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A SUSTAINABLE FUTURE

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Construction and Environmental Management Plan (CEMP)

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

Construction and Environmental Management Plan (CEMP)

Prepared for:

Dara Energy Ltd.

Dara Energy Limited

Date: **September 2025**

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CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT

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Keywords: Mitigation, Compliance, Monitoring, Pollution Prevention, Surface Water Management, Waste Handling, Noise Control, Dust Suppression, Ecology.

Abstract: This document is a Construction and Environmental Management Plan (CEMP) for the construction of Derrynadarragh Wind Farm.

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1. INTRODUCTION

1.1 General Introduction and Purpose

This document is the Construction and Environmental Management Plan (CEMP) for the Proposed Development and has been prepared by Fehily Timoney and Company (FT) on behalf of Dara Energy Ltd.

The CEMP will be a key construction contract document, and the appointed contractor will be obliged to implement it in full. It will be updated by the Contractor prior to construction to take account of any relevant conditions attached to the planning permission and will be implemented for the duration of the construction phase of the Proposed Development. The CEMP also includes measures for the operational and decommissioning phase of the Proposed Development. Decommissioning of the Proposed Development is intended to take place following its 35-year operational life. General guidance for the decommissioning of the Proposed Development is contained in Section 4.3.1 of this CEMP.

The CEMP will be a live document and will be subject to ongoing review through regular environmental auditing and site inspections. The measures in the CEMP will be implemented in full and further measures may be added as may be identified from the auditing and site inspections.

This CEMP sets out the key construction and environmental management issues associated with the construction of the Proposed Development, to ensure that the environment is protected and impacts on the environment are minimised.

The CEMP should be read in conjunction with the EIAR and NIS. In the case of any ambiguity or contradiction between this CEMP and the EIAR, the EIAR shall take precedence.

The document is divided into six sections:

Section 1: *Introduction* provides an overview of the existing site and the Proposed Development.

Section 2: *Existing Site Environmental Conditions* provides details of the main existing geotechnical, hydrological, ecological and archaeological conditions onsite. These conditions will be considered by the contractor in the construction, operation and decommissioning of this Proposed Development.

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

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

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

Section 6: *Emergency Response Plan* contains predetermined requirements 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 Development.

1.2 Statement of Authority

This CEMP was completed by Fehily Timoney and Company. The CEMP was drafted by Aoife Hurd and checked by Jim Hughes.

Aoife Hurd is a Senior Civil Engineer at Fehily Timoney and Company working in the Energy and Planning Department. She holds a First-Class Honours Bachelor's Degree and Master's Degree in Civil, Structural and Environmental Engineering from Trinity College Dublin. She is a member of Engineers Ireland (EI) and has experience working on residential, infrastructure and renewable energy projects at all stages from concept to construction. Aoife provides technical and engineering support to the EIAR teams for a variety of commercial scale renewable energy projects.

Aoife has experience in the preparation of Traffic and Transportation assessments, Air and Climate assessments, as well as other technical chapters associated with EIARs and environmental reports for renewable energy projects ranging from wind farms, solar farms, grid connections, battery energy storage systems and ancillary grid infrastructure projects. She also has experience in the design of renewable energy developments.

Jim Hughes holds a BA in Public Administration from the University of Limerick, an MSc in Town Planning from Queen's University Belfast and a HDip in Environmental Impact Assessment from University College Dublin. Jim has led and managed large infrastructure projects in Ireland in the planning, environmental assessment and permitting disciplines including many wind farm developments.

1.3 The Proposed Development

The key components of the Proposed Development include: The wind farm site, the grid connection, and the turbine delivery route.

A detailed description of the Proposed Development is contained in Chapter 2 of the EIAR. A detailed description of the proposed construction works is outlined in Section 3 of this CEMP.

An overview of the Proposed Development is shown in planning drawings submitted with the application and in EIA Figures included in Volume IV of the EIAR documentation.

1.3.1 The Site

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

The proposed development involves the construction of 9 no. wind turbines, each with a blade tip height of 186m, a hub height of 105m, and a rotor diameter of 162m. The project includes the installation of permanent turbine foundations, crane pads, and associated drainage, as well as the construction and upgrading of internal access tracks and existing tracks and associated drainage infrastructure. One main site entrance (off Regional Road R419) will be created, and an existing site entrance to the south will be upgraded.

Infrastructure works encompass extensive drainage and sediment control systems, including interceptor drains, cross drains, sediment ponds, and swales, as well as the installation of new watercourse crossings, including single-span bridge, open bottomed culvert and piped culvert within the Site. Removal and replacement of existing culverted watercourse and drain crossings along the cable route will also be required. A permanent 110 kV on-site electrical substation and compound will be constructed, with underground cabling linking turbines to the substation. Additional works include earthworks, peat and spoil management, and the installation of medium voltage electrical and communication cabling underground from the proposed turbines to the proposed on-site substation and Bracklone Substation. Accommodation works along the Proposed Turbine Delivery Route will also be implemented.

Refer to Chapter 2 of the EIAR for a detailed description of the proposed development.

1.3.2 Turbine Delivery Route

The Turbine Delivery Route will exit the M6 at junction 5 and continue southbound on the N52 southbound for 8.6km, then taking the second exit on the Ardan Roundabout and continuing on the N52 southbound for 2.9km which includes taking the second exit at Cappancur Roundabout to stay on the N52. At the Cloncollog Roundabout, take the first exit onto the R420 and continue south-east bound on the R420 for 6.6km. Then turn northbound onto the R402 and continue northbound on the R402 for 8.3km including going through the village of Ballinagar. In the village of Daingean, turn onto the R402 Edenderry and continue on the R402 eastbound for 5.6km. Then turn southbound on to the R400 and continue on the R400 southbound for 14.8km. Finally turn northbound on the R419 and continue northbound for 1km before arriving at the Site Entrance.

The TDR will be confined to the public road corridor except for locations where accommodation works will be required to facilitate the delivery of abnormal loads. The works to facilitate the delivery of turbine components to the Site are detailed in Chapter 2 of the EIAR. Please also refer to the Pell Frischmann Route Survey Review (RSR) in Appendix 14.1 and the Dara Energy Ltd. Amended Turbine Delivery Route Assessment Report in Appendix 14.2, EIAR Volume III.

A Traffic Management Plan is included in Appendix 14.3, Volume III of the EIAR. The objective of which is to always maintain the strategic capacity of the national routes, cognisant of the National Development Plan, 2021 – 2030, and to maintain all roads to a robust and safe standard for users. The Developer will adopt and further develop the Traffic Management Plan for agreement with the local Planning Authorities (Kildare County Council, Offaly County Council and Laois County Council) in advance of construction.

1.3.3 Grid Connection

It is proposed to connect the development to the national grid via underground cable to the existing Bracklone 110kV substation. Grid connection works joining the onsite 110kV substation to the existing 110kV Bracklone Substation. The grid connection will require 11.4km of underground 110kV electrical cabling. Works for the grid connection will involve trenching, laying of ducting, installing joint bays and watercourse crossing, pulling cables and the back filling of trenches and reinstatement works. The route which will run through 9.1km of existing public road, 0.3km in existing tracks and 2km in new access tracks on the wind farm site.

Connection works from the onsite substation to Bracklone substation will involve the installation of ducting, joint bays and ancillary infrastructure and the subsequent running of cables along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches and road surfaces. Details of proposed grid connection infrastructure are provided in planning application drawings.

It is expected that full road closures will be put in place to facilitate cabling works in combination with lane closures, partial road closures and stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time for residents of the area. These works will be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section. This is described in more detail in Chapter 14 - Traffic and Transportation.

In advance of the construction phase cable detection tools, a ground penetrating radar and slit trenches will be used, as appropriate, to verify the exact locations of existing services. The final locations of the proposed cable routes in the public roads and in the verge along the public road will be within the area indicated and assessed in this EIAR and will minimise conflicts with other services.

2. EXISTING ENVIRONMENT

2.1 Existing Environment Descriptions

2.1.1 The Site

The Site comprises approximately 208 hectares of land, and is contained within the townlands of Cushina, Clonsast Lower, and Chevychase or Derrynadarragh in County Offaly, and Aughrin and Derrylea in County Kildare. It is located within both the jurisdictions of Kildare County Council and Offaly County Council, approximately 1.7km south of the village of Bracknagh, 5km northwest of Monasterevin, and approximately 6.5km northeast of Portarlington.

The Site is in a sparsely populated rural context. The settlement patterns in the area consists of one-off rural housing fronting onto the road network in a linear rural settlement pattern. The Site is located within the lowland topography with predominantly flatlands and is located on the Derrylea Bog which is connected to Clonsast Bog to the north and Derryounce Bog to the west.

The Corrine Land Cover database for Ireland (based on interpretation of satellite imagery and national vector mapping data) identifies Quaternary deposits present at the site mostly comprise cut over raised peat. There are sections in the north and west of the site that are underlain by till derived from limestones, while the eastern section of the site is underlain by lake marl. The site is predominantly underlain by the Lucan Formation (dark limestone and shale) with a section in the north of the site underlain by the Ballyadams Formation (crinoidal wackestones/packstone limestone).

The main hydrology features within and adjacent to the proposed wind farmlands are the Figile River located immediately to the east of the proposed site. The Cushina River located within the southern section of the proposed site joins the Figile River approximately 1.2km to the east of the site. The Figile River then joins the Barrow River approximately 4.5km south-east of the site. This provides a connection to the River Barrow_090 lying to the south of the site.

According to the National Indictive Fluvial Mapping (NIFM) and Catchment Flood Risk Assessment, there are past flooding events extent associated with the Barrow County Kildare Drainage. Portions of the application site are contained within the flood extents of the River Cushina.

There are 2 no. European sites designated for nature conservation occur within a 5km radius of the potential wind farm site, the River Barrow and River Nore Special Areas of Conservation (SAC) (Site code: 002162), and the Grand Canal Proposed Natural Heritage Area (pNHA) (Site code: 002104).

The proposed wind farm site has designation for a number of habitats that are of ecological importance including treelines to the west of the site, woodland to the south-west and lowland rivers within the Cushina River. The proposed wind farm site also has designation for a number of fauna on site which include records of hare, a moderate-high value of Irish bat species, otter associated with the Cushina River and a number of identified badger sets within the site. The proposed site also has a number of river catchments located within the proposed site including the River Barrow Watercourse, River Figile Watercourse and the River Cushina Watercourse which are all dominated by coarse fish species.

3. OVERVIEW OF CONSTRUCTION WORKS

3.1 Construction Period

The construction of the Proposed Development in its entirety is expected to take 24 months.

3.2 Overview of Construction Sequence

The construction of a wind farm project is a major infrastructural project. The construction of this Project will involve many inter-related, inter-dependent and overlapping elements of a complex nature.

The following section outlines the construction methodology for the Project. Upon mobilisation for the construction of the development, peat excavation (where required), upgrading of existing site tracks, felling and the provision of new site tracks will precede all other activities. Construction stage drainage infrastructure will be constructed in parallel with the site clearance and track construction, elements of which will be adopted into and will accord with the Site's operational drainage as set out in the Planning Drawings. 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; sub-station and internal cable network will be constructed. The proposed grid connection works are anticipated to commence during month 16 in parallel of the proposed on-site wind farm works.

The proposed construction programme is presented in Table 3-1 below:

Table 3-1: Construction Programme

	Month																						
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Mobilisation and site setup																								
Site clearance and felling																								
Internal access tracks																								
Turbine hard standings																								
Turbine foundations																								
TDR accommodation works																								
Turbine Installation																								
Onsite substation																								
Grid connection works																								
Private electrical network and commissioning																								
Landscaping, reinstatement, demobilisation																								

3.3 Overview of Construction Methodology

Method statements are presented below for the key elements of the construction process. The contractor for the main construction works will, following appointment, take ownership, expand upon and generally develop these method statements appropriately for the construction stage, in accordance with this CEMP.

The proposed construction methodology is summarised under the following headings:

- Site Entrances;
- Temporary Site Compounds;
- Felling;
- Concrete Washout and Wheel Washing;
- New Site Access Tracks;
- Upgrade of Existing Internal Access Tracks;
- Drainage and Watercourse Crossings;
- Crane Hardstands;
- Turbine Foundations;
- Substation Compound;
- Electrical Works;
- Internal Wind Farm Cable Works;
- Turbine Installation;
- TDR Accommodation Works.

The construction methodology of the GC works is contained in Appendix A of this CEMP. Any temporary reinstatement of road excavations associated with the GC will be as follows, with permanent reinstatement as per TII / Local Authority Requirements:

- Hot works permit to be issued for the area of works for the area to be reinstated.
- A grader (if required), Roller and mini-patch planer will be delivered to site by low-loader. A 2 - in - 1 Tar - and Chipper or patch sprayer will be driven to site.
- A mini patch planer will be attached to a skid steer and will plane a fresh cut line along the verge of the trench.
- The trench fill material will be graded to shape the trench to match the existing camber of the carriageway and compacted using a drum roller.
- The Tar - and - Chipper will make first pass of one metre wide.
- Once the bitumen emulsion and chips have been dispensed from the 2- in 1 Tar and chipper and the drivers cab is clear of the area, the roller will follow and compact the chips into the emulsion.
- If the 2 - in - 1 - Tar - and - Chipper is not being used, a towable emulsion sprayer will be used. This involves the towable sprayer being towed by a pickup truck, and an operative spraying the trench area by means of a lance from the unit.
- The emulsion is heated up to 70°C.The operator will wear protective overalls, heat resistant gloves and eye protection.

- The emulsion is sprayed out to cover the existing trench fill where a follow up crew will spread surface dressing chips over the sprayed area at a safe distance of 5m from the lance.
- Compaction will then take place by a drum roller.
- Both the 2 - in - 1 - Tar - and - Chipper and towable sprayer will have internal diesel burners, with no exposed naked flame.
- Delay set macadam may also be used, 75mm of delay set macadam shall be placed within the trench at the end of each working day, by means of skid steer and trench reinstatement bucket and compacted.

Figure 3-1: Towable Sprayer for Temporary Reinstatement

3.3.1 Site Entrances

The Proposed Wind Farm will include a new site entrance along the R419 Regional Road to serve as construction and operation access to the proposed wind farm and onsite 110kV substation, an additional access from L-70481 will be used for construction on the south of the river Cushina, prior to completion of the bridge crossing.

The new site access has been selected with consideration for safety of public road users, construction staff and to ensure that it can be constructed to comply with the requirements of Offaly County Council, Kildare County Council, and TII design requirements for direct accesses.

During the construction phase, standard HGVs shall use the existing southern access, located within Co. Kildare, if transporting materials prior to on-site bridge being constructed. Otherwise, all construction traffic shall use the main northern access, located in Co. Offaly.

The onsite 110kV electrical substation will be accessed from the existing site entrance to the south.

All HGV traffic travelling to the site shall only be permitted to use approved transport routes and site access points as identified in the Traffic Management Plan (TMP) contained in Appendix 14.3, Volume III of the EIAR.

3.3.2 Temporary Site Compounds

During the construction phase, it will be necessary to provide temporary facilities for construction personnel. There will be 2 no. temporary compounds which will include temporary self-contained welfare facilities (e.g. ecopod type) and offices. The location of the temporary site compounds is shown in the Planning Drawings accompanying the application. Wheel wash facilities will be provided within the site near the site entrance point.

The temporary site compounds will be established by removing topsoil down to a firm substrate, laying down geotextile material and then constructing a working surface of stone sourced from within the Site, and surrounded by security fencing. The topsoil will be removed and stored in accordance with the Peat and Spoil Management Plan contained within Appendix B of this CEMP.

Temporary facilities will be removed, and the lands reinstated on completion of the construction phase.

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

- site offices, of Portacabin type construction
- Portaloos
- bottled water for potable supply
- a water tanker to supply water used for other purposes
- canteen facilities
- material/non-fuel storage areas
- employee parking
- specially constructed bunded fuel / oil storage to ensure that fuel spillages are fully contained (such bunds shall be roofed to exclude rainwater)
- contractor lock-up facility
- diesel generator (within bunded area)
- waste management areas

3.3.3 Felling and Site Clearance

Permanent felling of approximately 0.28 ha of forestry is required at the main entrance to the Site. It should be noted that the clear-felling of trees in the State requires a felling licence. The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority and is responsible for all forest licensing which is governed by the Forestry Act 2014 as amended and the Forestry Regulations 2017 (S.I. No. 191 of 2017). A felling licence will include the provision of relevant replant lands (afforestation area) to be planted in consideration for the proposed tree felling on the Site. The associated afforestation of alternative lands equivalent in area to those lands being permanently clear-felled is also subject to licensing ('afforestation licensing').

The area of trees to be felled will be minimised to only that required to accommodate the Proposed Development.

The contractor will not commence tree removal on site until both felling and afforestation licences are in place.

Tree felling, trimming and site clearance will not be carried out during the bird breeding season which commences on March 1st and finishes on August 31st. All site clearance / enabling works will be preceded by survey and inspection by an Ecological Clerk of Works for the presence of any species or habitats protected by Law in accordance with the TII's "Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes". The following confirmatory surveys, as specified within the Biodiversity chapter, will be undertaken by the Ecological Clerk of Works (who will be suitably qualified and competent to undertake such surveys) in accordance with the methodologies set out in the EIAR, prior to the commencement of Construction, in order for the Contractor to ensure the most relevant mitigation measures are included in the Design and Construction:

a) An otter survey 200m upstream and downstream of the footprint of all watercourse crossings to identify holt / couch locations and need for mammal passage/mitigation;
b) A bat survey of trees to be felled in accordance with the NRA Guidelines for the Treatment of Bats Prior To the Construction of National Road Schemes (a visual inspection of the tree during daylight hours followed by a nighttime detector survey);
c) A badger survey within 150m of all works areas;
d) A common frog surveys along all drain crossings (and spawn survey) during the breeding season of common frog (approximately January – midsummer). Spawn translocation may be required under licence where active breeding drains are within the development footprint during the construction phase.
e) An invasive plant species survey of all watercourses and lands within the footprint of the Works.

If any such species or habitats are found, as a result of such survey and inspection, the Contractor will undertake the following:

- Record and report the ecological data in accordance with the requirements of the National Biodiversity Data Centre (NBDC);
- If mitigation measures for such species or habitats have not been identified in the EIAR for that area of the Site, the Contractor will, consult with the National Parks and Wildlife Services and the Inland Fisheries Ireland as appropriate to determine and implement appropriate mitigation for the species / habitat.

3.3.4 Concrete Washout Area and Wheel Washing

Detailed measures to control concrete runoff during the Construction stage of the Proposed Development are included in Chapter 12 - Flooding, Hydrology & Water Quality of the EIAR and will be implemented as part of the Works. A summary is provided hereunder.

All concrete will be delivered to site via ready-mix trucks from a local supplier.

Concrete trucks will not be washed out on Site. Where chutes, hoppers/skips and equipment (e.g. vibrating wands) associated with concrete works need to be washed down this will be done into a sealed mortar bin / skip with the appropriate capacity, and which has been examined in advance for any defects. The location of wash down areas will be set back as far as practically possible from any drain or watercourse, and a minimum of 50m. The residual liquids and solids will be disposed of off-site at an appropriate licenced waste facility, as shown in Table 4-2 of this CEMP.

