkraft have actively engaged with KCC to obtain their feedback and input into the identification of suitable haul routes within Kildare and have taken all recommendations made into account in the refinement of potential haul routing options.

The nearest suppliers of quarry stone (TII Class 6 products] is identified as Keegan Quarries, Trammon, Co. Kildare. The location of the quarry, and other surrounding quarries, are shown in Figure 3-8 and include the following:

Kilsaran Clonard, Kilrathmurray, Co. Kildare;
Keegan Quarries Clonard Ltd, Ballyonan, Co. Kildare;
Arkil Rathangan, Rathangan, Co. Kildare;
Roadstone Allen Naas, Co. Kildare;
Hanlon Concrete Products, Naas, Co. Kildare;
N & C Enterprises Ltd, Naas, Co. Kildare;
Flanagan Concrete Ltd, Rathangan, Co. Kildare;
L Behan Aggregates & Recycling Ltd, Rathcoole, Co. Dublin; and
Dillonsdown Quarry, Red Lane, Co. Wicklow.

The proposed haul routes for the delivery of materials associated with the construction of the scheme are indicated in Figure 3.8. This figure illustrates the various quarries in the locality of the site and the proposed routes from each of these to the proposed site entrance at its southern boundary, along the L5025 Derrymahon Road. It should be noted that a preferred quarry will be selected prior to construction from the list above, and the list is therefore included for assessment purposes only. As recommended by KCC, the Proposed Development will use the same haul route as the proposed expansion of the existing Waste Management Facility at Drehid.

The haul routes are primarily along regional and national roads, with additional local roads leading to the site. From the north and north-west, the R402 will be the principal haul route to and from the L5025 Derrymahon Road. From the south and east the M7/N7, R403 and R415 will be the principal haul routes. The R409 has been omitted from the proposed haul routes due to localised constraints at Cook Bridge, near Goatstown.

The nearest suppliers of quarry stone (TII Class 6 products] is identified as Keegan Quarries, Trammon, Co. Kildare. The location of the quarry, and other surrounding quarries, is shown in Figure 3-8.

All quarry materials required for the construction of the Proposed Development shall therefore approach the site from the north-west, turning left into the site entrance. This shall act as the main haul route for the construction phase of the project. HGV traffic will be removed from local roads to the east of the Proposed Development site and re-routed to travel along the regional road network as much as possible, as previous discussions with Kildare County Council deemed that the local roads to the east of the site were unsuitable for heavy vehicles.

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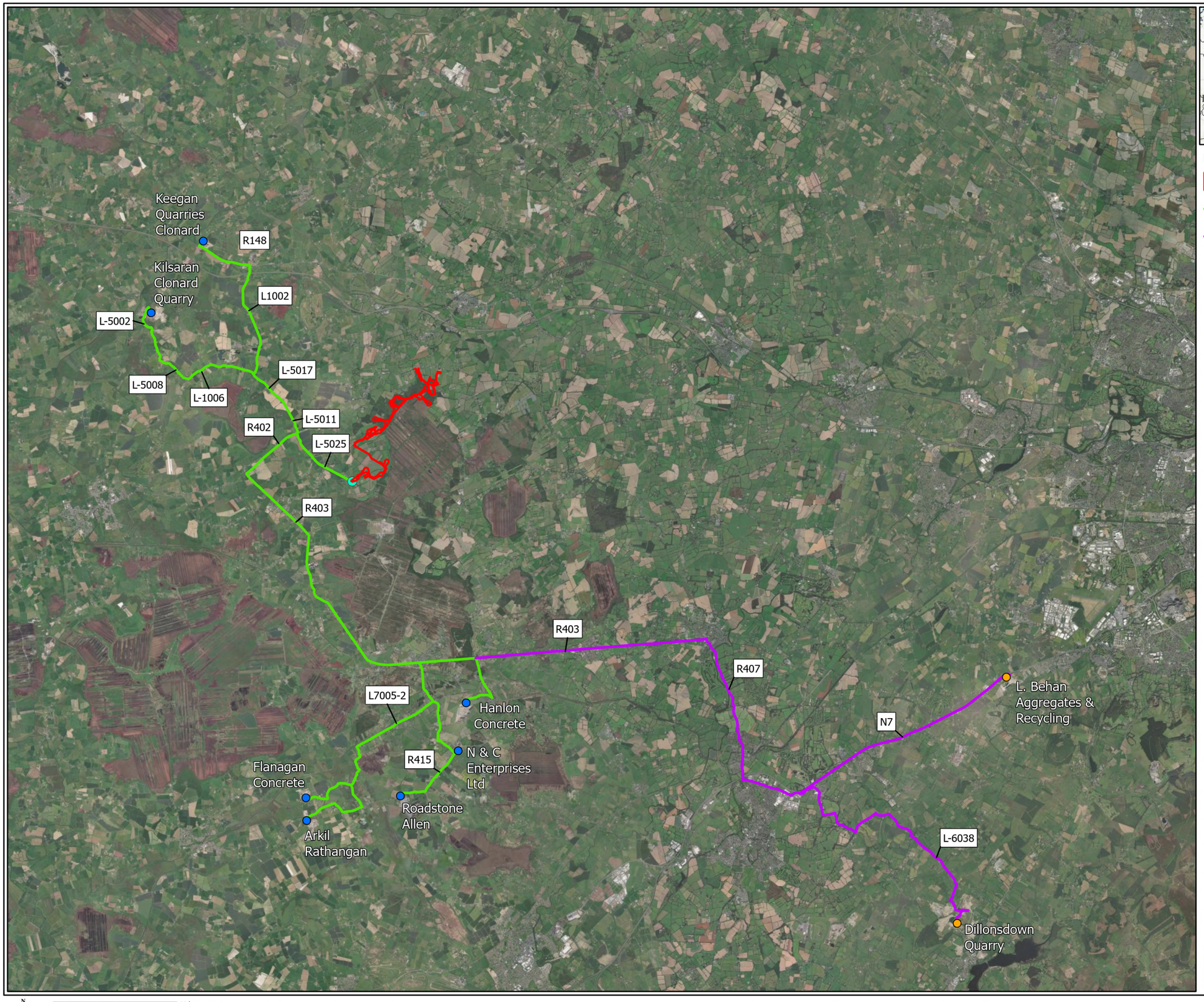

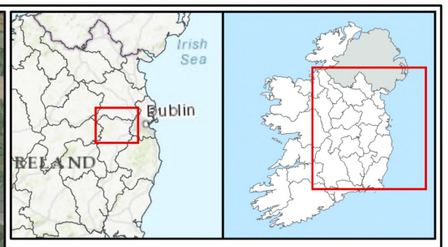

Legend

- Proposed Development Boundary
- Haul Route
- Haul Route (Less Preferred)
- Southern Entrance
- Quarries
- Less Preffered Quarries

TITLE:	Quarries		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	3.8		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:150,000	**REVISION:**	0
DATE:	29/05/2025	**PAGE SIZE:**	A3

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3.5.5 Soil and Peat Management

Management of all excavated soils and peat shall be carried out in accordance with the Soils Management Plan contained within the CEMP in Appendix 3-2. Any peat excavated for the construction of infrastructure within the site will be re-used on site in berms and for landscaping purposes and along the margins of the access roads. Topsoil will be re-used for landscaping and will also be used for reinstatement purposes around turbine bases and hardstanding areas. A peat deposition area is also provided adjacent to the Proposed Substation, as shown in the Planning Drawings which accompany the application for the Proposed Substation.

Further details on soils management can be found in Chapter 9 of this EIAR and the Soils Management Plan contained within the CEMP in Appendix 3-2.

3.5.6 Surface Water Management and Site Drainage

A key design philosophy employed for Proposed Development is the use of existing forestry and agricultural tracks and associated drainage alongside the implementation of Sustainable Drainage Systems (SuDS). This design approach ensures that existing drainage patterns will be maintained throughout the site.

An appropriate drainage design is the primary mitigation measure for the protection of waterbodies, incorporating silt protection infrastructure and control measures to reduce the rate of surface water runoff from the wind farm site.

The drainage system will be constructed alongside all turbine hardstands, internal access tracks, substation and the temporary construction compounds. The drainage system for the existing tracks and roads will largely be retained. Where the roads require widening, this will involve the re-location of existing roadside swales to allow for widening.

As standard and best practice approach, surface water runoff attenuation and drainage management are key elements in terms of mitigation against impacts on surface water bodies.

Two distinct methods will be employed in the management of construction surface water runoff. The first method involves keeping clean water clean by avoiding disturbance to natural drainage features, minimising any works in or around drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage water from works areas within the site that might carry silt or sediment, and to route them towards settlement ponds prior to controlled diffuse release over vegetated natural surfaces. There will be no direct discharge to surface water.

'Clean' water is separated from 'dirty' water utilizing interceptor drains as illustrated on diagram below. The interceptor drains will be installed on the upslope side of the construction area. This will reduce the amount of water from construction area that will need to be treated before it can be safely discharged into the environment. Collected clean water will be carried under wind farm infrastructures by cross drains at regular intervals to ensure the original hillside flow is not impeded. The maximum distance between the cross drains will be 250m. The cross drains will be connected to a diffuse outfall to allow collected water to disperse overland.