Wheel wash facilities will be located near the site entrance to reduce construction traffic fouling public roads. Each wheel wash will come with an additional water tank which will be filled regularly. These units will be self-contained and will filter the waste for ease of disposal. Silt will be removed from each unit and from site by a licensed contractor.

3.3.5 New Site Access Tracks

The Proposed Wind Farm will include the construction of 9.36 km of new internal access tracks and the upgrading of 0.55km of existing tracks and associated drainage infrastructure. 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 Proposed Development. The internal road layout has taken into account the following key factors:

- Buildability having regard to existing ground conditions and land drainage;
- Minimise watercourse crossings;
- Sustainability by avoiding habitats of higher value and making use of existing tracks and roads;
- Optimising cut/fill balance.

All access tracks will be approximately 4.5-5 m wide along straight sections and wider at bends as required. The tracks will be finished with a well graded aggregate. The drainage system will be installed adjacent to the internal access tracks.

Internal wind farm access tracks shall be a constructed by a combination of founded and floating methods as required. There is approximately 2.1km of floated access track within the site which has been determined by geotechnical walkovers and detailed site investigations.

Floating Method

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, within excavated width, along sides of the track.
- Surplus excavated material 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.

Where the underlying peat has insufficient bearing capacity or due to topographic restrictions an excavate and replace type access road may be more suitable, although this is not anticipated at the location of the floated roads.

Founded Method

This method will consist of either one or two layers of stone depending on the load bearing capacity of the base layer. Where the underlying layer is mineral subsoil, two layers of stone are used; a stone capping layer and running layer. Construction details are outlined in the planning drawings.

In areas where the load bearing layer is rock, the capping layer is omitted, and the running layer is installed directly onto the rock surface. Drainage runs and associated settlement ponds will be installed.

Track construction details will be implemented as follows:

- Establish alignment of the new site tracks from the construction drawings and mark out the centrelines with ranging rods or timber posts.
- The access tracks will be of single-track design with an overall width of 5m. There will be some local widening on the bends as shown on the design drawings, junctions and around Turbine Foundations for the safe passage of large vehicles. All bends have been designed to suit the requirements of the delivery vehicles.
- All machinery shall work within the consented areas as identified on planning and contract drawings.
- All access for construction vehicles within the site will follow the proposed internal access tracks as shown in planning drawings.
- Topsoil/subsoil will be stripped back to required levels. Excavated material 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.
- The soil will be excavated down to a suitable formation layer of either firm subsoil or rock.
- The formation will be prepared to receive the geotextile membrane.
- Well-graded granular fill will be spread and compacted in layers to provide a homogeneous running surface. The thickness of layers and amount of compaction required will be decided by the Site Manager based on the characteristics of the material and the compaction plant to be used.
- Batters will have a slope of between 1:1 and 1:5 (depending on depth and type of material) and will be left as cut to re-vegetate naturally with local species.

3.3.6 Upgrade of Existing Internal Access Tracks

There is 0.55km of existing track upgrades and associated drainage infrastructure required. Existing track upgrades shall follow the same outline methodology as for new access tracks.

Existing drainage infrastructure will be maintained and upgraded where necessary and to the same standard as the proposed drainage infrastructure in accordance with the drainage design and Surface Water Management Plan (within the Appendix C of this CEMP). Any new drainage systems required will be installed adjacent to the internal access tracks.

3.3.7 Drainage and Watercourse Crossings

A Surface Water Management plan has been prepared which can be found in Appendix C of this CEMP. It contains methodology for drainage, water quality management and silt control. The measures contained within the plan will be applied by the Contractor.

Within the Site there are 41 drain crossings and 26 watercourse crossings, which are shown in Table 3-1 of the SWMP in Appendix C.

It is proposed to install 1 no. clear span bridge crossing where the internal wind farm access track crosses the Cushina River. Refer to Drawing no. P22-145-0300-0001for details. It is also proposed to install a new watercourse crossing along the TDR comprising a 1 no. single span bridge crossing at Daingean River/Philipstown Bridge to avoid the R400 / R402 junction.

In addition to the above clear span bridge crossings, the design includes, 14 no. open-bottomed box culvert crossings and 28 no. piped culverts.

The proposed crossing designs have been designed in line with Inland Fisheries Ireland (IFI) requirements for salmonid watercourses as included in their 2016 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters' and TII 2008 'Guidelines for the Crossing of Watercourses During the Construction of Road Schemes'. Details of proposed crossing structures are presented in 0500-Series planning application drawings.

Drainage design and watercourse crossing details can be found on the 100 series and 500 series planning drawings.

Clear Span Bridge Details and Construction Methodology

The abutments for the bridge will be founded on reinforced concrete pad footings. An excavator will be used to reach the subgrade on which the concrete pads will be founded. The excavations will be set back 2.5m from the banks of the river. Based on site investigations the approach embankments to the bridge structure can be founded directly on existing stratum.

Dewatering of the excavations as per the Surface Water Management Plan will likely be required through sump pump or alternative means until completion of the footings. A layer of Class 6N2 fill will be laid as a regulating layer on top of the subgrade. A 75mm thick blinding concrete will be placed over the full extent of the rectangular foundation to produce a clean flat surface for the wet structural foundation concrete. The reinforcement cage for the pad footing will be fixed and tied with bars protruding vertically for subsequent concrete pours. Formwork will be placed around the perimeter of the footing ensuring sufficient concrete cover to the reinforcement. Approximately 18m3 of concrete will be required for each abutment bank seat pad and will be delivered to site by ready mix trucks. The concrete will be placed in the formwork using a hopper or concrete pump and vibratory poker used to remove air bubbles.

Once the pad footing has achieved sufficient strength, the reinforcement for the abutment upstands will be cut, tied and fixed into position. A vertical formwork will be placed around the perimeter of the abutment wall. Each abutment upstand will require approximately 13m3 of concrete which will be placed using a hopper or concrete pump. A vibratory poker will be used to remove any air pockets. Once the formwork has been removed and the concrete has cured, a waterproofing membrane will be applied to the concrete. At the top of the upstands, seatings for the precast deck beams will be prepared at the correct levels.

The bridge deck will be set above the 1% AEP flood height (100-year event) and will be made up of precast concrete beams with a clear span of c.15m. The beams will be precast off site and delivered to site on a flatbed truck. A crane will be used to lift the beams into position onto the seatings formed on top of the abutment upstands. Side forms for the edge parapet beams will be secured and reinforcement for the deck slab and parapet edge beams will be cut, tied and fixed into position with bars protruding vertically from the edge beams for subsequent concrete pours for the concrete parapets. The bridge deck slab and edge beams will be concreted to the finished level. Once the deck slab has reached sufficient strength the abutment walls will be backfilled with a granular fill to access track formation level.

The bridge deck parapets will be constructed from reinforced concrete. Reinforcement for the parapets will be fixed to lap with the starter bars from the edge beams. Vertical formwork will be erected and secured in place. An in-situ pour will be carried out to cast the parapets to the design height and vibratory poker used. Once the parapets have reached sufficient strength the formwork will be stripped. The deck surfacing is to be formed using an ST1 concrete mix. This will be placed on top of the deck slab with a minimum thickness of 100 mm and with a crossfall from the centre of the deck to the parapet to allow water to drain.

Ducts for the later pulling of power and communication cables for the wind farm will be pre-cast into the bridge deck sections.

Construction of the water crossing will be scheduled to align with fisheries seasonal restrictions and will not be undertaken during a period of flooding.

Vehicular access to the crossing location shall be available from both sides of the watercourse.

The access track on the approach to the watercourse will be completed to a formation level which is suitable for the passing of plant and equipment required for the installation of the watercourse crossing.

All drainage measures, including check-dams and /or silt traps, along the proposed access track will be installed in advance of the works along with the first layer of access track construction.

All earthworks adjacent to the crossing locations will be carried out to prevent soil entering the watercourse and will be in accordance with the Soil Management Plan.

Further details on hydrology and drainage are contained in Chapter 12 - Hydrology and Water Quality, the Surface Water Management Plan (SWMP) which is contained in Appendix C and on accompanying planning application drawings.

Bottomless Culvert and Piped Culvert Construction Methodology

Culverts will be made of precast units which will be sized specific to the hydraulic capacity required relative to the characteristics of the watercourse to be crossed. The crossing angle for the culverts will be set out in relation to access track alignment and the existing watercourse channel. The project engineer will determine the required gradient of the culvert. Standard details for piped and bottomless culverts are provided in the Planning Drawings.

The access track on the approach to the channel will be completed to a formation level which is suitable for the passing of plant and equipment required for the installation of the culvert crossings.

The culverts will be installed on-line (i.e. within the existing channel) and the works will be carried out under dry conditions in accordance with IFI (2016) 'Guidelines on protection of fisheries during construction works in and adjacent to waters'. The watercourse flow will be diverted by over pumping or by fluming the flow as appropriate to facilitate construction of the culvert in dry conditions. The installation of the culvert will take place in low flow conditions. Mitigation for the protection of sensitive biological receptors when fluming / over pumping are presented in Chapter 9 – Biodiversity.

For piped culvert, the bed of the watercourse will be taken down to the desired levels to create a suitable platform for laying the culvert. The pipe culvert will be lifted into place with excavator with a lifting mechanism / crane and will have an invert level 500 mm below the existing watercourse bed level. The embedded section will be allowed to fill naturally.

For bottomless box culvert, the base will be excavated to rock or competent ground with a mechanical excavator with the foundation formed in-situ using a semi-dry concrete lean mix foundation and concrete panels. The base will be excavated along the stream bank with no instream works required. The bottom plate of the culvert will be bolted to the foundation on both sides of the watercourse. The top section of the culvert will be bolted together and lifted into position and bolted to the two bottom sections. Once the culvert is in position stone backfill will be placed and compacted against the culvert up to the required level above the foundations. A concrete beam will then be shuttered, fixed and poured along the two shoulders of the culvert. When the concrete beams are cured the filling and compaction of the access track will be completed.

Minor Stream / Drain Crossing Construction Methodology

All minor streams or drains within the Site (not identified as Rivers by the EPA in their reporting under the Water Framework Directive) which are crossed by the wind farm infrastructure will be collected by interceptor drains and carried under the access track by cross drains. Further details on the locations of such cross drains are provided in the Surface Water Management Plan in Appendix C and on accompanying planning application drawings.

The cross drains will be an appropriately sized pipe buried in the sub-base of the access track at the necessary invert level to ensure ponding or pooling doesn't occur above or below the cross drain and water can continue to flow as necessary.

For a minor stream/drain crossing the following will be employed:

- The access track construction will finish at least 10m from the nearside bank of the minor stream/drain.
- All environmental mitigation measures, described in detail in Chapter 12 - Hydrology and Water Quality and Chapter 9 - Biodiversity, will be implemented locally in advance of the works, in accordance with the measures outlined in the Surface Water Management Plan (SWMP) in the CEMP in Appendix C.
- The pipe is laid in one lift or in sections using a lifting mechanism attached to an excavator.
- Rock armour headwalls will be constructed where necessary to protect pipe ends and the base of slope embankments on either side of the track.

Instream works will only take place during the period July to September (as required by IFI for instream works).

Operation of machinery in-stream will be kept to an absolute minimum. All construction machinery operating in-stream will be mechanically sound to avoid leaks of oils, hydraulic fluid, etc. Machinery will be checked prior to commencement of in-stream works.

Before contact with water is made, any equipment or machinery that will be used in the water, including Personal Protective Equipment (e.g. footwear, gloves), will undergo the Clean-Check-Dry biosecurity protocol: https://www.fisheriesireland.ie/Biosecurity/biosecurity.html. This will similarly be carried out upon completion of the work or moving the equipment or machinery from the water.

3.3.8 Turbine Hardstands

All crane pads and associated splays have been designed taking account of the loadings provided by the turbine manufacturer. They will consist of a compacted stone structure in accordance with the detailed engineering designs and employer's requirements.

All crane pads will be formed from a suitably stiff layer of subsoil or rock. The finished crane pad surface will provide a minimum bearing capacity of 260kN/m².

Crane pad and associated splay formation will consist of either 1 or 2 layers of suitable fill material depending on the properties of the underlying load bearing layer. Where the underlying layer is soft soil, 2 layers of suitable fill formation will be used and the stone capping layer. In areas where the load bearing layer is rock, the capping layer will be omitted, and the running layer will be installed directly onto the rock surface.

A turbine hardstanding area consists of a main crane pad hardstanding of 80 m x 33.5 m (2,700 m^2) with a number of additional smaller hardstandings that act as ancillary crane pads and set down and assembly areas, located as shown on the accompanying planning drawings. This area will accommodate a main crane and an assist crane during the assembly of the turbine, as well as during occasional maintenance periods during operation. It will also facilitate parking for operation and maintenance staff. The crane pads will have a maximum cross and longitudinal fall tolerance of 2%. The crane hardstands will be constructed using a typical excavation method.

The excavation method can be summarised as follows:

Excavation Method:

All environmental mitigation measures will be implemented locally in advance of the works, in accordance with the measures outlined in the environmental management plan in Section 4 of this CEMP.

- Establish alignment of the hardstands from the construction drawings and mark out the corners with ranging rods or timber posts.
- Drainage runs and associated settlement ponds will be installed.
- Topsoil and subsoil stockpiles will be formed, and the side compacted to prevent silt run off during heavy rain or airborne dust during dry periods.
- Batters will have a slope of between 1:1 and 1:5 (depending on depth and type of material) and will be left as cut to re-vegetate naturally with local species.

3.3.9 Turbine Foundations

Following detailed site investigations, it has been determined that the wind turbine foundations at Derrynadarragh will be standard shallow reinforced concrete foundations. The turbine foundation bases are circular in shape and will be 25 m in diameter and 3.5 m in depth.

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.

The wind turbine foundations will be constructed using standard reinforced concrete construction techniques. A section of reinforced concrete foundation called a plinth shall protrude above ground to which the turbine tower will be bolted as per the turbine manufacturer's guidelines which will be incorporated in the civil foundation design.

The turbine foundations will be constructed as follows:

Standard Excavated Reinforced Concrete Base:

f) The extent of the excavation 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.

g) No material will be removed from site and storage areas will be stripped of vegetation prior to stockpiling placement in line with best working practises.

h) Around the perimeter of the foundation formation a shallow drain will be formed to catch ground water entering the excavation. The drain will direct the water to a sump if required where it will be pumped out to a settlement pond away from the excavation.

i) A layer of concrete blinding will be laid approximately 75mm thick directly on top of the newly exposed formation, tamped and finished with a screed board to leave a flat level surface. If required, geogrid and soil replacement will be laid according to the foundation design, followed by placement of the concrete blinding layer.

j) If soil replacement is required, the aggregate used will be tested and approved by the project geotechnical engineer.

k) High tensile steel reinforcement will be fixed in accordance with the designer's drawings & schedules. The foundation anchorage system will be installed, levelled and secured to the blinding using steel box section stools.

l) Ductwork will be installed as required, and formwork erected around the steel cage and propped from the backside as required.

m) The foundation anchorage system will be checked both for level and line prior to the concrete being installed in the base.

n) Concrete will be placed using a concrete pump and compacted using vibrating pokers to the levels and profile indicated on the construction drawings.

o) Upon completion of the concreting works the foundation base will be covered from the elements that could cause hydration cracking and/or delay setting in any way.

p) Steel shutters will be used to pour the upper plinth section.

q) The foundation will be backfilled with a cohesive material, where possible using the material arising during the excavation and landscaped using the top-soil set-aside during the excavation. The suitability of backfill material will be approved by the project geotechnical engineer.

r) A gravel footpath will be formed from the access track to the turbine door and around the turbine for maintenance.

3.3.10 Substation Compound

The footprint of the proposed on-site (TSO) 110kV substation compound measures approximately 5,250m^2 in area and will include 1 no. control building (18m x 25m and 7.4m high) and the electrical substation components necessary to consolidate the electrical energy generated by each wind turbine and export that electricity from the on-site 110kV substation to the national grid.

The building's main function is to provide housing for switchgear, control equipment and monitoring equipment necessary for the proper functioning of the substation and wind farm. The building will be constructed by the following methodology:

- The area of the control buildings and compound will be marked out using ranging rods or wooden posts and the vegetable soil stripped and removed to the nearby storage area for later use in landscaping. No material will be removed from site and storage areas will be stripped of vegetation prior to stockpiling in line with best working practises.
- Drainage runs and associated settlement ponds will be installed.
- The dimensions of the Building and Compound area will be set to meet the requirements of EirGrid and the necessary equipment to safely and efficiently operate the wind farm.
- The foundations will be excavated down to the level indicated by the designer and concreted.
- The blockwork walls will be built up from the footings to DPC level and the floor slab constructed, having first located any ducts or trenches required by the follow on mechanical and electrical contractors.

- The blockwork will then be raised to wall plate level and the gables & internal partition walls formed. Scaffold will be erected around the outside of the building for this operation.
- The concrete roof slabs will be lifted into position using an adequately sized mobile crane.
- The wooden roof trusses will then be lifted into position using a telescopic load all or mobile crane depending on site conditions. The roof trusses will then be felted, battened, tiled and sealed against the weather.

The remainder of the substation compound will be brought up to the agreed formation and approved stone imported and graded to the correct level as per the detail design.

Equipment plinths will be marked out, excavated and constructed using in-situ reinforced concrete or pre-cast concrete. Provision will be made in each plinth for earth connection.

Following the construction of the equipment plinths an earth mat will be installed throughout the compound. This will be connected to each plinth and the buildings as per the electrical earth protection design.

3.3.11 Electrical Works

3.3.11.1 Substation Fit Out and Switchgear Installation

The substation will have a domestic electrical system including lights, sockets, fire alarm and intruder alarm. The high voltage switchgear for the wind farm will be installed through the following method.

- The switchboard units will be delivered to site on a truck and unloaded using a forklift, front end loader or HIAB crane.
- Suitable task specific RAMS and lifting plans will be in place prior to the commencement of all works.
- The switchgear will be unloaded on to a concrete plinth directly outside the substation building.
- The units will be moved inside the substation building using a hand driven forklift and positioned over the internal trench supports, prepared previously.
- The switchgear will then be secured as per manufacturer's instructions, typically by bolting directly to steel support bars over the trench.
- The building is fitted out with small light and power and ancillary wind farm control equipment such as SCADA computer, remote telemetry units, metering etc.
- All equipment and fittings are then connected, wired tested and commissioned in accordance with the Electrical Contractor's commissioning plan.

3.3.11.2 Transformers

- The turbine transformers will be placed directly onto the turbine foundation upon delivery to site, prior to the installation of the turbine towers.
- The transformers will be of the sealed type and will be inspected for any damage prior to offloading. It is proposed that the units will be installed using a small mobile all-terrain crane and will be tested, commissioned and energised by suitably trained and authorised persons.
- The accessible sections of the transformer will be protected within an enclosure which will be locked at all times and displaying appropriate warning signs.
- Transformers and ancillary plinth-mounted equipment required in the substation compound will be delivered to site and unloaded directly in place by HIAB crane or similar.
- Suitable task specific RAMS and lifting plans will be in place prior to the commencement of all works.