The proposed access tracks will be constructed from a permeable material which allows the runoff to infiltrate underground. The excess water will drain into the swales which will be connected, during the construction stage, to the settlement ponds. The settlement ponds will have a diffuse outfall which will disperse the flow across the site. On completion of the works, the settlement ponds will be filled in and the swales will be connected to a diffuse outfall.

The proposed access roads and associated drainage infrastructure will follow contours as much as possible to reduce the gradient of the road and road drains (swales). This will reduce velocities within the swales, and consequently erosion.

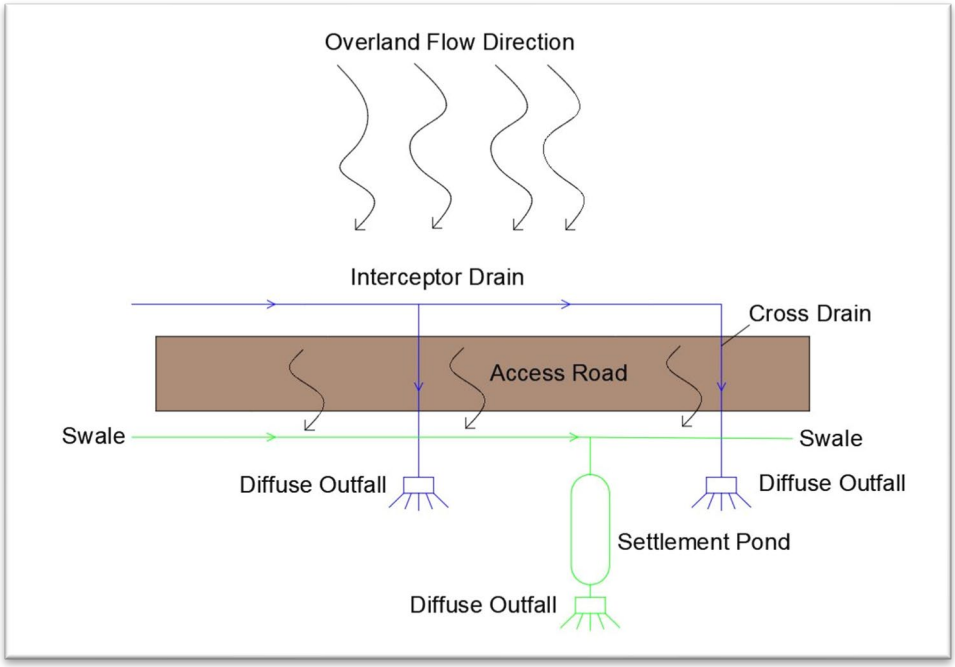

Figure 3-9: Drainage Diagram

The settlement ponds will be designed in the accordance with CIRIA C648. The volume of a settlement pond is in relation with area draining into it. Any upslope runoff from site should be diverted from ponds. This is achieved by interceptor drains as discussed above.

Suspended solids will settle out only when the water is still. It is necessary to retain the water in the settlement pond for several hours to allow the suspended solids to settle out. Retention time depends on the particle size, disturbance of the water, depth of water, temperature and particle density. Retention time of 2h is applied for designing the ponds as suggested in CIRIA C648. This will allow silts to settle out.

CIRIA C648 recommends designing the outfall from the ponds to accommodate 1 in 10 years storm event, for this project the outfalls will be designed to accommodate flows associated with 1 in 100 year event. The settlement ponds will be 1.0m deep.

The existing access roads, where required, will be upgraded. The existing drainage infrastructure does not prevent mixing of clean and dirty water. It is proposed to improve drainage at these locations by implementing the drainage methodology proposed for new access roads.

Further details on hydrology and drainage are contained in Chapter 10 Hydrology and Water Quality and on accompanying planning application drawings. The proposed drainage for the Proposed Wind Farm is shown on Planning Drawings P22-242-0100-0002 to P22-242-0100-0006, and at a closer scale in the -0101 series of planning drawings (P22-242-0101-0001 to P22-242-0101-0040). The proposed drainage for access tracks leading up to the Proposed Substation is shown on planning drawings 23727-MWP-00-00-DR-C-0107 to 23727-MWP-00-00-DR-C-0129. A drainage layout of the substation compound is presented as planning drawing 23727-MWP-00-00-DR-C-2100

3.5.7 Waste Management

A Waste Management Plan for the project has been included in the CEMP in Appendix 3-2.