3.3.12 Internal Wind Farm Cabling Works

The specification for cable trenches is based on cable voltage, location and existing land use. If, subject to confirmatory surveys, the land is not as expected, the route may need to be varied within the parameters set out and assessed in the EIAR.

With a trefoil formation, the internal cable trench width will be 600 mm, and with a flat formation, the trench width will be 1200 mm. The depth of cover to the ducts carrying the cables will be 900 mm to the top of the upper ducts. The depth of trench for the cables will be 1200 mm. The diameter of the ducting will be selected to suit the range of cross-sectional areas of electrical cables and is likely to fall between 100 mm and 200 mm diameter.

Internal cable trench section types associated with on-site electrical cabling are presented in the accompanying planning application drawing P22-145-0500-0004.

The following describes the construction methodology for cable installation works inside the Site. Some cables will be buried directly, and some will be ducted. Direct buried cables will be used in non-load bearing areas and ducts will be used in load bearing areas.

For direct buried cables, the following outline methodology will be implemented:

- All environmental mitigation measures will be implemented locally in advance of the works, in accordance with environmental management plan outlined in Section 4 of this CEMP.
- The line of the cable trench will run beside the site access tracks until it exits to the public road.
- The ground will be excavated using a mechanical digger. The top layer of soil will be removed and placed to one side. It will be used for landscaping the top of the backfilled cable trench following the laying of the cables. The remaining subsoil, excavated to the required depth, will be placed separately and used as backfill for the trench.
- Safe ladder access/egress to trenches will be provided into the trench.
- The cables will be laid directly onto a bed of suitable material, free from sharp stones and debris*.
- A suitable material will be placed over the top of the cables to protect them during backfilling*.
- Warning tape and plates will be installed by hand in accordance with the trench design and ESBN specifications and the engineer's design.
- On completion, the ground will be reinstated, and marker posts will be positioned at agreed centres to the side of the trench highlighting the presence of cables below.
- Trenches will vary in width depending on the number of cables in the circuit. Where there is more than one set of cables they will be separated as per cable manufacturers and ESB/ EirGrid requirements.

Where ducting is required within the Site (i.e., for areas where cables will be laid under access tracks or other loaded surfaces), suitable ducting will be required to protect the cables. In this scenario, tasks marked by an asterisk (*) in the above methodology will be replaced by the following steps:

- Ducts will be placed into the trench manually, having been delivered to roadside embankment/verge by tractor and pipe trailer and then offloaded by hand.
- Approved bedding material will be used to surround the ducts. It will be delivered straight from a concrete truck or by skid steer along the route.
- Approved fill material will be compacted above and below the power cable ducting as per the engineer's design.
- Exposed duct ends will be capped.

- A 12mm Draw rope will be blown through the ducting at later date.
- Small jointing pits will be located along the route of the trench which will be left open until jointing takes place. A protective handrail/ barrier will be placed around each pit for health and safety reasons.
- Once the cables are joined and sealed the jointing container will be removed and the cables at the joint-bay locations will be back-filled in the same manner as the rest of the cable trench.
- The cables will connect the turbines to the substation. Ducts will be cast into each turbine foundation to provide access for the cables Likewise, at the substation, ducts will be cast through the building foundation to provide access for the cables.
- There are no existing buried services expected within the site however the appointed contractor will be responsible for carrying out pre-construction confirmation surveys ahead of construction.
- Prior to commencement of the works, up to date records of services such as watermains, sewers, gas mains and other power cables will be obtained from the relevant service providers. Cable detection tools, ground penetrating radar and slit trenches will be used, as appropriate, to find the exact locations of existing services. The final locations of the cable trenches will be selected to minimise conflicts with other services.
- Trenches where ducts are laid will be back filled every evening. During excavation works signage will be erected at each location warning of the dangers.

3.3.13 Turbine Installation

Each wind turbine will have an associated turbine hardstand area and temporary laydown area adjacent to the foundation to accommodate the delivery and temporary storage of the turbine components prior to their erection and to support the cranes during erection.

Once the turbine components arrive on site they will be placed on the hardstand and lay down areas prior to assembly. The towers will be delivered in sections, and each blade will be delivered in a separate load within the convoys. Once there is a suitable weather window the turbine will be assembled.

It is anticipated that the turbine installation works will take place over the course of 7 months. This is based on a total of 7 no. loads per turbine to deliver blades, tower sections and nacelles, with each convoy consisting of components for two turbines at a time.

3.3.14 Fencing and Site Security

Temporary Heras fencing will be erected surrounding the construction compounds. Access will be gated to prevent unauthorised access. CCTV will be in operation.

The on-site 110kV substation compound will include steel palisade fencing (2.6m high as required by ESB), and internal fences will also segregate different areas within the main substation. Fence details are shown on the accompanying planning application drawings.

3.4 Construction Working Hours

The hours of construction activity will be limited to avoid unsociable hours where possible as per Section 8.5 (d) of the code of practice for BS 5228: Part 1: 1997. Construction operations will generally be restricted to between 07:00 hours and 19:00 hours Monday to Saturday. 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. 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.

4. ENVIRONMENTAL MANAGEMENT PLAN

4.1 Introduction

This Environmental Management Plan (EMP) defines the work practices, environmental management procedures and management responsibilities relating to the construction of the Proposed Development. This plan should be read in conjunction with the EIAR.

This EMP describes how the Contractor for the main construction works will implement a site Environmental Management System (EMS) on this project to meet the specified contractual, regulatory and statutory requirements and identified mitigation measures. This plan will be further developed and expanded following the grant of planning permission and appointment of the Contractor for the main construction works (in accordance with the parameters and measures set out in this EMP). Please note that some items in this plan can only be finalised with appropriate input from the Contractor who will carry out the main construction works and once the planning conditions are known. It is the Contractor's responsibility to implement an effective EMS to ensure that environmental requirements for the construction of this Proposed Development are met.

All site personnel will be required to be familiar with the EMP's requirements as related to their role on site. The plan describes the project organisation, sets out the environmental procedures that will be adopted on site and outlines the key performance indicators for the site.

- The EMP is a controlled document and will be reviewed and revised as necessary (to comply with planning conditions or other local authority requirements).
- A copy of the EMP will be located on the site H&S notice board.
- All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of and understand the EMP and its contents.

This section includes the mitigation measures which will be implemented by the contractor and client during the construction, operation and decommissioning of the Proposed Development as per the EIAR and NIS.

4.2 Project Obligations

In the construction of the Proposed Development there are a number of environmental management obligations on the developer and the contractor. As well as statutory obligations, there are several specific obligations set out in the EIAR and NIS. This CEMP will be updated by the main contractor following appointment and will only be revised as set out above. The contractor and all of its sub-contractors will be fully aware of and in compliance with these environmental obligations.

4.2.1 EIAR/NIS Obligations

The EIAR and NIS identified mitigation measures that will be put in place to mitigate the potential environmental impacts arising from construction of the Proposed Development. Measures identified in the EIAR and NIS are detailed in this CEMP and listed in the Schedule of Commitments which accompany the EIAR. It should be noted that this Schedule of Commitments also includes operational phase and decommissioning phase commitments which are not relevant to the construction phase. The CEMP will be read in conjunction with the EIAR and NIS. In the case of any ambiguity or contradiction between this CEMP and the EIAR and NIS, the EIAR and NIS shall take precedence.

4.2.2 Planning Permission Obligations

All planning conditions attached to the Proposed Development's planning permission will be adhered to. All pre-commencement planning conditions will be discharged fully by the project owner prior to commencement of construction.

4.2.3 Other Obligations

The Developer and/or Contractor for the main construction works will liaise directly with relevant Bodies in relation to securing any necessary permits to allow the works to take place including for example (non-exhaustive list):

- Commencement notice;
- Special Permits in relation to oversized vehicles on public roads;
- Temporary Road Closures (if required);
- Road Opening Licence;
- Building control approval;
- Trade effluent discharge licence / Tankered wastewater agreement;
- Section 50 consent for the construction of bridges or culverts on any drain or watercourse;
- Abstraction licence – registration with EPA;
- Licence, permit or certificate of registration required by the waste producer, haulier and waste facility;
- Tree Felling Licence;
- Licence from national Monuments Service;
- Protected Species licence (noting that the need for same has not been identified at planning stage);

The Developer will also liaise closely with the local residents, especially homeowners and landowners along the local access routes in relation to works and all reasonable steps will be taken to minimise the impact of the development on such persons. A TMP is included in Appendix 14.3, Volume III of the EIAR.

4.3 Environmental Management Plan

This section outlines the EMP associated with the Proposed Development. Table 4-1 below describes the Management Plans that have been prepared as part of the EIAR and CEMP that are included in the Appendices to this CEMP (given their size they are not included in this section). The Management Plans should be read in conjunction with the EIAR. The contents of the management plans will be updated for the construction phase in line with any planning conditions that may apply.

Table 4-1: Management Plans

Management Plan	Location	Description
Traffic Management Plan	Appendix 14.3, Volume III of the EIAR.	The traffic management plan outlines the procedures to be implemented during the construction stage for traffic management at the Proposed Development. In the traffic management plan the proposed haul routes to the site, used for engineering material, equipment deliveries and the turbine delivery route (TDR) (to be used for the delivery of oversized components required for the construction of the turbines) are assessed. Prior to works commencing, the traffic management plan will be revised as necessary by the appointed contractor in consultation with the local authority.
Peat and Spoil Management Plan	Appendix B of this CEMP.	The purpose of this is to provide a peat and spoil management plan for the construction phase of the Proposed Development. The intention of the report is to describe how peat and spoil which will be excavated from infrastructure locations such as turbine bases and roads and will be handled and placed/reinstated on site in an appropriate manner. The peat and spoil management plan contains drainage guidelines for construction works and for management of peat on site. It should be noted that the control of water quality and drainage measures for site is outlined in detail in Chapter 12 of the Environmental Impact Assessment Report (EIAR).
Surface Water Management Plan	Appendix C of this CEMP.	The Surface Water Management Plan contains methodology for drainage, water quality management and silt control. The measures contained within the plan will be applied when working near water.

4.3.1 Decommissioning Plan

The decommissioning phase works will be completed to approved standards, which include specified materials, standards, specifications and codes of practice (at the time decommissioning takes place).

An experienced main contractor will be appointed to undertake the of the decommissioning of the wind farm development. The main contractor will comply with the Construction and Environmental Management Plan (CEMP) prepared for the construction phase and the Operation and Environmental Management Plan (OEMP) implemented during operation and any revisions made to those documents throughout the phases in which they were adopted. The contractor will produce a detailed and site-specific Decommissioning Plan prior to commencement of decommissioning.

The key site targets are as follows;

- Ensure decommissioning works and activities are completed in accordance with mitigation and best practice approach presented in the accompanying Environmental Impact Assessment Report (EIAR) and associated planning documentation;
- 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;
- 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 house-keeping 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;

An overview of the anticipated decommissioning methodologies is provided below.

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.

The turbines will most likely be removed from site in a similar manner to how they were transported to the site originally in extended articulated trucks. The destination of the turbines post decommissioning is unclear at this time as a re-use option may be sourced if early decommissioning occurs. Therefore, the removal of turbines from site is considered in terms of all turbine components being removed intact and as they transported to site.

The transport of disassembled turbines from the site will be undertaken in accordance with a Decommissioning 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.

The 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.

Turbine Foundations

On the dismantling of turbines, it is not intended to remove the concrete foundation from the ground. 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.

Therefore, the turbine foundations will be backfilled and covered with soil material which will comprise the usable soil or overburden material on the site after construction. The soil will be spread and graded over the foundation using a tracked excavator and revegetation allowed to occur naturally.

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 agriculture. Turbine foundation pedestals and hard standings will be covered over with topsoil previously stripped and used for landscaping purposes during the construction stage and left to revegetate naturally.

Underground Cabling

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 access track 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.

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.

4.3.2 Dust Management Plan

This Dust Management Plan (DMP) outlines the sources of dust during the works, identifies measures to minimise dust during the works and the complaints procedure for dust.

Construction stage mitigation measures to minimise dust and emissions will be implemented as follows:

- Construction vehicles and machinery will be serviced and in good working order;
- Receptors which receive dusting and soiling on the haul routes, entering the site; and dwellings directly adjacent to the grid connection route that experience dust soiling, where appropriate, and with the agreement of the landowner, will have the facades of their dwelling cleaned if required should soiling have taken place;
- Ensure all vehicles switch off engines when stationary – no idling vehicles; and
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be minimised through regular servicing of machinery.

4.3.2.1 Dust Generation and Control

The principal sources of potential air emissions during the construction of the Project will be from the Site, GC and TDR; from dust arising from earthworks, tree felling activities, trench excavation along cable routes, construction of the new access tracks, the temporary storage of excavated materials, the construction of the proposed substation, the movement of construction vehicles, loading and unloading of aggregates/materials and the movement of material around the site.

The following dust control measures will be put in place during construction and decommissioning works:

- The internal access roads will be constructed prior to the commencement of other major construction activities. These roads will be finished with high quality graded aggregate;
- A water bowser will be available to spray work areas and haul roads, especially during periods of excavations works coinciding with dry periods of weather, in order to suppress dust migration from the site;
- All loads which could cause a dust nuisance will be covered to minimise the potential for fugitive emissions during transport;
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- The access and egress of construction vehicles will be controlled to designated locations, along defined routes, with all vehicles required to comply with onsite speed limits, which shall be reduced in periods of dry, windy weather;
- Wheel washing facilities will be provided at the two main entrance/exit points of the Proposed Development site.

Complaints Procedure

At the main site entrance, the contact details for the site will be available so that local residents are encouraged to contact the Contractor in the event of an off-site dust impact.

The contractor on site will need to be immediately informed of the incident so that fugitive dust complaints can be substantiated.

In all instances, a complaint will be logged by the environmental manager and each complaint will be assigned a discrete complaint number in the Environmental Log.

The environmental manager will maintain the complaints register and any complaints received will be investigated and the dust suppression methods employed will be reviewed. Suitable remedial action will be undertaken as necessary.

4.3.3 Noise and Vibration Management

The predicted noise levels from on-site activity from the Proposed Development is below the noise limits in BS 5228-1:2009+A1:2014. Nonetheless, several mitigation measures will be employed to minimise any potential impacts from the Proposed Development.

The noise impact for construction works traffic will be mitigated by generally restricting movements along access routes to the standard working hours and exclude Sundays and public holidays, unless specifically agreed otherwise. For example, during turbine erection, an extension to the working day may be required but this would be necessary only on a relatively small number of occasions. The hours of construction activity will be as described in Section 3.4.

It will be ensured that vehicles on local roads do not wait outside residential properties with their engines idling during turbine deliveries. Local residents and the local authority will be consulted in advance of any activities likely to occur outside of normal working hours. The transport of large transport loads generates low levels of noise and vibration as trucks performing such tasks move at very low speeds. Construction activity is temporary and unlikely to generate noise issues at any receptor. Construction noise including ground vibration, and air overpressure impacts are predicted as insignificant.

Consultation with the local community is important in minimising the impacts and therefore construction will be undertaken in consultation with the local authority as well as the residents being informed of construction activities through the Community Liaison Officer.

The construction works on site will be carried out in accordance with the guidance set out in BS 5228:2009+A1:2014. Proper maintenance of plant will be employed to minimise the noise produced by any site operations.

The on-site construction and decommissioning noise levels will be below the relevant noise limit of 65 dB LAeq,1hr for operations exceeding one month, and therefore construction noise impacts are not considered to be significant. However, there is potential for temporary elevated noise levels due to the grid connection works. However, the impact of these works at any particular receptor will be for a short duration (i.e. less than 3 days). Where the works at elevated noise levels are required over an extended period at a given location, a temporary barrier or screen will be used to reduce noise levels below the noise limit where required. The noise impact will also be minimised by limiting the number of plant items operating simultaneously where reasonably practicable.

The operation of plant and machinery, including site vehicles, is a source of potential impact that will require mitigation at all locations within the site. Proposed measures, which are the same as those proposed for the construction phase, to control noise include:

- Diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All plant and equipment to be used on-site will be modern equipment and will comply with the S.I. No. 359/1996 - European Communities (Construction Plant and Equipment) (Permissible Noise Levels) (Amendment) Regulations.
- Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers.

- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works.
- Compressors will be of the "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machines, which are used intermittently, will be shut down during those periods when they are not in use.
- Training will be provided by the Site Manager to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation.
- Local areas of the haul route will be condition monitored and maintained, if necessary.

4.3.4 Biodiversity / Flora and Fauna Management

Objectives

The primary objectives of biodiversity / flora and fauna management are as follows:

- Promote the conservation of habitats on site through the establishment of management and/or mitigation;
- Provide management and mitigation for aquatic habitats and water quality;
- Provide management and mitigation for avifauna;
- Provide management and mitigation for bats and terrestrial mammals;
- Monitor the usage of the Site by birds post construction;
- Monitor for any collision by birds at the Site post construction;
- Monitor for any collision by bats at the Site post construction.

For mitigation measures associated with the protection of terrestrial ecology please refer to Chapter 9.

For mitigation measures associated with the protection of aquatic ecology please refer to Chapter 9.

In addition to the above mitigation measures from the EIAR, the mitigation measures prescribed in the Natura Impact Statement (NIS) carried out for the Proposed Development will be implemented in full. For mitigation measures associated with the NIS please refer to Chapter 9, Volume II of the EIAR.

4.3.5 Archaeological Management Plan

Mitigation Measures and Monitoring

A suitably qualified archaeologist will be employed to oversee the construction phase of the Proposed Development and will advise on and establish appropriate Exclusion Zones around the external most elements of Heritage Assets. Exclusion zones shall be fenced off or demarcated for the duration of construction works in the vicinity of the monuments and will be agreed in advance with the National Monuments Service. No groundworks of any kind (including but not limited to advance geotechnical site investigations) and no machinery, storage of any materials or any other activity related to construction will be permitted within Exclusion Zones.

A systematic advance programme of archaeological field-walking surveys will be undertaken within all construction areas to confirm whether there are any surface traces of any potential unrecorded archaeological or architectural heritage sites exist within areas inaccessible due to the presence of thick tree cover. Archaeological monitoring of ground excavation works during the construction phase will then be carried out within all areas of the Site under licence by the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage. The Archaeologist will advise on the need for geophysical survey in advance of ground excavation. In the event that any archaeological sites are identified during monitoring, ground works will halt at the location and the archaeological remains will be recorded and cordoned off. The NMS will then be consulted to determine further appropriate mitigation measures, which may include preservation in situ by avoidance or preservation by record through systematic archaeological excavations licensed by the NMS.

4.3.6 Waste Management Plan

It will be the objective of the Developer in conjunction with appointed contractor to prevent, reduce, reuse and recover as much of the waste generated on site as practicable and to ensure the appropriate transport and disposal of residual waste off site. 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 development construction phase will be collected, source separated and stored in dedicated receptacles at the temporary compound during construction pending removal to an appropriately licensed waste facility.

A Construction Waste Management Plan has been prepared for the Proposed Development in line with the "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects" (2021) as published by the Department of the Environment, Community and Local Government.

The Waste Management Plan will be finalised in accordance with this plan following the appointment of the contractor for the main construction works. This plan should be read in conjunction with the EIAR. The Construction Waste Management Plan will comply with the Statutory requirements of the National Waste Management Plan for a Circular Economy.

Assignment of Responsible Personnel

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. The waste manager will have overall responsibility to instruct all site personnel including sub-contractors to comply with on-site requirements. They will ensure that at an operational level each crew foreman is assigned direct responsibility.

Waste Generated

It is envisaged that the following categories of waste will be generated during the construction of the Proposed Development:

- municipal solid waste (MSW) from the office and canteen;
- construction waste including concrete;
- waste oil/hydrocarbons;
- paper/cardboard;
- timber;
- steel.

A fully authorised waste management contractor will be appointed prior to construction works commencing. This contractor will provide appropriate receptacles for the collection of the various waste streams and will ensure the regular emptying/and or collection of these receptacles.

Waste Minimisation/Reduction

All efforts will be made by site management to minimise the creation of waste throughout the construction of the Proposed Development.

This will be done by:

- material ordering will be optimised to ensure only the necessary quantities of materials are delivered to site
- material storage areas will be of a suitable design and construction to adequately protect all sorted materials to ensure no unnecessary spoilage of materials occurs which would generate additional waste
- all plant will be serviced before arriving on site. This will reduce the risk of breakdown and the possible generation of waste oil/hydrocarbons on site
- all operators will be instructed in measures to cut back on the amount of wastage for trimming of materials etc. For example, cutting of plywood, built into the amount ordered
- educating foremen and others to cut/use materials such as ply wisely for shutters etc.
- prefabrication of design elements will be used where suitable to eliminate waste generation on site
- where materials such as concrete are being ordered, great care will be practiced in the calculation of quantities to reduce wastage.

Waste Reuse

When possible, materials shall be re used onsite for other suitable purposes e.g.

- re-use of shuttering etc. where it is safe to do so;
- re-use of rebar cut-offs where suitable;
- re-use of excavated soil for screening, berms etc.;
- re-use of excavated rock or stone – where possible will be used as suitable fill elsewhere on site for the new site tracks, the hardstanding areas and embankments where possible.

Waste Recycling & Recovery

In accordance with national waste policy, source separation of recyclable material will take place. Receptacles will be clearly labelled, signposted and stored in dedicated areas in the construction compound.

The following sourced segregated materials container will be made available on site in the construction compound:

- timber;
- ferrous metals;
- aluminium;
- dry mixed recyclables;
- packaging waste;
- food waste.

Typical waste quantities generated during construction of similar-sized developments are included hereunder with typical recovery / reuse that can be achieved.

		Reuse		Recycle/Recovery		Disposal	
Waste Type	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1200	10	120	80	960	10	120
Timber/Wood	1000	40	400	55	550	5	50
Plasterboard	360	30	108	60	216	10	36
Metals	300	85	255	10	30	5	15
Concrete	200	20	40	65	130	15	30
Other	540	20	108	60	324	20	108
Total	3600		1031		2210		359

The materials will be transported off-site by a licensed contractor to a licensed recovery centre and these materials will be processed through various recovery operations. A list of nearby licensed waste management facilities is shown in Table 4-2.

Table 4-2: Nearby Waste Management Facilities

Licensed Waste Facility Location	Type of Waste
J. Ryan Haulage Ltd. Cushina, Portarlington, Co. Offaly (c. 3.4km from site)	Soil and stones
Pat Mangan, Ballycon Mount Lucas Daingean Co. Offaly (c. 16.4km from site)	Soil and stones
Killeshal Precast Concrete Ltd, Killeshal, Daingean, Co. Offaly R35 YK85 (c. 24km from site)	Concrete, soil and stones, mixed construction and demolition waste
T/A Oxigen Environmental Barnan, Daingean Co. Offaly R35 EE64 (c. 26km from site)	Waste plastics (except packaging), waste from forestry, waste metal, paper and cardboard packaging, plastic packaging, wooden packaging, metallic packaging, composite packaging, mixed packaging, glass packaging, textile packaging, concrete, bricks, tiles and ceramics, mixture of concrete, bricks, tiles and ceramics, wood, glass, plastic, copper, bronze, brass, aluminum, lead, zinc, iron and steel, tin, mixed metals, cables, soil and stones, insulation materials, gypsum-based construction materials, mixed construction and demolition wastes, paper and cardboard, ferrous metal, non-ferrous metal, plastic and rubber, glass, wood containing dangerous substances, wood, textiles, minerals (for example sand, stones), combustible waste (refuse derived fuel)
Anthony Cocoman, Shean Edenderry Co. Offaly (c. 17km from site)	Concrete, soil and stones
Hinch Plant Hire Ltd, Ballydownan Geashill Co. Offaly (c. 15.6km from site)	Soil and stones
John Mallen, Ballycon Mount Lucas Co. Offaly, (c. 15.1km from site)	Concrete, soil and stones, dredging spoil

Waste Disposal

Residual waste generated on-site will require disposal. This waste will be deposited in dedicated receptacles and collected by the licensed waste management contractor and transported to an appropriate facility. All waste movements will be recorded, which records will be held by the waste manager on-site.

Contaminated Material

Any contaminated soils will be handled, removed and disposed of in accordance with statutory requirements for the handling, transportation and disposal of waste. In particular, the following measures will be implemented:

- Contaminated material will be left in-situ and covered, where possible until such time as WAC (Waste Acceptance Criteria) testing is undertaken in accordance with recommended standards and in-line with the acceptance criteria at a suitably licenced landfill or treatment facility. This will determine firstly the nature of the contamination and secondly the materials classification i.e. inert, non-hazardous or hazardous,
- If the material is deemed to be contaminated, consultation will take place with the respective local authority and/or EPA on the most appropriate measures. Such materials will be excavated, transported by a contractor with a valid waste collection permit and recovered/disposed of at an appropriate facility.

Waste Management Training

Copies of the construction waste management plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities that fall upon them as a consequence of its provisions.

It will be the responsibility of the contractors appointed Waste Manager to ensure that all personnel are made aware of their responsibilities under the plan via a toolbox talk or otherwise.

4.4 Environmental Management Team - Structure and Responsibility

A preliminary organisation chart is included hereunder.

The Contractor's Project Manager will be responsible for the delivery of all elements of the Environmental Management Plan.

The Contractor's Project Manager will retain all responsibility for issuing, changing and monitoring the Environmental Management Plan throughout.

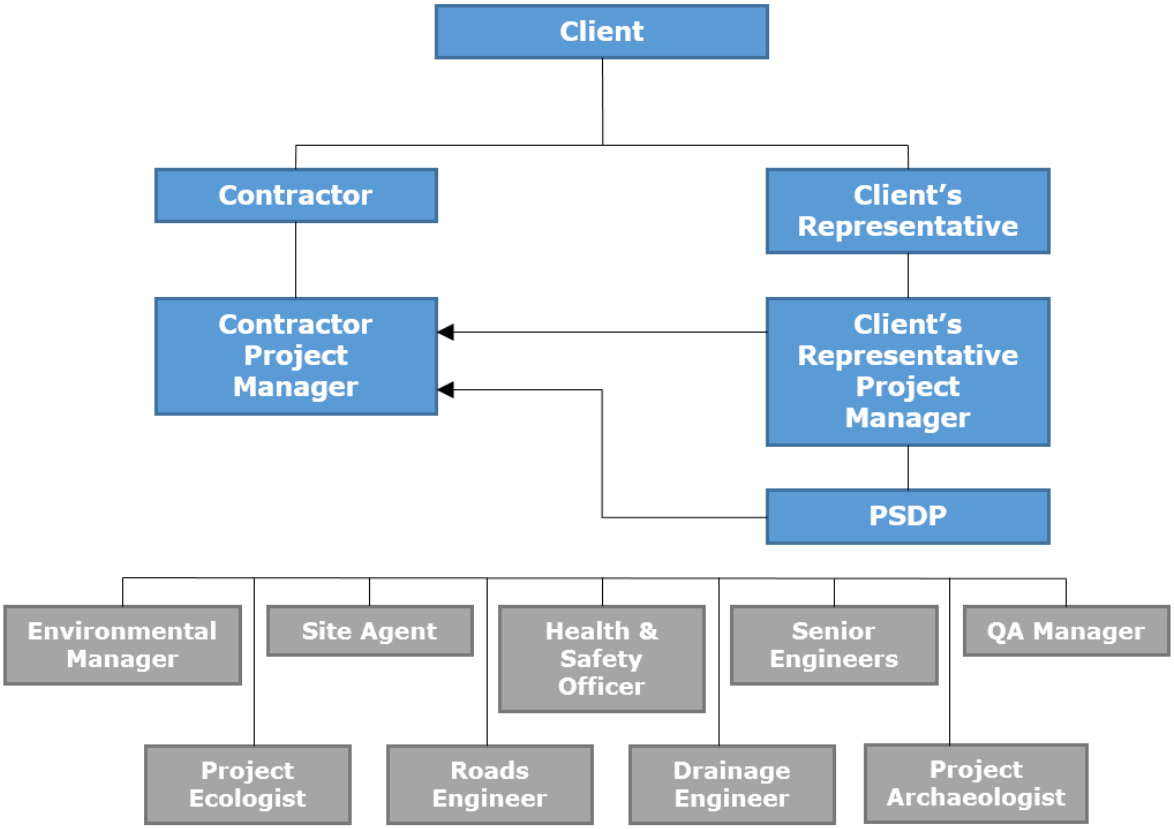

Figure 4-1: Project Management Team Organogram

4.5 Training, Awareness and Competence

All site personnel will receive environmental awareness information as part of their initial site briefing. The detail of the information will be tailored to the scope of their work on site.

The contractor for the main construction works will conduct the environmental awareness training at the same time as Health and Safety Training (often referred to as Site Inductions).

This will ensure that personnel are familiar with the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The CEMP will be available in the main site compound during the construction of the Proposed Development. The environmental performance at the site is on the agenda of the monthly project management meetings for the Proposed Development.

Elements of the CEMP will be discussed at these meetings including objectives and targets, the effectiveness of environmental procedures etc. Two-way communication will be encouraged by inviting all personnel to offer their comments on environmental performance at the site.

4.6 Environmental Policy

The contractor is responsible for preparing and maintaining an Environmental Policy for the site. The policy will be appropriate to the Proposed Development, commit to continuous improvement and compliance with legal requirements and provide a framework for objectives and targets. This will be communicated to all site personnel and will be available on-site notice boards.

4.7 Register of Environmental Aspects

The contractor is responsible for preparing and maintaining a Register of Environmental Aspects pertaining to the site. This register will identify the environmental aspects associated with activities onsite and determine which aspects have or can have a significant impact on the environment. This will be adopted from the mitigations set out in Chapter 9 of the EIAR.

4.8 Register of Legislation

The contractor is responsible for preparing and maintaining a register of key environmental legislation pertaining to the site. This register will reference all current environmental legislation and will be inspected, reviewed and updated regularly to ensure compliance.

4.9 Objectives and Targets

Objectives and targets will be set to ensure that the Proposed Development can be constructed and operated in full accordance with the EIAR, planning conditions and legislative requirements, with minimal impact on the environment.

Environmental objectives are the broad goals that the contractor must set in order to improve environmental performance. Environmental targets are set performance measurements (key performance indicators or KPI's) that must be met in order to realise a given objective.

4.10 Non-Conformance, Corrective and Preventative Action

Non-Conformance Notices will be issued where there is a situation where limits associated with activities on the Proposed Development are exceeded, or there is an internal/external complaint associated with environmental performance.

Non-Conformance is the situation where essential components of the EMS are absent or dysfunctional, or where there is insufficient control of the activities and processes to the extent that the functionality of the EMS is compromised, in terms of the policy, objectives and management programmes. A Non-Conformance register will be controlled by the contractor.

The EMS and all its components will be required to conform to the EMP. In the event of non-conformance with any of the above, the following must be undertaken:

- Assess cause of the non-compliance;
- Develop a plan for correction of the non-compliance;
- Determine preventive measures and ensure they are effective;
- Verify the effectiveness of the correction of the non-compliance;

- Ensure that any procedures affected by the corrective action taken are revised accordingly.

Responsibility will be designated for the investigation, correction, mitigation and prevention of non-conformance.

4.11 EMS Documentation

The Contractor is required to keep the following documentation in relation to the environmental management of the construction of the Proposed Development (as a minimum):

- Construction Environmental Management Plan;
- Register of Environmental Impacts;
- Register of Planning Conditions;
- Monitoring Records;
- Minutes of Meetings;
- Training Records;
- Audit and Review Records.

All these documents and records will be available for inspection in the site office. The documentation will be kept up to date and will be reviewed on a regular basis with revisions controlled in accordance with the site quality plan.

4.12 Control of Documents

The Contractor will establish, implement and maintain a procedure to control CEMP documents and records so they are clearly identifiable, organised, current, easily located and revised when necessary.

5. SAFETY & HEALTH MANAGEMENT PLAN

5.1 Introduction

This Safety and Health Management Plan (SHMP) 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 Development and will be read in conjunction with the Preliminary Safety & Health Plan prepared for the Proposed Development by the Project Supervisor for the Design Process. The Safety and Health Management Plan for the construction stage will be finalised in accordance with this plan following the appointment of the contractor for the main construction works.

This SHMP describes how the contractor for the main construction works will implement a site safety management system (SMS) on this project to meet the specified contractual, regulatory and statutory requirements, environmental impact assessment report and natura impact statement mitigation measures and planning conditions The contractor will be required to implement an effective safety management system and will be required to appoint a health and safety officer to ensure that the developer's safety requirements for the construction of this Proposed Development are met.

All site personnel will be required to be familiar with the requirements of the safety management plan as related to their role on site. The plan describes the project organisation and sets out the health and safety procedures that will be adopted on site.

- The Safety and Health Plan is a controlled document and will be reviewed and revised as necessary.
- A copy of the Safety and Health Plan will be located on/near the site H&S notice board.
- All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of the SHMP and its contents.

5.2 Project Obligations

The construction of the Proposed Development will impose numerous safety management obligations on the developer, designer and contractor. As well as statutory obligations, there are several specific obligations set out in the EIAR for the Proposed Development. These obligations are set out below. The contractor for the main construction works and all its sub-contractors are to ensure that they are fully aware of and in compliance with these safety obligations.

5.2.1 Planning Permission Obligations

Planning permission obligations will be fully outlined in this CEMP once it is updated if planning permission is granted.

5.2.2 Statutory Obligations

The Safety, Health and Welfare at Work Act 2005 (as amended) and the Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) place a responsibility on the Developer as the "Client", the Designer, the Project Supervisors and the Contractor.

The Client will:

- Appoint a competent and adequately resourced Project Supervisor for the Design Phase (PSDP);
- Appoint a competent and adequately resourced Supervisor for the Construction Stage (PSCS);
- Be satisfied that each designer and contractor appointed has adequate training, knowledge, experience and resources for the work to be performed;
- Co-operate with the project supervisor and supply necessary information;
- Keep and make available the safety file for the completed structure;
- Provide a copy of the safety and health plan prepared by the PSDP to every person tendering for the project;
- Notify the Authority of the appointment of the PSDP.

Designers must:

- Identify any hazards that their design may present during construction and subsequent maintenance;
- Eliminate the hazards or reduce the risk;
- Communicate necessary control measures, design assumptions or remaining risks to the PSDP so they can be dealt with in the safety and health plan;
- Co-operate with other designers and the PSDP or PSCP;
- Take account of any existing safety and health plan or safety file
- Comply with directions issued by the PSDP or PSCS.

The PSDP must:

- Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the Proposed Development;
- Where possible, eliminate the hazards or reduce the risks;
- Communicate necessary control measure, design assumptions or remaining risks to the PSCS so they can be dealt with in the safety and health plan;
- Ensure that the work of designers is coordinated to ensure safety;
- Organise co-operation between designers;
- Prepare a written safety and health plan for the Proposed Development and deliver it to the client prior to tender;
- Prepare a safety file for the completed structure and give it to the client.

The PSCS must:

- Co-ordinate the identification of hazards, the elimination of the hazards or the reduction of risks during construction;
- Develop the Safety and Health Plan initially prepared by the PSDP before construction commences;
- Co-ordinate the implementation of the construction regulations by contractors;
- Organise cooperation between contractors and the provision of information;
- Co-ordinate the reporting of accidents to the Authority;
- Notify the Authority before construction commences;
- Provide information to the site safety representative;

- Co-ordinate the checking of safe working procedures;
- Co-ordinate measures to restrict entry on to the site;
- Co-ordinate the provision and maintenance of welfare facilities;
- Co-ordinate arrangements to ensure that craft, general construction workers and security workers have a Safety Awareness card, e.g. Safe Pass and a Construction Skills card where required;
- Co-ordinate the appointment of a site safety representative where there are more than 20 persons on site;
- Appoint a safety adviser where there are more than 100 on site;
- Provide all necessary safety file information to the PSDP;
- Monitor the compliance of contractors and others and take corrective action where necessary;
- Notify the Authority and the client of non-compliance with any written directions issued.

The Contractor must:

- Co-operate with the PSCS;
- Promptly provide the PSCS with information required for the safety file;
- Comply with directions of the project supervisors;
- Report accidents to the Authority and to the PSCS where an employee cannot perform their normal work for more than 3 days;
- Comply with site rules and the safety and health plan and ensure that your employees comply;
- Identify hazards, eliminate the hazards or reduce risks during construction;
- Facilitate the site safety representative;
- Ensure that relevant workers have a safety awareness card and a construction skills card where required;
- Provide workers with site specific induction;
- Appoint a safety officer where there are more than 20 on site or 30 employed;
- Consult workers with site specific induction;
- Monitor compliance and take corrective action.

Consequently, at all stages of construction of the Proposed Development there are statutory requirements for the management of safety, health and welfare of all involved in or affected by the development. This CEMP and specifically the Safety and Health Management Plan address key construction management issues associated with the construction of the Proposed Development. This plan will be developed further at the construction stage, on the appointment of the Contractor for the main construction works.

5.2.3 The Preliminary Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013 (as amended) a Preliminary Safety & Health Plan will be required as part of the design process. This plan will be further developed by the PSCS on appointment and maintained as a live document during construction and commissioning of the Proposed Development.

The safety and health plan will include the following information:

- a general description of the Proposed Development;
- details of other work activities taking place on site;
- works involving particular risks;

- the timescale for the construction phase and the basis on which the time frame was established;
- conclusions drawn by designers and the PSDP having taken into account the General Principles of Prevention and any relevant Safety and Health Plan or Safety File;
- the location of electricity water and sewage connections so as to facilitate early establishment of welfare facilities.

In accordance with the PSDP's procedures the Preliminary Safety & Health Plan for the Proposed Development will include the following sections and subsections to ensure the PSCS is aware of the health and safety issues at tender stage and enable them to price accordingly:

Preamble:

1 General Project Information:
- 1.1 Title;
- 1.2 Description of the Proposed Development;
- 1.3 Employer;
- 1.4 Designers / Other Consultants;
- 1.5 Project Supervisor Design Process;
- 1.6 Drawings, Specifications and Other Documents;
- 1.7 Intended Contract Commencement Date;
- 1.8 Intended Contract Completion Date;
- 1.9 Basis for Contract Duration;
- 1.10 Restrictions on Working Hours;
- 1.11 Notification of Project;
- 1.12 Termination of the PSCS Appointment.