The Developer, in conjunction with appointed contractor, will prevent, reduce, reuse and recover as much of the waste generated on site as practicable and ensure the appropriate transport and disposal of residual waste off-site to licensed facilities. The most appropriate waste facility has been identified as Drehid Landfill.

Drehid landfill is located at Killinagh Upper, Carbury, Co. Kildare, W91 RC82. The Waste License Reg. No. for the landfill is W0201 -03 and the facility accepts Non-hazardous household, commercial & industrial and construction & demolition (C&D) waste.

This is in line with the relevant National Waste Management Guidelines and the European Waste Management Hierarchy, as enshrined in the Waste Management Act 1996, as amended.

Any waste generated during the project construction phase will be collected, source separated and stored in dedicated receptacles at the temporary compound during construction. It will be the responsibility of the contractor for the main construction works (when appointed) to nominate a suitable site representative such as a Project Manager, Site Manager or Site Engineer as Waste Manager who will have overall responsibility for the management of waste.

3.6 Project Operation and Lifespan

During the operational period, the turbines will operate automatically on a day-to-day basis, responding by means of anemometry equipment and control systems to changes in wind speed and direction. The turbine manufacturer or a service company will carry out regular maintenance of the turbines. Scheduled services will typically occur quarterly.

The operation of the wind turbines will be monitored remotely, and an operative working from a remote headquarters will oversee the day to day running of the Proposed Wind Farm.

The applicant requests the grant of permission is on the basis of a 35-year operational period from the date of full operational commissioning of the wind farm, with permission for the onsite substation sought in perpetuity given that the substation could form part of the national electricity network.

35 years is the anticipated minimum 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 be optimum from an environmental viewpoint, particularly in relation to carbon savings.

Community Gain

North Kildare Wind Farm Ltd. are committed to implementing a community benefit package. Following consultation with the local community a number of measures are being considered which seek to bring opportunities for real environmental, economic and social benefits for the local area.

The Community Benefit Package which is being proposed for this project has been directed by feedback from ongoing consultation with the local community. Those spoken to in the local area felt that the project should bring with it real and tangible benefits for the local community and that these should be developed at an early stage from operation of the wind farm. It was also felt that there should be an opportunity for households in the area to receive a return from the project and that those closest to the wind farm should benefit most. In terms of developing a Community Benefit Package which would address these high-level aspirations, the applicant is proposing the following schemes:

3.6.1 Renewable Energy Support Scheme (RESS)

In May 2024, the government produced the Terms and Conditions for the fourth Competition under the Renewable Electricity Support Scheme known as RESS4. The document sets out the terms and conditions that will apply to the 4th competition to be conducted under RESS and to the ongoing administration of awards made in the RESS 4 Auction.

As set out in the terms of the Renewable Energy Support Scheme (RESS), all renewable energy projects applying for RESS are required to establish a Community Benefit Fund prior to Commercial Operation of the relevant RESS 4 Project. With effect from the Commercial Operation Date a RESS 4 Project shall be required to make a contribution of €2/MWh of Loss-Adjusted RESS Metered Quantity for all RESS 4 Projects

Furthermore, as part of RESS 4, the Community Benefit Fund will provide €1,000 that shall be paid to each household located within a distance of a 1 kilometre radius from the Onshore Wind RESS 4 Project. The 1-kilometre distance specified is measured from the base of the nearest turbine of the RESS 3 Project to the nearest part of the structure of the household, the location of which is identified in the An Post's GeoDirectory.

3.6.2 Recreational Amenity Trail

As part of the Proposed Development it is proposed to enhance the existing walking trail from the local road to the north of the site. This Recreational Amenity Trail will consist of 2 routes – a shorter 1.2km loop in the northern section of the site and a longer route incorporating this route and other existing tracks and new site roads which is ca. 4km which will be open to the public as a walkway. This trail can be used by the local community and will be suitable for a number of activities including walking, cycling, bird watching, nature and wildlife exploration. The Amenity Trail will include an area for safely storing bikes and picnic areas with interpretative information provided to add to the experience.

3.7 Project Decommissioning

On decommissioning, cranes will disassemble the above ground turbine components which will be removed off site for recycling. All the major component parts are bolted together, so this is a relatively straightforward process.

The foundation pedestals will be covered over and allowed to re-vegetate naturally. Leaving the turbine foundations in situ is considered a more environmentally sensible option as to remove the reinforced concrete associated with each turbine would result in environmental nuisances such as noise and vibration and dust.

It is proposed that all the internal site access tracks and turbine hard standings will be left in place. These will continue to be used for forestry and agriculture. Turbine foundation and hardstanding areas will be covered over with topsoil previously stripped and used for landscaping purposes during the construction stage and left to revegetate naturally.