2 The Existing Environment:
- 2.1 Site Location;
- 2.2 Relevant Adjoining Land Uses;
- 2.3 Site Restrictions;
- 2.4 Restrictions on Access;
- 2.5 Hazardous Area Classification;
- 2.6 Existing Services;
- 2.7 Ground Conditions;
- 2.8 Existing Hazards;
- 2.9 Liaison with Statutory Bodies.

3 Other Work Activities:
- 3.1 Other Contracts Which May Affect Work;
- 3.2 Occupation of Site;
- 3.3 Building Activities;
- 3.4 Other Work Activities;
- 3.5 Emergency Procedures in Place on Site.

4 Particular and Residual Risks:
- 4.1 Works Which Put Persons at Work at risk;

4.2 Work Which Puts Persons at Risk from Chemical or Biological Substances;
4.3 Work with Ionising Radiation;
4.4 Work near High Voltage Power Lines;
4.5 Work Exposing Persons at Work to the Risk of Drowning;
4.6 Work on Wells, Underground Earthworks and Tunnels;
4.7 Work Carried Out by Divers at Work Having a System of Air Supply;
4.8 Work Carried Out by Divers at Work Having a System of Air Supply;
4.8 Work Carried Out in a Caisson with a Compressed Air Atmosphere;
4.10 Work Involving the Assembly or Dismantling of Heavy Prefabricated Components;
4.11 Work Involving Hazardous Material;
4.12 Residual Risks.

5 Additional Information:
5.1 Existing Documents;
5.2 Site Possession;
5.3 Site Rules;
5.4 Site Specific Safety Objectives;
5.5 Phasing of Works;
5.6 Permits / Authorisation Required;
5.7 Maintenance;
5.8 Continuing Liaison;
5.9 Specific Recommendations.

6 Information Required for Safety File:
6.1 Information Required for Safety File from PSCS.

5.2.4 The Management of Health and Safety during the Construction Phase

The selection criteria for the Contractor for the works will be based on the ability to construct the works in a manner that will not endanger the safety, health and welfare of any parties and competence to fulfil the role of PSCS.

The contract will be awarded on the basis of assessment of the candidates against relevant health and safety criteria including experience of similar projects, knowledge of the construction processes involved and training of their management and staff who will be involved in carrying out the works.

5.2.5 The Construction Stage Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013 (as amended) the preliminary Safety & Health Plan prepared by the PSDP will be further developed by the PSCS before the commencement of the construction work and updated on a regular basis during the construction phase of the project.

The document will include the following sections and subsections to ensure the management of health and safety during the construction phase of the project:

1. Description of Project:

- project description and programme details;
- details of client, PSDP and PSCS, designers;
- main contractor and other consultants;
- extent and location of existing records and plans;
- arrangements for communicating with Contractors, PSDP and others as appropriate.

2. Communication and Management of the Work:

- management structure and responsibilities;
- safety and health goals for the construction phase and arrangements for monitoring and review of safety and health performance.
- arrangements for:
- regular liaison between parties on site;
- consultation with the workforce;
- the exchange of design information between the Client, Designers, Project Supervisor for the Design Process, Project Supervisor Construction Stage and Contractors on site;
- handling design changes during the construction phase;
- the selection and control of contractors;
- the exchange of safety and health information between contractors;
- security, site induction, and on-site training;
- welfare facilities and first aid;
- the production and approval of risk assessments and method statements;
- the reporting and investigation of accidents and other incidents (including near misses);
- site rules;
- fire and emergency procedures.

3. Arrangements for Controlling Significant Site Risks:

- safety risks:
- services, including temporary electrical installations;
- preventing falls;
- work with or near fragile materials;
- control of lifting operations;
- dealing with services (water, electricity and gas);
- the maintenance of plant and equipment;
- poor ground conditions;
- traffic routes and segregation of vehicles and pedestrians;
- storage of hazardous materials;
- dealing with existing unstable structures;
- accommodating adjacent land use;
- other significant safety risks.

- Health risks:
- removal of asbestos;
- dealing with contaminated land;
- manual handling;
- use of hazardous substances;
- reducing noise and vibration;
- other significant health risks.

The construction stage safety and health plan will be maintained on site by the PSCS and will be communicated to all relevant parties on an ongoing basis through inductions, site safety meetings and toolbox talks etc. as required.

6. EMERGENCY RESPONSE PLAN

6.1 Introduction

This chapter of the CEMP presents an Emergency Response Plan (ERP) for the proposed project. The Emergency Response Plan shall be finalised in accordance with this plan following the appointment of the contractor for the main construction works and following detailed design development.

This ERP contains predetermined guidelines and procedures to ensure the safety, health and welfare of everybody involved in the Proposed Development and to protect the environment during the construction phase of the Proposed Development. This outlines the immediate response to an emergency situation and will be developed by the main construction works contractor and PSCS as part of their construction stage Safety and Health Plan.

An emergency is any disruptive or harmful event that endangers people, environment, property or assets. Emergencies can be small, as in a fire contained by employees using firefighting equipment or large, as in damage resulting from a storm.

In the context of the Proposed Development, examples of Emergency Response Plan emergency events are:

- medical emergency;
- explosion;
- overheated equipment;
- chemical and fuel spill;
- fire;
- loss of power;
- vehicle incidents;
- land slippage.

Example sources of emergency or disaster events are:

- unstable/inappropriate stockpiles on site;
- faulty or incorrect use of equipment;
- falls from height;
- storm/adverse weather;
- power failure;
- fuel spill;
- road failure;
- serious vehicle collisions or overturning.

The emergency response plan deals with the immediate physical effects of a disaster and outlines the initial response.

6.2 Emergency Response Liaison

The contractor/PSCS will designate an individual to serve as the Emergency Response Liaison for this Proposed Development. The emergency response liaison will coordinate the emergency response for the duration of any emergency at or nearby the Site.

The local authority, An Garda Síochána and the HSE Ambulance Co-ordinator will be provided with the construction programme and the onsite contact information from the Emergency Response Liaison prior to construction.

The Emergency Response Liaison will be immediately reachable at all times during Proposed Development construction. The Liaison will coordinate with the above agencies to establish emergency procedures for access to and within the site in the event of an emergency.

6.3 Reporting Emergencies

In the event of fire, storm, flood, serious injury or other emergency, contact:

ALL ON SITE EMERGENCIES DIAL 999

6.4 Designated Responder

A map depicting turbine tower locations with the emergency meeting point will be furnished to the local authority, Fire Department and HSE ambulance co-ordinators.

Upon arrival on the scene, the senior EMS Officer will set up the incident command structure. The Emergency Response Liaison and all contractor's personnel will cooperate with directions of the incident commander and assist as directed.

The nearest emergency services, ambulance and Accident & Emergency (A&E) facilities are:

Service:	Contact Details:	
Accident & Emergency (A&E)	Midland Regional Hospital Portlaoise	(057) 869 6035
Ambulance Service	Dial 112 or 999	
Fire Services	Dial 112 or 999	
Garda Station	Newbridge Garda Station	(045) 431 212
District HQ:	Kildare Garda Station	+353 45 527737
Divisional HQ:	Naas Garda Station	+353 45 884311

Each member of the contractor's site team who are First-Aid and Cardiopulmonary Resuscitation (CPR) trained personnel will be identifiable with a hard hat sticker indicating their training.

6.5 Emergency Alarm

The emergency alarm will be raised on site as soon as an emergency situation is detected, the alarm will be identified (contractor to check those that apply):

	Air Horn		**Radio**		**Voice**		**Hand Signals**		**Siren**

6.6 Emergency Reporting

In the event of an emergency the nearest supervisor with radio equipment/mobile phone will be notified. The degree of emergency will be reported to the Emergency Response Liaison who will contact the Emergency Services and request the appropriate emergency service.

6.7 Medical Protocol

In the event of a major medical emergency, the emergency centre (999) will be notified, and an ambulance and emergency medical team will respond to the scene. All major medical cases require professional (ambulance) transportation. In the event of a minor medical case, the affected employee can be transported via company vehicle in the escort of a foreman or site engineer (with first aid training).

6.8 Emergency Response

Upon notification, the Emergency Response Liaison will respond to the emergency scene and manage emergency operations:

1. Assess hazards and make the area safe – If you cannot enter the area without risking your safety, don't do it, call the Emergency Services immediately and wait for them. If you think you can safely enter the area, look around the emergency scene for anything that can be dangerous or hazardous to you, the casualty, or anyone else at the scene. Bystanders can help with making the area safe. First aid kits will be available on site. Operators that have been first aid/CPR/AED trained will be listed on site and easily identifiable by a hard hat sticker.

2. Take charge of the situation – if you are the first-aid provider on the scene act fast. If someone is already in charge, briefly introduce yourself and see if that person needs any help. If there is any chance the casualty could have a head or spinal injury, tell them not to move.

3. Get Consent – always identify yourself as a first-aid provider and offer to help. Always ask for consent before touching a conscious adult casualty. Remember to protect yourself first by wearing gloves and eye protection.

4. Assess Responsiveness – is the casualty conscious or unconscious? Note their response while you are asking them for their consent. If they respond, continue with the primary survey, and if they don't respond, be aware that an unconscious casualty is or has the potential of being a breathing emergency.

5. Call out for help – this will attract bystanders. Help is always useful in an emergency situation. Someone can be called over to phone for medical help. Others can bring blankets if needed, get water, etc. a bystander can help with any of the following:

- Make the area safe.
- Find all the casualties.
- Find the first aid kit, or any useful medical supplies.
- Control the crowd.
- Call for medical help.
- Help give first aid, under your direction.
- Gather and protect the casualty's belongings.
- Take notes, gather information, be a witness.
- Reassure the casualty's relatives.
- Lead the ambulance attendants to the scene of the emergency.
- Notify Emergency Services as soon as you can. Either send a bystander or call yourself.

In the event of a major medical emergency the Emergency Response Liaison, as the person-in-charge of the emergency scene, will dispatch someone to the site access point nearest the emergency scene to direct and lead arriving outside responders to the emergency scene. The designated meeting point will be agreed prior to the commencement of construction. Emergency personnel will be met at this meeting point communicated by management during the 999 call. The emergency personnel escort will use the hazard lights on their vehicle, so they are easily identified.

6.9 Escape and Evacuation Procedure

Dependent upon the degree of the emergency and if safe to do so, employees will evacuate to the designated assembly area where the designated wardens shall account for all employees and determine if anyone still remains within the emergency scene.

Should a wild land fire or peat slippage occur, and the designated assembly area is compromised other locations will be designated as secondary assembly areas.

Wind turbines shall be fitted with fire suppression systems and will have emergency escape procedures in place for staff in the event of fire in a wind turbine.

6.10 Turbine Tower rescue Procedure

In the event personnel are trapped or injured in an elevated turbine tower position the following protocol will be initiated:

1. The Emergency protocol will be initiated.
2. Emergency Response Liaison will be notified.
3. Tower Rescue Team will be activated and respond to the scene.
4. Outside medical and Rescue Teams will be notified and respond to the scene.

Tower Rescue Procedure:

1. Upon learning of an emergency, the on-scene foreman shall assess the emergency and ascertain its degree, location and the extent of any injuries.
2. Upon confirming that an emergency exists the on-scene foreman notifies the Emergency Response Liaison and the project Office.
3. Upon notification of the emergency the Emergency Response Liaison shall notify senior project supervision and the local emergency centre (999) of the emergency.
4. The Emergency Response Liaison shall inform the dispatcher of the location, tower number, the degree of the emergency and the extent of injuries.

6.11 Prevention of Illness/Injury Due to Weather/Elements

1. All employees will have access to shelter and heat in the event of inclement weather.
2. Employees will have access to at least a litre of water at all times.
3. High wind warnings and weather forecast will be discussed every morning with the crews. Weather conditions and forecast will be monitored regularly by management.
4. No Employee will work alone. A buddy system will be used so employees can contact a supervisor in case of an emergency.

6.12 Environmental Emergency Procedure - Pollution Control

An emergency preparedness and response procedure is required to prevent environmental pollution incidents. Emergency Silt Control and Spillage Response Procedures are included in Section 4.7 of the Surface Water Management Plan which is included in Appendix C of this CEMP.

Suitable spill kits and absorbent material for dealing with oil spills will be maintained on site and will be provided in all construction vehicles. In the event of pollution or potential risk of pollution the Local Authority will be informed immediately.

In the case of water pollution in addition to the Local Authority, Inland Fisheries Ireland will also be informed immediately.

6.13 Emergency Response Plan - Haul Routes

Emergency Response Procedure relating to transportation of plant, equipment and materials to site will be developed by the main contractor during the construction phase of the Proposed Development.

6.14 Emergency Response Plan - Fire

A site evacuation/fire drill procedure will be in place for carrying out the immediate evacuation of all site personnel in the event of an emergency with might include fire on site or within adjacent lands. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Supervisor/Construction Manager when all personnel have been accounted for. The Site Supervisor/Construction Manager will decide the next course of action, which be determined by the situation that exists at that time and will advise all personnel accordingly.
- All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

Fire Safety awareness will be provided as part of general safety induction to the Site. Specific fire training provided to all relevant fire wardens/ officers /representatives. Fire officers will ensure that used or partially used Fire Extinguishers are immediately refilled or replaced.

Smoking will be restricted on site to designated areas within the construction compounds only.

Stockpiling of cleared vegetation / brash will not take place during periods of high fire risk.

Machinery will be parked in a manner that allows them to be moved in an emergency and will be parked a reasonable distance apart from each other to avoid the risk of a fire spreading to adjacent machines.

Areas must be left safe from the threat of fire following hot works. Hot work will only be undertaken by competent and trained personnel under a permit to work system and a fire risk assessment carried will be out for all hot works.

6.15 Emergency Events - Wind Turbine Damage/Failures

Each wind turbine, incorporating the tower, blades, gearbox and ancillary equipment in the tower and nacelle is a machine under the European Machinery Directive [2006/42/EC]. The duties of designers and manufacturers of machinery are set out in the Machinery Directive, which has been transposed into national law by the 2008 European Communities (Machinery) Regulations [S.I.No.407/2008] (as amended). All wind turbines will be CE marked, which is in effect, a mark of assurance that the wind turbine complies with the essential health and safety requirements (EHSRs) of EU supply law. In all cases, the manufacturer or the manufacturer's authorised representative will compile information in a technical file confirming how the machine complies with these requirements. The commissioning of turbines and ancillaries will only be carried out by competent, trained and qualified personnel. The system of work for commissioning must be planned, organised, maintained and revised to ensure safety of personnel.

Potential emergency events associated with wind turbines include:

- Blade loss;
- Fire;
- Wind turbine toppling (due to foundation or tower failure);
- Wind turbine rotational failure in extreme wind conditions (due to control system or rotor break failure).

The primary mitigation against an emergency catastrophic event that may endanger the health and safety of the public is implemented at design stage through adequate siting of wind turbines which provide sufficient set back distances from occupied buildings and other infrastructure to avoid the risk of impact in the event of wind turbine collapse.

Peat slippage contingency measures have been included in Section 6.16 below in the unlikely event of landslide scenario.

6.16 Land Slippage Contingency Measures

6.16.1 Excessive Movement

Where there is excessive movement or continuing peat movement recorded at a monitoring location or identified at any location within the site but no apparent signs of distress to the peat (e.g. cracking, surface rippling) then the following shall be carried out.

1. All activities (if any) shall cease within the affected area.
2. Increased monitoring at the location shall be carried out. The area will be monitored, as appropriate, until such time as movements have ceased.
3. Re-commencement of activities shall only start following a cessation of movement and a review by an experienced geotechnical engineer.

6.16.2 Onset of Peat Slide

In the unlikely event where there is the onset or actual detachment of peat (e.g. cracking, surface rippling) then the following will be carried out.

1. On alert of a peat slide incident, all activities (if any) in the area will cease and all available resources will be diverted to assist in the required mitigation procedures.
2. Action will be taken to prevent a peat slide reaching any watercourse. This will take the form of the construction of check barrages on land. Due to the terrain and the inability to predict locations it may not be possible to implement any on-land prevention measures, in this case a watercourse check barrage will be implemented.
3. All relevant authorities will be notified if a peat slide event occurs on site.

4. For localised peat slides that do not represent a risk to a watercourse and have essentially come to rest the area will be stabilised initially by rock infill, if required. The failed area and surrounding area will then be assessed by an experienced geotechnical engineer and stabilisation procedures implemented. The area will be monitored, as appropriate, until such time as movements have ceased.

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX A

Grid Connection Construction Methodology

Derrynadarragh Wind Farm

CEMP Appendix B –Grid Connection Construction Methodology

DERRYNADARRAGH WIND FARM

Dara Energy Limited

CEMP Appendix B – Grid Connection Construction Methodology DERRYNADARRAGH WIND FARM

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

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1. INTRODUCTION

1.1 Purpose

The purpose of this document is to outline and explain the construction techniques and methodologies which will be implemented during the construction of grid connection works. The grid connection will consist entirely of underground cabling (UGC) with the majority of the UGC to be installed within the public road network and some elements in the Site tracks. This document should be read in conjunction with CEMP and EIAR Chapter 2 Project description.

1.2 Proposed Grid Connection

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

Figure 1.1 – Grid Connection Route

1.3 Grid Connection Works

Works for the grid connection will involve trenching, laying of ducting, installing 15 no. joint bays and 4 Horizontal Directional Drills, pulling cables and the back filling of trenches and reinstatement works. The route which will run through 9.1 Km of existing public road, 0.3km in existing tracks and 2km in new access tracks on the wind farm site.

2. TRENCHING AND CABLE INSTALLATION METHODOLOGY

2.1 TRENCHING AND CABLE INSTALLATION METHODOLOGY

2.1.1 Preparation of Method Statement

The Contractor and their appointed Site Manager will develop a targeted Method Statement detailing the construction approach. This will include all relevant mitigation and control measures outlined and in accordance with environmental management plan outlined in Section 4 of the CEMP.

2.1.2 Service Identification

Prior to commencing construction, all existing underground services along the underground cable (UGC) route will be identified and marked on site.

2.1.3 Traffic Management

Traffic management measures will be implemented in accordance with Chapter 14 of the EIAR. A comprehensive Traffic Management Plan will be prepared and agreed upon with Kildare and Laois County Councils.

2.1.4 Trench Dimensions

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

2.1.5 Peat Removal

A Ground Penetrating Radar GPR survey was conducted by APEX Geophysics Limited along the public road sections of the route see Appendix 11.4 Cable route Geophysical Investigation Report. The survey identified the presence and depth of peat beneath the road surface. While peat depths under public roads are generally modest, certain locations will require over-excavation to remove underlying peat. In localized sections, particularly along the existing bog road within the site, trench depths may reach up to 2 metres. The anticipated volume of peat to be excavated from trenching works within public roads is approximately [2,800m^3] (unbulked). Where peat is encountered along the grid route, it will be removed to ensure the trench is founded on a stable and suitable sub-grade.

2.1.6 Peat Storage and Management

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

2.1.7 Trenching next to mature trees

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

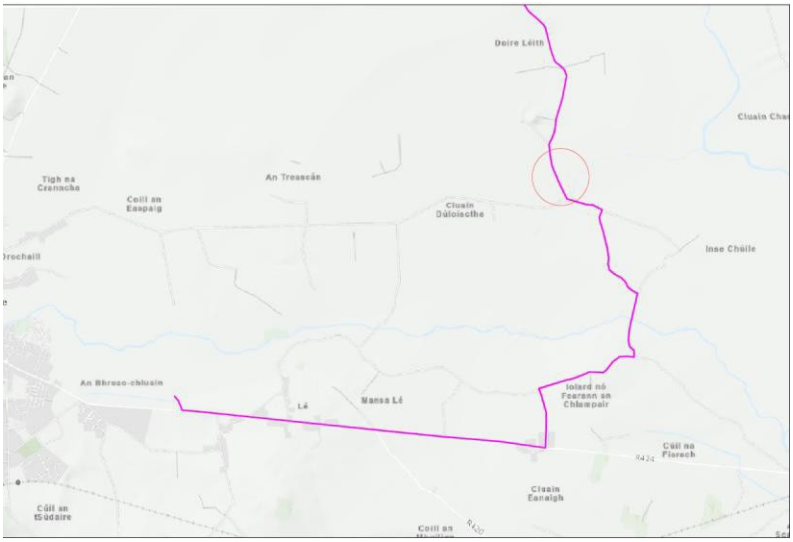

Figure 2.1 – Location of Mature Trees L-70481

2.1.8 Duct Installation

HDPE cable ducts will be placed into the prepared trench, inspected, and backfilled in accordance with drawing P22-145-0500-0004.

2.1.9 Material Stockpiling

Excavated suitable material will be temporarily stockpiled on site for reuse during reinstatement. Stockpiles will:

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

2.1.10 Backfilling and Surplus Material

Where suitable, excavated material will be reused for backfilling. Any surplus will be transported to designated on-site deposition areas.

2.1.11 Sod Management

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

2.1.12 Dewatering

If required, trenches will be dewatered using a sump installed at the lowest point. Any extracted water will be treated via silt bags before being discharged to vegetation or surface water drainage features, in line with Chapter 12 of the EIAR and Appendix 2.1 C Surface Water Management Plan.

2.1.13 Grass Reinstatement

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

2.1.14 Sequential Excavation

No more than 100m of trench will be open at any one time. The next section will only be excavated once reinstatement of the previous section is substantially complete.

2.1.15 Work Rate and Schedule

On average, excavation, installation, and reinstatement of a 100m section will be completed within one working day.

2.1.16 Roadway Reinstatement

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

2.1.17 Working Hours

Works will be carried out during standard hours:
Monday to Friday: 07:00–19:00
Saturday: 07:00–13:00
No works on Sundays or Bank Holidays, except in emergencies or exceptional circumstances.

2.1.18 Cable Pulling and Jointing

Following duct installation, Cables as per drawing P22-145-0500-0004 and EirGrid Typ 160 duct trench will be pulled through the Ducts. Cable pulling will take approximately one day between each joint bay.
Cable jointing will take approximately one week per joint bay location.

2.1.19 Equipment:

- 1 Excavator Operator
- 2-3 General Operatives
- 1 no. tracked excavator (only rubber tracked machines will be allowed on public roads)
- 1 no. dumper or tractor and trailer.

2.1.20 Materials:

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

3. JOINT BAYS AND CHAMBERS

3.1 Joint Bays and Associated Chambers Methodology

3.1.1 Joint Bay Installation

Joint bays will be installed in accordance with the project design specifications. Each bay will consist of a pre-cast concrete structure measuring 2.5m (W) x 6m (L) x 2.05m (D), positioned below the finished ground level. see drawing DANU-DAR-SK001 - Joint Bay drawing for details.

3.1.2 Communication Chambers

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

3.1.3 Earth Sheath Link Chambers

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

3.1.4 Marker Posts

On non-roadway **routes, marker posts** will be installed to indicate the duct route and joint bay locations. These posts will feature:

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

3.1.5 Drawings and Documentation

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

4. HORIZONTAL DIRECTIONAL DRILLING

4.1 Horizontal Directional Drilling (HDD) Methodology

4.1.1 Site Preparation

A designated work area of approximately 40m² will be securely fenced on both sides of the crossing to ensure safety and containment.

4.1.2 Equipment Setup

The drilling rig and fluid handling units will be positioned on one side of the crossing. These units will be placed on double-bunded 0.5mm PVC bunds to contain any potential fluid spills and manage stormwater runoff.

4.1.3 Excavation of Entry and Exit Pits

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

4.1.4 Installation of Steel Boxes

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

4.1.5 Drilling Initiation

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

4.1.6 Monitoring and Control

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

4.1.7 Cuttings Removal

Drilled cuttings will be flushed back to the steel box in the entry pit using drilling fluid.

4.1.8 Back Reaming

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

4.1.9 Duct Installation

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

4.1.10 Fluid Disposal

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

4.1.11 Duct Verification

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

4.1.12 Site Reinstatement

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

4.1.13 Transition Coupler Installation

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

5. WATER CROSSINGS

5.1 Water crossings

Six water crossings have been identified along the grid route. For detailed locations, refer to Chapter 2 – Project Description of the EIAR.

The crossings include:

- 5 Horizontal Directional Drills (HDD) – including one beneath the Barrow River bridge and River (see Figure 5.1) See Drawings DAR-D001 Series Drawings for Water crossing Sections details.
- 1 crossing over the new wind farm bridge on site see drawing P22-145-0300-0001.

Figure 5.1 – River Barrow Bridge

5.2 Traffic Management Plan

The Contractor will develop a comprehensive Traffic Management Plan (TMP) to support road opening applications. This plan will be prepared in consultation with Laois and Kildare County Councils and will incorporate all relevant measures outlined in the Environmental Impact Assessment Report (EIAR).

5.2.1 Traffic Flow Management

Along the R420 and R424 where road widths permit, a 'Stop/Go' traffic management system will be implemented, maintaining a minimum 2.5m wide carriageway to allow traffic to pass safely.

Along the local roads L71764, L-7050, L-7051, L7176, L7176, L70481 where a 'Stop/Go' traffic management system is not feasible, a road closure will be required, with diversions where possible and local access accommodated.

5.2.2 Road Cleanliness and Safety

The public road will be regularly inspected and kept free of mud and debris.

Road sweeping will be carried out as needed to ensure construction traffic does not negatively impact road conditions.

5.2.3 Emergency Access

In the event of an emergency, steel plates (kept on site) can be placed over open trenches to temporarily restore traffic flow.

5.2.4 Local Access

Access for local residents will be maintained throughout the works, although traffic flow may be temporarily reduced during active construction.

APPENDIX 2.2

Biodiversity Enhancement Management Plan (BEMP)

Derrynadarragh Wind Farm, County Kildare and County Offaly

Biodiversity Enhancement Management Plan (BEMP)

August 2025

Prepared for:

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Statkraft Internal

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02	Final Draft	CL			09/09/2025
03	Final	CL			14/09/2025
Wetland Surveys Ireland					

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1 INTRODUCTION

This report presents a Biodiversity Enhancement and Management Plan (BEMP) that has been prepared for the proposed Derrynadarragh Wind Farm (hereafter referred to as the Proposed Development) in County Kildare and County Offaly. The Proposed Development proponent is committed to enhancing the condition and extent of certain habitats in the habitat management area.

The purpose of this BEMP is to ensure that biodiversity at the Proposed Development Site will be in a better condition after the development of the project than is currently the case, through the implementation of measures during the construction and operational stages. This document identifies the important habitats and environmental issues within the Proposed Development site and collates all relevant information on enhancement and management measures in relation to biodiversity within the site.

The habitat management area is defined as the Site Boundary as per Figure 2, corresponding to those lands under the control of the developer/landowners. Measures outlined in this document have been agreed with the individual landowners and will be implemented by the operator in conjunction with the landowners and overseen by a Project Ecologist and the Ecological Clerk of Works (ECoW). The Project Ecologist will undertake to report the success or otherwise of said measures via operational compliance to the National Parks and Wildlife Service (NPWS) and Offaly County Council or Kildare County Council, as relevant.

In addition there will be one Biodiversity Enhancement measure at node 29/30 of the Turbine Delivery Route accommodation works, to the north of the Philipstown River.

Measures that will be incorporated into the design of the Proposed Development to maintain and enhance the biodiversity value of the site are presented. The BEMP sets out to maintain and enhance ecological conditions of the site for the benefit of native flora and fauna. In developing the BEMP, a targeted approach has been adopted whereby consideration has been given to the physical and biological conditions that prevail at the site to ensure that the proposed measures are appropriate to the conditions of the site.

The management and enhancement measures outlined below will be of benefit to various habitats and species at the Proposed Development Site. This BEMP focuses on habitats and species which have been identified as Key Ecological Receptors (KERs) (i.e. habitats and/or species evaluated as Locally Important (higher value) or greater which are likely to be impacted significantly by the Proposed Development). The KERs were identified in Chapter 9 of the EIAR and are presented in Table 1 below). Based on the KERs and on the landowner agreements in place, the BEMP aims to positively impact as many of these KERs as possible.

Figure 1 Site Boundary of lands under control of the developer/landowners at Derrynadarragh

Table 1 Summary of Key Ecological Receptors (KERs) at the Proposed Development Site.

Key Ecological Receptor (KER)	Description	Expected effects from the Proposed Development after mitigation	Likely Benefits from BEMP
Depositing/ Lowland Rivers (FW2)	The Cushina River flows through the Site Boundary and is hydrologically connected to the European designated site, the River Barrow and River Nore SAC [002162]. No significant impacts are expected from the Proposed Development, but it has been assessed as being degraded and having Poor water quality.	No significant effects	Yes
Drainage Ditches (FW4)	The drains on the site all drain to the River Barrow catchment via the Cushina River. They are man-made habitats, intensively managed through regular maintenance, but they do provide some aquatic habitat for local wildlife. They are evaluated to be of **Local importance (Lower Value)** but because of their hydrological connection to the River Barrow and River Nore SAC, further downstream, the Drainage Ditches are included as a KER. Some of them have very high sediment loads, which is likely contributing to the poor water quality in the River Cushina.	No significant effects	Yes
Wet Pedunculate Oak-Ash Woodland (WN4)	There is a small area of this habitat within the Site and it provides habitat for woodland species. It is well connected to the other woodlands within the Site by hedgerows and treelines. It was evaluated as being of **Local Importance (Higher Value)**.	No significant effects	Yes
Bog Woodland (WN7)	The Bog Woodland on the site has developed on cutover bog and does not correspond to the Annex I Bog Woodland habitat. It is dominated by Birch but does support other woodland and peatland species such as Willow, Holly, Bramble, Heather, Purple Moor-Grass and Honeysuckle. It likely supports breeding and foraging habitat for a variety of woodland species including Badger, Bats and other small mammals and birds. It was evaluated as being of **Local Importance (Higher Value)**.	Felling of approximately 1.8ha to accommodate peat deposition areas, tracks and bat buffers around T06 and T07.	Yes
Hedgerows (WL1)	Hedgerows onsite are mostly dominated by native species including Willow, Holly, Hawthorn and Gorse. They have been assessed as being of **Local Importance (Higher Value)**. There will be some felling of hedgerows associated with the Proposed Development.	Felling of approx. 887 linear metres to accommodate bat buffer zones around T04, T07 and T09, TDR accommodation works	Yes

Key Ecological Receptor (KER)	Description	Expected effects from the Proposed Development after mitigation	Likely Benefits from BEMP
		and wind farm infrastructure.	
Treelines (WL2)	Treelines onsite are generally dominated by native species and are likely providing habitat and an ecological corridor for native small mammals and invertebrates. They have been assessed to be of **Local Importance (Higher Value)**. There will be some felling of treelines associated with the Proposed Development.	Felling of approx. 524 linear metres to accommodate bat buffer zones around T01, T04, T05 and T06 and some felling to for TDR accommodation works.	Yes
Eurasian Badger (*Meles meles*)	Badger setts identified within the Site and within the footprint of the Proposed Development. This species is assessed as being of **Local Importance, Higher Value.** Iterative design of the proposed layout has ensured no direct effects on this species.	No direct effects. Some insignificant indirect effects such as loss of suitable foraging habitat, temporary disturbance during construction.	Yes
Eurasian Pygmy Shrew (*Sorex minutus*)	Likely to be present onsite and suitable habitat does occur within the footprint of the Proposed Development.	Possibly reduction in suitable habitat.	Yes
Eurasian Red Squirrel	Likely to be present on site and suitable habitat does occur within the footprint of the Proposed Development.	Possibly reduction in suitable habitat.	Yes
European Otter (*Lutra lutra*)	Present on Site. Dependent on aquatic habitat and uses the River Cushina to some extent. No evidence of frequent use. The River Cushina is within the Zone of Influence of the Proposed Development.	No expected significant effects.	Yes
Pine Marten (*Martes martes*)	No evidence was found to indicate the presence of this species on the Site but it is likely to be present based on the presence of suitable habitat and existing records from the surrounding area. Suitable habitat does occur within the footprint of the Proposed Development.	Possibly reduction in suitable habitat.	Yes
Bats	All bat species in Ireland are protected under both national legislation – (Wildlife Act, 1976, as amended in 2019) and European legislation – (Habitats Directive (92/43/EEC).	Some reduction in suitable foraging and	Yes

Key Ecological Receptor (KER)	Description	Expected effects from the Proposed Development after mitigation	Likely Benefits from BEMP
	Bat species that were recorded onsite are Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Brown long-eared Bat and *Myosotis* species. The Proposed Development has the potential to result in direct and indirect effects on this receptor.	commuting habitat. No roosts were identified within 200m of turbines.	
Giant Hogweed (*Heracleum mantegazzianum*)	This invasive species was recorded onsite. It is a relatively small infestation within a hedgerow but due to the risk of High Impact, this species is of high local concern. It lies outside the footprint of any works associated with the Proposed Development.	None expected	Yes
Invasive species (general)	Other invasive species were recorded from within the Site, adjacent to the GCR and adjacent to the TDR. Snowberry, Ground Elder, Sycamore and Cherry Laurel have been found along the GCR route. Snowberry and Sycamore have been recorded within and immediately adjacent to one of the TDR accommodation works areas. There is potential for construction activities to cause an increase in the spread of these species.	No significant impacts expected	Yes

1.1 STATEMENT OF AUTHORITY

This report was prepared by Caroline Lalor with input from Patrick Crushell and Mary Catherine Gallagher, all Ecologists with Wetland Surveys Ireland (WSI) Ltd.

Caroline Lalor (BSc., MSc., MCEIEEM) received an honours degree in Applied Ecology from University College Cork and a Masters degree in Ecosystem Conservation and Landscape Management from National University of Ireland, Galway. She is a full member of the Institution of Ecology and Environmental Management (CIEEM). Caroline has 20 years of postgraduate experience, working in peatland conservation and ecological consulting. She has experience working on Biodiversity Action Plans, Conservation Management Plans, environmental impact assessment for various developments, including renewable energy projects, preparing chapters of the EIARs, preparing AA Screening and NIS reports.

Dr. Patrick Crushell (BSc., MSc., PhD., CEcol., MCIEEM) has been working in the area of nature conservation and ecological assessment since 2002. He has worked as a consultant ecologist in the preparation of Ecological Impact Assessments on over 500 different projects for a range of organisations including government agencies, engineering firms, local environmental groups and NGOs and has appeared as an expert witness on numerous occasions. Projects that he has been involved in include impact assessments of various development proposals; pre and post – construction monitoring; wetland surveys; evaluation of proposed designated sites; bird surveys; flora and fauna surveys; restoration and management of habitats and baseline ecological surveys. He established and managed three successful agri-environmental results-based schemes.

Dr. Mary Catherine Gallagher received an honours degree (BSc) in Zoology and a Master's degree (MSc) in Marine Biology from UCC. She followed this with a PhD on an invasive barnacle species. Mary Catherine has experience in project management, coastal and freshwater habitat and biodiversity surveys, monitoring surveys and mapping, Geographical Information Systems (GIS), report compilation and has created a range of public information resources and educational materials for various clients including the Pearl Mussel Project. Mary Catherine has prepared a Biodiversity Action Plans and Biodiversity Management Plans for a number of clients.

2 PROPOSED BIODIVERSITY ENHANCEMENT MEASURES

A range of biodiversity enhancement measures are included in this plan aiming to:

- improve the ecological condition of habitats that are currently degraded; or
- replace existing habitat that will be lost due to the Proposed Development.

These measures are outlined in the following sections. A map of the planned measures is presented in Figure 2. A summary of the planned biodiversity enhancement measures and their

expected benefits is given in Table 2. Note in Figure 2 the locations marked for In-ditch wetlands and hedgerow and treeline planting are indicative of the area in which they will occur. Final exact locations will be made at detail design stage.

Figure 2. Map showing planned biodiversity measures at the Proposed Development Site. Proposed track and turbine layout also shown.