The temporary accommodation works along the TDR will not be required for the decommissioning phase as turbine components can be dismantled on site and removed using standard HGVs.

Grid connection infrastructure including the on-site substation and ancillary electrical equipment will form part of the national grid and will be left in situ.

It is expected that the decommissioning phase will take no longer than 6 months to complete.

The key site targets are as follows;

- Ensure decommissioning works and activities have minimal impact/disturbance to local landowners and the local community;
- Ensure decommissioning works and activities have minimal impact on the natural environment;
- Adopt a sustainable approach to decommissioning; and,
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows;

- Using recycled materials, if possible, e.g. soil and overburden material for backfilling and reinstatement;
- Ensure sustainable sources for materials supply where possible;
- Avoidance of any pollution incident or near miss as a result of working around or close to existing watercourses and having emergency measures in place;
- Avoidance of vandalism;
- Keeping all watercourses free from obstruction and debris;
- Correct implementation of the sustainable drainage system (SuDS) drainage design principles;
- Keep impact of decommissioning works to a minimum on the local environment, watercourses, and wildlife;
- Correct fuel storage and refuelling procedures to be followed;
- Good waste management and housekeeping to be implemented;
- Air and noise pollution prevention to be implemented;
- Monitoring of the works and any adverse effects that it may have on the environment. Decommissioning methods will be altered where it is found there is the potential to have an adverse effect on the environment;

It is important to note the limitation that we do not know what methodologies and efficiencies will have evolved in the decommissioning of wind farms by the year the Proposed Wind Farm would be decommissioned, but an impact assessment will be made throughout this EIAR based on assumptions. In general, it is assumed that the impacts associated with decommissioning are similar to those associated with the construction stage, but of a lesser magnitude.

3.7.1 Wind Turbines

Prior to any works being undertaken on wind turbines, they will be disconnected from the grid by the site operator in conjunction with ESB Networks and EirGrid. The dismantling and removal of wind turbines of this scale is a specialist operation which will be undertaken by the turbine supplier that completed the installation where possible. Turbine dismantling will be undertaken in reverse order to methodology employed during their construction. A number of large-scale cranes will be brought back to site utilising the existing hard stand areas. The dismantling of turbines will be bound by the same safety considerations as was the case during construction in terms of weather conditions where works will not be undertaken during adverse weather conditions and in particular not during high winds.

On decommissioning, the turbine blades will most likely be broken down on site, negating the requirement for extended articulated trucks that would have been necessary to deliver the blades to site for construction. The destination of the turbines post decommissioning is unclear at this time and will be subject to an assessment of potential for recovery of parts.

The transport of disassembled turbines from the site will be undertaken in accordance with a Transport Management Plan which will be issued to and agreed with the competent authority at that time as part of a permit application for the delivery of abnormal loads using the local roads under the Road Traffic (Special Permits for Particular Vehicles) Regulations 2007. The Transport Management Plan will provide for all necessary safety measures, including a convoy and Garda escort as required, off-peak turning/reversing movements and any necessary safety controls.

3.7.2 Turbine Foundations

On the dismantling of turbines, it is not intended to remove the concrete foundation from the ground. It is considered that its removal will be the least preferred options in terms of having potential effects on the environment. Therefore, the eleven turbine foundations will be backfilled and covered with soil material from areas of earthworks. The soil will be spread and graded over the foundation using a tracked excavator and revegetation allowed to occur naturally.

3.7.3 On-site Underground Cabling (for Turbines)

The electrical and fibre optic cabling that connects each turbine will be removed from the cable ducting. The cabling will be pulled from the cable duct using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at each of the joint bays/pull pits along the cable. The road will be excavated using a mechanical excavator at each cable pulling pit location and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance for an underground element that is not visible.

The 110 kV cable and substation will remain in situ and will become an ESB/Eirgrid networks asset and will be part of the national electricity grid and therefore it is not proposed to remove this cable.

3.7.4 Transport Route Accommodation Works

During the construction of the Proposed Development , a number of minor accommodation works are proposed on the public road to facilitate the delivery of turbines to the site at construction stage. It is not envisaged that these accommodation areas will require re-use during decommissioning as the accommodation works are primarily associated with delivery of the largest components i.e. the blades. It is expected that during decommissioning the blades will be split on site into smaller pieces for recycling or disposal, depending on the recycling and waste streams available at the time of decommissioning. As the tower of the turbine can be disassembled into its component parts during decommissioning, it is not anticipated that any abnormal loads will be such that they would require re-use of the accommodation works associated with the construction phase.

3.8 References

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