Table 2 Planned Biodiversity Enhancement measures, expected benefits and measurable gain

Biodiversity Enhancement Measure	Rationale and Summary	Expected benefits from implementation of the BEMP	Measurable area of creation /protection (ha/m)
1. **In-Ditch Wetlands – Water Quality improvement**	The drainage ditches onsite, particularly on the north of the Cushina River are, in general, intensively managed through regular maintenance and some were noted to be carrying significant loads of peat sediment. Discharge of this sediment-laden water into the River Cushina is likely contributing to the Poor water quality of the River Cushina. In-ditch wetlands will be installed within each of the main drains discharging from the north into the Cushina River. These will allow for sediment to be trapped in the created wetlands within the drains, therefore improving the water quality being discharged to the Cushina River.	• Improvement of water quality in the drains discharging to the Cushina River. • Reduced sediment load within the Cushina River. • Creation of wetland habitats and an associated increase in the biodiversity of wetland plants. • Suitable foraging area for Bats • Suitable breeding and foraging habitat for Dragonflies, Damselflies, Frogs and other aquatic species.	Approx. 200m of in-ditch wetlands habitat will be created corresponding to approximately 0.03 ha
2. Stockproof fencing – Riparian Zone and Lowland River (FW2) protection	The Cushina River flows through the Site. Its banks have been damaged through channel deepening and widening, in addition to stock access. Stockproof fencing is planned to be installed at least 2m back from the top of the riverbank in places where it is necessary to protect the riverbank from stock access. Both the north and south banks will be protected in this way. Fencing on the north bank is mapped in Figure 2. On the southern bank, fencing is currently present in places. Replacement and/or new fencing will be installed as necessary.	• Recovery of natural vegetation on the riverbanks, which will aid stabilisation of the riverbank. • The prevention of stock accessing the river should contribute to an improvement in water quality.	1.4km of lowland river and riverbank will be protected.
3. Stockproof fencing – Woodland creation and	A riparian area along the Cushina River in the east of the Site was identified as having potential for woodland creation. It comprises an earthen bank (created from past river dredging perhaps) which now supports Scrub	• Allow for natural succession to woodland habitat along the river • Protect and enhance habitat for Badger, Otter and other wildlife	• 1km of lowland river and riverbank will be protected

Biodiversity Enhancement Measure	Rationale and Summary	Expected benefits from implementation of the BEMP	Measurable area of creation /protection (ha/m)
riparian zone protection	(WS1) habitat which is starting to somewhat succeed naturally to woodland. There are a number of active Badger setts in this area. Otter spraint was observed along this section of river. Cattle currently have access within this habitat and are likely contributing to the prevention of the natural regeneration of woodland flora.	• Protect riverbank and river habitat • The prevention of stock accessing the river should contribute to an improvement in water quality.	• 2.7ha woodland creation
4. Stockproof Fencing - Bog Woodland (WN7) protection	There will be a loss of approximately 1.8ha of bog woodland as a result of the Proposed Development. Cattle currently have access to most of the bog woodland onsite causing poaching and are likely contributing to the sparse field and ground layers of vegetation. An area of bog woodland to the north of T07, which currently has significant areas of bare peat caused by livestock, has been identified as part of the BEMP and stockproof fencing will be installed around this woodland to aid natural regeneration.	• The exclusion of cattle from this woodland should increase the habitat condition of the woodland by allowing the recovery of bare peat areas and an increase in the structural diversity of the woodland.	2.6ha
5. Hedgerow (WL1) planting	Approximately 887m of hedgerow habitat will be felled as part of the Proposed Development. Hedgerows will either be translocated or, where this is not possible, newly planted, at a location within the Site.	• Translocation of the hedgerows will ensure that much of the mature vegetation and seedbank for the hedgerow species will be transplanted to the new location. • Where translocation is not possible, the remaining length of hedgerow will be planted within the Site with whips of native species and of provenance. Species composition will be selected to create hedgerows with similar species to existing hedgerows.	950m

Biodiversity Enhancement Measure	Rationale and Summary	Expected benefits from implementation of the BEMP	Measurable area of creation /protection (ha/m)
6. Treeline (WL2) planting	Approx. 524m of treelines will be felled in the bat buffer zones. Planting new treelines outside of bat buffer zones will, in time, create habitat to replace these felled areas	• Over time, the planting of treelines with native trees of native provenance will result in the replacement of lost habitat.	550m
7. Invasive Species Control	The Third Schedule, High Impact non-native invasive species, Giant Hogweed (*Heracleum mantegazzianum*), has been identified onsite. An eradication programme will be implemented before the construction phase to safely eradicate this species from the Site. Snowberry, a Low Impact non-native invasive species, was identified at one location within the footprint of the Proposed Development. This is within a short length of hedgerow which will be felled to create a bat buffer zone around T04. This will be eradicated before felling to remove risk of spreading. Snowberry and Sycamore will be eradicated before TDR accommodation works commence, if these species are within the footprint. Invasive species removal will be undertaken by a licenced invasive species contractor. For any reason, should the GCR trench need to leave the road corridor, any invasive species found within the footprint shall be appropriately removed prior to trench digging. Invasive species removal will be undertaken by a licenced invasive species contractor. Strick biosecurity measures will be followed at all times by construction staff.	• Improve the ecological integrity of the native hedgerow where the Giant Hogweed occurs. • Remove risk of introducing or causing dispersal of any non-native invasive species.	90m

A total of :

- 2.4km of Lowland River and riverbank habitat will be protected and enhanced
- Approximately 60m-100m of wetland habitat will be created
- 2.7ha of woodland created in riparian zone through natural succession
- 2.6ha of Bog Woodland protected and enhanced
- 1.5km of linear woody habitat (hedgerow / treelines) creation
- 90m of linear habitat enhancement through the removal of Giant Hogweed.

The BEMP measures, when completed, will also benefit the KER species that use these habitats. It is important to note that the creation, enhancement or protection of wooded habitats including hedgrerows, treelines, and woodland will not be conducted within the identified bat buffer zones. The bat buffer zones have been identified as areas within 95m of each turbine. In order to ensure that bats are not attracted this close to the turbines, it will be necessary to remove all hedgerows, treelines and woodland within the bat buffer zones and to maintain these buffer zones throughout the operational lifetime of the Proposed Development.

Table 3 Overview of effects on KER species from the Proposed Development and the BEMP.

KER	Rationale and Summary	Expected benefits from implementation of the BEMP
Eurasian Badger (*Meles meles*) **Eurasian Pygmy Shrew (*Sorex minutus*)**	Badger setts identified within the site have been avoided by the Proposed Layout. There will be some loss of suitable (hedgerow and woodland) habitat. Some minor loss of grassland habitat.	• Suitable (woodland) habitat will be protected and enhanced. • Suitable (woodland and hedgerows) habitat will be created.
Eurasian Red Squirrel (*Sciurus vulgaris*) **Pine Marten (*Martes martes*)**	Likely to be present on site. Some suitable habitat loss (woodland)	• Protection, enhancement and creation of foraging and commuting habitat and potentially breeding habitats.
Bats	There will be some reduction in suitable foraging and commuting habitat as a result of the Proposed Development.	• Protection, enhancement and creation of foraging and commuting habitat and, potentially, roosting habitats.
European Otter (*Lutra lutra*)	Present on Site. Dependent on aquatic habitat and uses the River Cushina.	• There will be an increase in suitable habitat for natal dens (woodland on riverbank). • Otters may benefit from an improvement in water quality.

Further details on the measures and their implementation are provided in the following sections.

2.1 MEASURE: IN-DITCH WETLANDS

2.1.1 Objective: Water Quality and Biodiversity Enhancement

The Cushina River flows through the site for approximately 2.5km. This river discharges to the River Barrow and River Nore SAC, an internationally important site designated for the protection of many aquatic habitats and species. Hence, the water quality of the Cushina could indirectly affect the sensitive habitats and species which are protected within this site. In addition, the water quality of the Cushina River will determine, to an extent, the suitability of the habitat for many aquatic species within the Proposed Development Site. Among other factors, the water quality of the Cushina is impacted by the quality of the water being discharged to the river, either via the network of open field drains or via overland flow. During the ecological surveys of the Proposed Development Site, it was noted that the water quality within a number of the main drains discharging to the Cushina from the north was very poor and was carrying a high sediment load. These drains were selected for enhancement measures as an opportunity to improve water quality. In addition, there will be alteration to approximately 245m of drainage ditches (FW4) habitat due to the culverting of drains at crossing points.

The implementation of measures to improve the water quality of the River Cushina within the Site is therefore expected to have significant benefits for the aquatic ecology of the Site.

All main drains within the Site boundary flowing into the Cushina River from the north will have in-ditch wetlands installed. No in-ditch wetlands will be installed within the identified bat buffer zones. The final design of these in-ditch wetlands will be based on existing best practices and will be agreed with the Project Ecologist.

It is expected that one in-ditch wetland will be created per drain.

- Each in-ditch wetland will be installed along a minimum 10m length of drain. The depth of water across the majority of the ditch should be around 50 cm deep and approximately 75 cm deep.
- The aim of the in-ditch wetland is to slow the flow of water, allowing excess sediment to fall out of the water column, thereby enhancing the quality of the water that reaches the Cushina River.
- At the in-ditch wetland location, ditches should also be widened to enable water flow to slow and allow sediments to settle out.
- As part of the in-ditch wetland creation, small barriers are usually installed in the drain to slow the flow of water in the drain and allow sediments to settle out.
- Barriers can be either solid structures such as earth bunds with an outlet pipe, or simple wooden barriers to slow the flow of water and allow it to escape slowly.
- The barriers need to be carefully designed so that storm flows can be accommodated.

- At least one of the banks of the drain along this length of drain will be reprofiled, creating a graded bank and increasing the width of the drain.
- The graded bank allows for different depths of water and for the development of a variety of wetland vegetation along the bank, thus enhancing biodiversity and contributing to water quality enhancement.
- Both banks of each of the drains with in-ditch wetlands will be fenced with stock-proof fencing to prevent stock access.
- It is important not to create the in-ditch wetland too close to the discharge point to the Cushina River.
- Regular maintenance will be required throughout the lifetime of these in-ditch wetlands to remove the trapped sediment. The removal of sediment will be carried out according to existing best practices. It is possible to include a sediment trap in the design of the in-ditch wetland to allow for ease of sediment removal.
- It is recommended when removing wetland vegetation during maintenance, not to remove all vegetation at the same time as this would impair the effectiveness of the wetland and remove valuable habitat.

Figure 3 In-ditch wetland under construction. Note reprofiled drain with shelves of different depths creating different depths and widening the drain. Earth bunds are also visible as barrier to slow the flow of water within the drain. (source: Pearl Mussel Project)

Figure 4 Note widened sections of the drain. There are usually two widened chambers connected by a dam with pipe to allow water to flow through. (source: Pearl Mussel Project)

2.2 MEASURE: STOCKPROOF FENCING

A number of habitats onsite are currently accessed by cattle and as a result are suffering varying levels of degradation and/or are not progressing with natural succession. The simple measure of installing stockproof fencing at strategic locations will greatly contribute to the creation, enhancement and protection of these habitats. Unless otherwise stated, the stockproof fencing used will be wooden posts with 3 strands of barbed wire. Further details of each of the objectives are given below.

2.2.1 Objective: Protection and Enhancement of River

One issue that was noted along the banks of the River Cushina during ecological surveys is that of cattle accessing the river. This can lead to erosion and degradation of the riverbank and a subsequent increase in sedimentation of the river substrate. The installation of stockproof fencing all along the northern bank of the river and as needed on the southern bank, will prevent further access to the river by cattle and other stock. This is expected to result in, over time, the recovery

of the riverbank, a reduction in erosion and increase in water quality. All fencing will be installed a minimum of 2m back from the top of the riverbank (except within the woodland creation area as outlined in Section 2.2.2), which will also allow the development of riparian vegetation along the riverbank. As needed, fencing of all the main drains discharging into the Cushina River will be repaired, replaced or installed. All fencing along drains will be installed a minimum of 1.5m back from the top of the drain. This will also contribute to improvement of water quality as drain-side vegetation will help trap sediments before discharging into the drain.

In certain places, it will be necessary to install water troughs to ensure cattle have adequate supply of drinking water. Where possible, this water will be sourced from a mains supply associated with a farmyard. However, where this is not possible, solar pumps will be used to pump water from the river. The troughs will be installed a minimum of 20m away from the bank of the river or drain.

2.2.2 Objective: Woodland Creation and Protection of River and Riparian Zone

The Proposed Development will result in the permanent felling of approximately 6.01ha of woodland within the Site to accommodate elements of the infrastructure of the Proposed Development including turbines, peat deposition areas and access tracks. Felling will be done to accommodate these and as part of environmental mitigation measures for bat species (see Chapter 9 and related Appendices). This felling will involve approximately 3.9ha of Coniferous Woodland (WD4) and 2.14ha of Bog Woodland (WN7).

The clear-felling of trees in Ireland requires a felling licence. The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority and is responsible for all forest licensing which is governed by the Forestry Act 2014 as amended and the Forestry Regulations 2017 (S.I. No. 191 of 2017). A felling licence will include the provision of relevant replant lands (afforestation area) to be planted in lieu of the proposed tree felling on the Site. The associated afforestation of alternative lands equivalent in area to those lands being permanently clear-felled is also subject to licensing ('afforestation licensing').
The area of trees to be felled will be the minimum required to accommodate the Proposed Development. However, for the purpose of the EIAR the area for felling has been identified as the maximum area that could be required to construct the Proposed Development.
The felling 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 Applicant commits to not commencing tree removal on site to accommodate the Proposed Development until both felling and afforestation licences are in place and this ensures the afforested lands are identified, assessed and licensed appropriately by the relevant consenting authority.

The measure for woodland creation onsite involves protecting an area of grassland and scrub in the riparian zone and allowing this to develop naturally into woodland. On the northern bank of the Cushina River for the last 1km before it leaves the Site in the east, there is Scrub habitat (WL1) which is already beginning to succeed to woodland. This habitat is accessible to livestock and natural succession seems to be impeded.

Stockproof fencing will be installed approximately 30m back from the riverbank along the last 1km stretch of the river within the Site. This will create approximately 2.7ha of scrub and grassland which will be fenced off from stock and is expected to naturally succeed to native woodland with a corresponding increase diversity and abundance of ground and field layer vegetation. Badger setts are present here and Otter also currently use this area. This measure will enhance the quality of the habitat available to them and other species including pollinators and invertebrates which utilise dead wood and other woodland features. The barbed wire fencing will facilitate the movement of small mammals within the landscape. This measure will ensure the last 1km of the River Cushina within the Site is not accessible to livestock and hence will protect the river, the riverbank and the wider riparian zone, leading to enhanced water quality and riparian habitat. It will result in approximately 2.7ha of woodland to be created in time.

2.2.3 Objective: Protection and Enhancement of Bog woodland

An area of Bog woodland (WN7) to the north of T07 is currently accessible by livestock. Clear signs of use by livestock were noted with resulting areas of bare soil, poaching and prevention of natural woodland field and ground layers within the woodland were noted. This measure will ensure the woodland will be protected from livestock, and it is expected that the habitat condition will improve once this happens. This measure should also make the woodland more suitable for wildlife onsite including Bats, Badgers and other woodland wildlife including birds such as Woodcock and invertebrates such as Bees. A total of 2.6ha will be protected in this way.

2.3 MEASURE: HEDGEROW TRANSLOCATION AND HEDGROW / TREELINE PLANTING

The Proposed Development will result in the removal of approximately 887m of hedgerow and 524m of treeline habitats to facilitate the proposed tracks, substation and the Bat buffer zones and TDR accommodation works. The BEMP however, will result in the creation of 950m of hedgerow and 550m of treeline outside of the bat buffer zones within the Site.

- Hedgerows / treelines will **not** be planted on peat soils.
- Where possible, hedgerows from the bat buffer zones will be translocated to suitable areas identified and prepared within the Site. Translocation will follow existing best practice guidance such as that given by Hedgerows Ireland (https://hedgerows.ie/wp-content/uploads/2024/06/Guidance-Note-Hedgerow-Translocation.pdf.)
- Where translocation is not possible, the remaining length of hedgerow will be planted using native species of native provenance. Species common in the vicinity will be planted.

- Treelines will be planted with native species of native provenance. Trees suited to for the conditions onsite will be chosen. It is likely that it will be necessary to select species suited to wet conditions. Such species would include Alder (*Alnus glutinosa*), Pedunculate Oak (*Quercus robur*), Willow (*Salix* spp.), and Downy Birch (*Betula pubescens*).
- It may be necessary for these to be ordered from a nursery well in advance to ensure availability of native provenance hedgerow and tree species.

2.4 MEASURE: INVASIVE SPECIES CONTROL

A qualified ecologist will be employed to develop an Invasive Species Management Plan for the Site. As part of this, a pre-construction survey will be conducted to determine if there are any changes from the baseline, particularly with regard to Giant Hogweed within the Site and in relation to the presence of any non-native invasive species within the footprint of the development. In addition to the measures outlined below, there will be strict adherence to the measures outlined in the Chapter 9 of the EIAR which outline preventative measures to be undertaken in order to prevent the spread of invasive species along the TDR, GCR and/or into the Site.

2.4.1 Objective: Eradication of Giant Hogweed

A Third Schedule, High Impact non-native invasive species, Giant Hogweed (*Heracleum mantegazzianum*) is present in a hedgerow in the south-west of the Proposed Development Site. This is not within the footprint of the development. However, the proponent of the wind-farm has agreed with the landowner to remove this invasive species as a positive action for the environment. A detailed Invasive Species Management Plan will be developed in conjunction with the Project Ecologist, in order to detail how to eradicate this species. The implementation of this measure will prevent the future spread of this invasive species from the Site and improve the habitat condition of the hedgerow in which it currently occurs.

- It is advisable to implement this measure at the earliest opportunity in order to reduce the risk of this species increasing from its current level. The smaller the infestation, the easier it will be to control and eradicate.
- A qualified ecologist will be employed to develop an Invasive Species Management Plan
- This will include plans for eradicating Giant Hogweed from the site
- A survey will be conducted to ascertain if the occurrence of this species has changed since the baseline or indeed if any other third schedule, non-native species have become established within the Site.
- A detailed method statement will be produced and this will be followed.
- Methodology will follow best practice guidelines.
- Contaminated areas will be marked out clearly. These areas will include a 4m buffer around the plants to account for seeds in the soil.
- All construction personnel will be made aware of the contaminated area and will avoid it.

- Methods may be mechanical, chemical or a combination of both.
- Follow-up work will be necessary to ensure regrowth and seedings are also controlled. This is likely to be necessary for about 7 years.

2.4.2 Objective: Eradication of Snowberry in Construction Footprint

Snowberry (*Symphoricarpos albus*) is not a Third Schedule species and according to the National Biodiversity Data Centre has a Low risk of Impact. However, as the aim of the BEMP is to enhance the biodiversity at the Site and there is a risk, when creating the Bat buffer zones, of causing a degradation of biodiversity if by clearing the hedgerow in which the Snowberry is growing, this causes it to become established elsewhere. Snowberry can spread via seed and root fragments. Hence, as part of the BEMP, the Snowberry within the footprint of the Proposed Development, will be eradicated before construction. This will be done following best available guidance. There are two main options currently recommended (source JKI Environmental):

1. **Mechanical:** Snowberry can be excavated and moved to a deep cell on-site or to a licensed waste facility.
2. **Chemical:** Snowberry can be treated by foliar spraying with herbicide or by drilling the base of the plant and applying herbicide into drill holes in April / May, this will be followed up with a second treatment in August. This treatment will have to be repeated on a yearly basis for 4-5 years.

3 MONITORING

A monitoring programme will be put in place to document and record the results for comparison to the expected benefits. Monitoring will focus on areas of habitat enhancement and other biodiversity enhancement measures as well as some other mitigation measures outlined in various chapters of the EIAR. A BEMP monitoring report will be compiled at the end of each monitoring year detailing the progress and findings of all management and monitoring activities. Monitoring and reporting will be undertaken by independent, suitably experienced and qualified ecologists employed by the wind farm operator. The BEMP will be considered as a dynamic document and will be reviewed at the end of each monitoring year and modified as required, pending submission to and approval by Kildare and Offaly County Councils and NPWS.

3.1 WATERCOURSES

Monitoring of watercourses will include monitoring of water quality protection measures as outlined in Chapter 12 (Hydrology) and those measures aimed at protecting and enhancing water quality outlined in this BEMP. This will include visual inspections of the outfalls of cross drains and settlement ponds as well as all in-ditch wetlands. When inspecting the in-ditch wetlands, it is important to monitor the structural integrity of the barrier structures as well as the clarity of the water within, and flowing out of, the wetlands. If visual inspections give rise to concerns regarding

water quality, field-testing and laboratory tests will be carried out to clarify if the measures are working properly. Any improvement works necessary will be carried out in a timely manner. Or, if the concerns are regarding the structural integrity of any features, these will be immediately addressed and if repairs are deemed necessary, repairs will be done in a timely manner. Surface water quality mitigation measures will be visually inspected daily during the construction stage and more frequently (up to several times a day) if there is significant surface water onsite after heavy rainfall events/periods.

As part of the monitoring of the in-ditch wetland monitoring, annual surveys of the wetland plants and aquatic faunal species will also be undertaken. Pre-construction surveys of the drains at the points where in-ditch wetlands will be created will be undertaken so that subsequent monitoring surveys can document the results and report on the expected benefits.

Inspection of the approx. 2.5km length of stockproof fencing will be undertaken regularly and especially after flooding events. Inspections should note the location of any issues to be resolved such as damaged posts, erosion around posts, damaged wires etc. Any damage that causes a breach in the fence will need to be repaired immediately. Annual inspections of the riverbank will monitor the progress of riverbank recovery.

Aquatic ecology surveys that were completed in the Cushina River within or downstream of the Site as part of the EIA process to monitor water quality will be repeated every 3-5 years for the first 15 years. In addition, there will be a pre-construction assessment of the biological water quality approximately 10m downstream of the watercourse crossing points of the Cushina River (within the Site) and the Philipstown River (at node 29/30 of the TDR accommodation works). These assessments will use the EPA Q-value methodology and will be carried out once prior to the commencement of construction and on a six-month basis until 6 months after construction works cease.

3.2 WOODLANDS

The woodland habitats protected as part of the BEMP will be monitored. The stockproof fences will be monitored regularly for signs of damage or any breaches. If found, these will be repaired immediately. The Bog Woodland that is protected in the BEMP and the riparian area where woodland creation is expected, will be resurveyed to monitor habitat condition in the first year of the operational phase of the wind farm and every 3-5 years thereafter. Monitoring will focus on species and structural diversity, damage, and threats.

3.3 HEDGEROWS AND TREELINES

Ecological surveys of the hedgerows and treelines to monitor the success of hedgerow translocation and the success of treeline and hedgerow establishment will be undertaken in the

first, second and third years after translocation or planting. Any issues such as failure of hedgerows or trees to establish, shall be rectified as soon as possible. Thereafter, monitoring for any failure/damage will be conducted annually while full ecological surveys will be undertaken every 3-5 years.

3.4 INVASIVE SPECIES

Invasive species monitoring will be undertaken annually for the first 10 years after eradication and full follow-up treatment/control work will be undertaken if invasive species are still present (as outlined in Chapter 9, Volume 2 of the EIAR). Once there has been full eradication of Giant Hogweed from the Site and Snowberry from the construction footprint as outlined in the BEMP and Chapter 9, then monitoring can be reduced to every 3-5 years. If monitoring reveals the need for follow-up treatment, this will be undertaken following best practice guidelines and methods outlined in Chapter 9.

3.5 BIRDS

Post-construction bird monitoring will take place to establish whether the construction and operation of the Proposed Development has had effects on the bird species associated with the Site identified prior to construction (as shown by the baseline surveys in the 2017-2025 period). The monitoring programme will comprise the following:

- Flight activity surveys
- Transect survey within the site
- Water bird surveys at nearby wetland sites as identified in the baseline surveys
- Collision searches

3.6 BATS

Post-construction monitoring surveys will be carried out in order to assess the effectiveness of the mitigation measures for bats (see Chapter 9, Volume 2 and Appendix 9-1, Volume 3 of this EIAR). Post-construction surveys will take place on the first, second, third, tenth and fifteenth year of the operational phase and will include the following elements:

- Detector surveys of bat activity near turbines
- Detector surveys to determine the continuing status of any nearby roosts
- Corpse-search regime. This can be undertaken in conjunction with bird corpse-searches and should take place over a number of consecutive days.
- Existing best practice guidelines will be followed.

Following the completion of Year 1 monitoring the requirement for turbine curtailment to minimise/avoid impacts to bat species will be identified. In the event that curtailment is required the curtailment scheme will be informed by the results of the Year 1 monitoring. This will facilitate

targeting of curtailment to the turbines and times of years where bat fatalities were identified during the monitoring.

4 CONCLUSION

The overall effect of the BEMP after implementation and over time will be a positive benefit on the water quality, native woodland cover and aquatic habitat cover. It is expected that there will be a corresponding increase in biodiversity. Although the Proposed Development will result in some habitat loss of KERs, the BEMP will result in a greater amount of corresponding habitat creation. In addition, through the removal of the Third Schedule Invasive species, Giant Hogweed, the ecological integrity of the habitats in the vicinity will be improved and protected.

An overall summary and comparison of the expected habitat loss and habitat gains of KER habitats as a result of the Proposed Development, including the BEMP, are presented in Table 4 and

Table 5 below.

Table 4 Area of KER habitats and woodland habitats to be removed and gained from the Proposed Development

Habitat Type	Area of habitat to be removed (ha)	Habitat gain /benefit (ha)	Net gain (ha)	Description / rationale
Drainage Ditches (FW2)	0.0245	0.0300 (minimum)	0.0055	A small amount of net gain will be achieved in terms of area but the actual gain is likely to be greater due to expected higher quality of habitat created in the in-ditch wetlands in comparison to the drains that will be culverted. At worst, no net loss is expected.
Scrub (WS1) / native woodland	0	2.7	2.7	An area of scrub habitat will be fenced off in the riparian zone to protect it from livestock, deer and other large animals. The area of scrub will increase and eventually succeed to woodland.
Bog Woodland (WN7)	(2.1)	2.6	2.6	An area of woodland will be planted offsite subject to felling and forestry licences to replace the 2.1ha of bog woodland that will be felled. Hence, the protection and enhancement of 2.6ha of bog woodland onsite corresponds to 2.6ha of net gain. This area of bog woodland will be fenced and there will be positive effects on overall woodland ecology.
Conifer Woodland (WD4)	(3.9)	N/A	N/A	An area of woodland will be planted offsite subject to felling and forestry licences to replace the 3.9ha of conifer woodland that will be felled.

The total Net Gain from the implementation of the BEMP as part of the Proposed Development will be 5.31ha.

Table 5 Length of KER habitats to be removed and gained from the Proposed Development

Habitat Type	Length of habitat to be removed (m)	Habitat gain /benefit (m)	Net gain (m)	Description / rationale
Lowland/ depositing River (FL2)	0	2400	2400	The 2.4km stretch of the Cushina River within the Site is expected to benefit from the BEMP in terms of water quality, condition of substrate and integrity of riverbank. This will be achieved through the fencing off of livestock and the installation and maintenance of the in-ditch wetlands in drains.
Hedgerows (WL1)	887	950	63	The main reason for the hedgerow loss is the implementation of bat foraging buffers. Translocation and/or planting of native hedgerows onsite will only be carried out on non-peat soils. Where possible, hedgerows will be translocated/planted to reconnect severed habitats. The planned planting will yield a net gain of 63m of hedgerow.
Treelines (WL2)	524	550	26	524m of treelines will be lost to accommodate the Proposed Development, mainly to facilitate the bat buffers. Planting of trees suited to the conditions on-site, likely to include mostly species suited to wet soils.
Other Feature				
Invasive Species	n/a	98	98	Giant Hogweed will be removed from a hedgerow of approximately 98m in length. This hedgerow will improve in its overall ecology. Snowberry will be removed from a 34m length of hedgerow, but as this hedgerow will be felled to accommodate bat buffers, it will not result in a corresponding gain. (The gain from hedgerow planting has already been accounted for above).

The total Net Gain of linear habitat from the Proposed Development following the implementation of the BEMP will be 3.99km of linear habitat.

APPENDIX 2.3

Turbine Delivery Route Assessment

Pell Frischmann

Derrynadarragh Wind Farm

Abnormal Indivisible Load Route Survey

December 2024

This report is to be regarded as confidential to our Client and is intended for their use only and may not be assigned except in accordance with the contract. Consequently, and in accordance with current practice, any liability to any third party in respect of the whole or any part of its contents is hereby expressly excluded, except to the extent that the report has been assigned in accordance with the contract. Before the report or any part of it is reproduced or referred to in any document, circular or statement and before its contents or the contents of any part of it are disclosed orally to any third party, our written approval as to the form and context of such a publication or disclosure must be obtained.

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01		Draft	23-10-2024	A Dimitrov	T Lockett	G Buchan
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1 Introduction

1.1 Purpose of the Report

Pell Frischmann Limited (PF) has been commissioned by FT Timoney & Company Limited (FT) to undertake a survey of a Abnormal Indivisible Load (AIL) delivery route for wind turbine loads associated with the construction and development of Derrynadarragh Wind Farm, located north east of Portarlington on the border between County Kildare and County Offaly.

The Route Survey Report (RSR) has been prepared to help inform FT on the likely issues associated with the development of the site, with regards to off-site transport and access for AIL traffic. This report identifies the key issues associated with AIL deliveries, noting what remedial works, either in the form of physical works or as traffic management interventions will be required to accommodate the predicted loads.

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The detailed assessment and subsequent designs of any remedial works are beyond the agreed scope of works between PF and FT at this point in time.

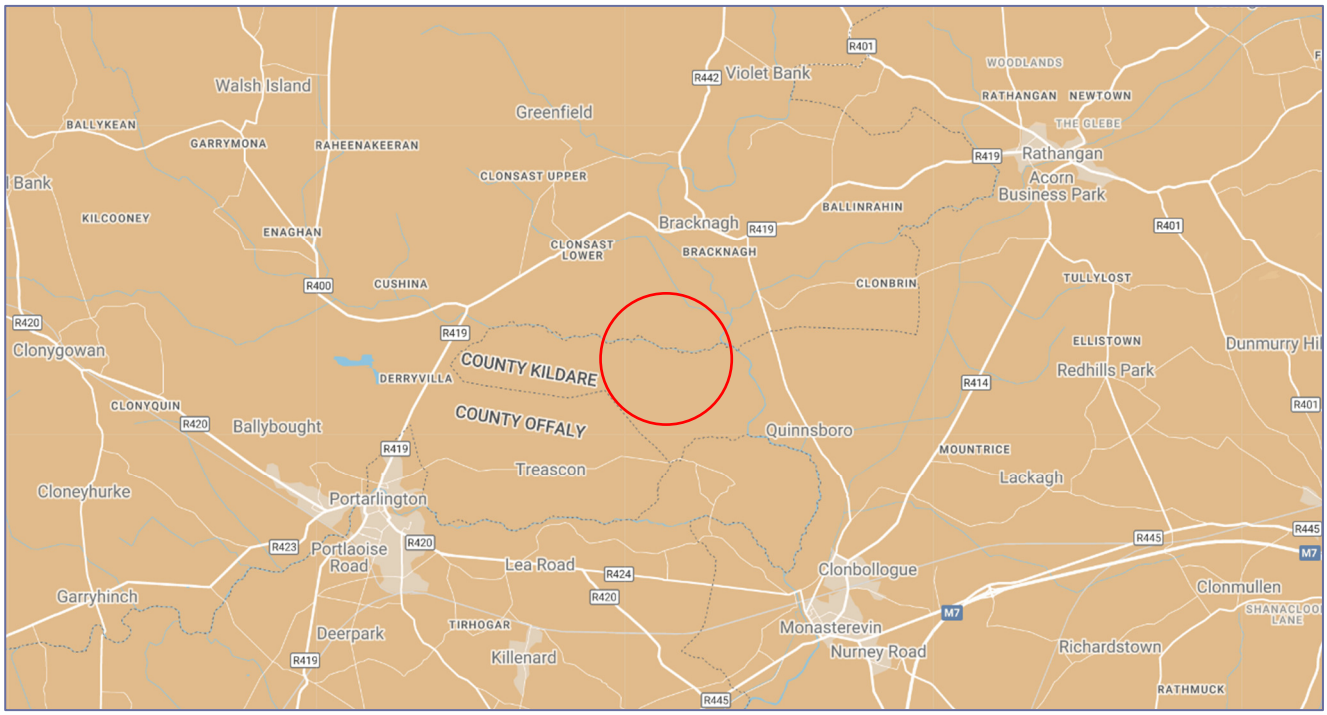
It is the responsibility of the turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users and in accordance with the relevant legislation at the time of delivery.

2 Site Background

2.1 Site Location

The development site is located north east of Portarlington on the border between County Kildare and County Offaly. Figure 2-1 below illustrates the general site location.

Figure 2-1: Site Location Plan



2.2 Candidate Turbine

FT have indicated that they wish to consider the worst-case components as shown in Table 2-1 below.

Table 2-1: Turbine Components Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	81.500	4.395	4.110	28.871
Worst Case Tower	29.972	4.300	4.260	89.460

2.3 Proposed Delivery Equipment

To provide a robust assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be carried on a Superwing Carrier trailer to reduce the need for mitigation in constrained sections of the route. The base and mid towers would be carried on a 4+7 clamp trailer. The hub, nacelle housing, and top towers would be carried on a six-axle step frame trailer. Figures 2-3 and 2-4 below illustrate examples of the proposed delivery equipment.

Figure 2-2: Superwing Carrier Trailer

Figure 2-3: Tower Clamp Trailer

3 Access Route Review

3.1 Proposed Access Route

The scope of the project is from Junction 5 of the M6 to the proposed site entrance and is as follows:

- At Junction 5, depart the M6 and continue south on the N52;
- Depart the N52 to the east of Tullamore and turn left onto the R420, eastbound;
- Turn left onto the R402 northbound;
- Continue north and then east on the R402 through Ballinager and Daingean;
- Turn right from the R402 onto the R400 travelling south; and
- Remain on the R400 until reaching Corbetstown where loads would keep left at the junction to join the R419 then proceed northeast towards the site entrance.

The proposed access route is illustrated in Figure 3-2.

Figure 3-1: Proposed Access Route

3.2 Route Constraints

The constraints noted on the route are provided in the table below. These cover all constraints from Junction 5 of the M6 through to the proposed site access location. No consideration of the transport issues within the development site or from the port have been undertaken.

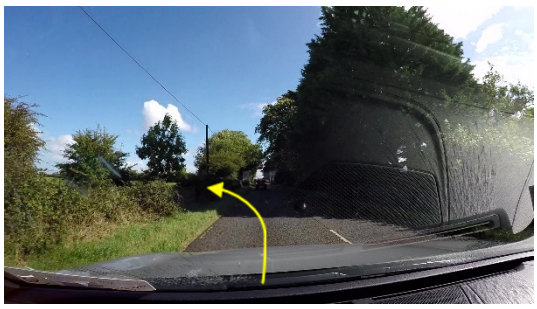
It is strongly recommended that a full overhead utility search is carried out along the route to ensure that height clearances are suitable for normal temperature ranges.

Plans illustrating the location of the constraints are provided in Appendix A.

Table 3-1: Constraint Points and Details

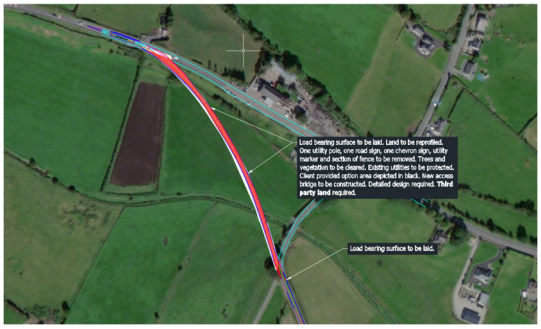
POI	Key Constraint	Details
12	**M6 Junction 5 Slip Road** 	Loads will exit the M6 at Junction 5 and head east. Vehicle escorts must ensure trailing traffic does not merge into the convoy at this location.
13	**M6 Slip Road / N52 Roundabout** 	Loads will take the third exit at the roundabout to join the N52 southbound, undertaking a contraflow manoeuvre. Three lighting columns and two road signs should be removed from the northern verge of the entry arm where loads will oversail a fence, gate and concrete pillars. A land search should be completed to confirm the extent of the available adopted boundary to the north. A load bearing surface should be laid in the southern verge of the entry arm to allow loads to overrun and oversail. Three lighting columns and three road signs should be removed. Two sets of chevron signs should be removed from the roundabout island. Loads will overrun and oversail the central reservation of the exit arm where a load bearing surface should be laid and two road signs should be removed. Swept path drawing SK01 is included in Appendix B.
14	**N52 / L5202 Roundabout** 	Loads will take the third exit at the roundabout heading south on the N52 Extension to existing overrun area required. One set of chevron signs should be removed. Swept path drawing SK02 is included in Appendix B.

POI	Key Constraint	Details
15	**N52 Ardan Roundabout** 	Loads will take the second exit at the roundabout to continue on the N52. One road sign and one lighting column should be removed from the eastern verge of the entry arm. Extension to existing overrun area required. One set of chevron signs should be removed. Vegetation should be cleared. One road sign should be removed from the exit arm splitter island to allow loads to oversail one bollard. Loads will oversail the eastern verge of the exit arm. Swept path drawing SK03 is included in Appendix B.
16	**N52 Cappancur Roundabout** 	Loads will take the second exit at the roundabout to continue on the N52, undertaking a contraflow manoeuvre. Extension to existing overrun area required. Two sets of chevron signs should be removed to allow loads to overrun and oversail. Loads will oversail the western footways of the entry arm and exit arm. Swept path drawing SK04 is included in Appendix B.
17	**N52 Cloncollog Roundabout** 	Loads will take the first exit at the roundabout to join the R420 eastbound. One lighting column and one road sign should be removed from the western verge of the entry arm where loads will oversail a safety barrier. One road sign should be removed from the entry arm splitter island where bollards will be oversailed. Extension to existing overrun area required. One set of chevron signs should be removed. One road sign should be removed from the exit arm splitter island where bollards will be oversailed. Loads will oversail the eastern footway of the entry arm and northern footway of the exit arm. Swept path drawing SK05 is included in Appendix B.

POI	Key Constraint	Details
18	**R420 East of Meelaghans** 	Loads will continue on the R420 eastbound. Throughout the route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints.
19	**R420 / R402 Junction** 	Loads will turn left using the option area identified by the client. One road sign should be removed from the southern verge on approach to the junction to allow loads to oversail. Trees should be trimmed. Loads will overrun and oversail the inside of the left turn. A load bearing surface should be laid. Land reprofiling Is required. Three road signs, one chevron sign and three utility poles should be removed. Trees and vegetation should be cleared. Full detailed design required to confirm the mitigation necessary. Swept path drawing SK06 is included in Appendix B.
20	**R402 Ballina** 	Loads will continue on the R402 northbound. Throughout the route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints.
21	**R402 Northwest of Ballycue** 	Loads will continue on the R402 northbound. Loads should be raised on to the highest suspension settings prior to this location to increase ground clearance over the road.

POI	Key Constraint	Details
22	**R402 St Joseph's National School** 	Loads will turn right at the junction to head east, remaining on the R402. A load bearing surface should be laid on the western footway and verge to allow loads to overrun and oversail. One utility pole, one road sign, one chevron sign, a wall and all other obstacles should be removed. Trees / vegetation should be cleared. Loads will oversail on the inside of the right turn where there is minimal clearance to wall. Loads will overrun and oversail the northern footway / verge. A load bearing surface should be laid. One utility pole, eight road signs and two chevron signs should be removed. Trees should be trimmed. Vegetation should be cleared. Following the junction, traffic calming measures have been put in place by way of a traffic island with associated two bollards. Both bollards should be removed and a load bearing surface should be laid to allow loads to overrun the traffic island. Swept path drawing SK07 is included in Appendix B.
23	**R402 St Joseph's Cemetery** 	Loads will continue on the R402 through a left bend travelling northbound. One utility pole should be removed from the northern verge. One road sign should be removed from the southern verge. Swept path drawing SK08 is included in Appendix B.
24	**R402 North of Ballinagar GAA Club** 	Loads will continue on the R402 northbound. The road surface was noted to be deteriorating.

POI	Key Constraint	Details
25	**Daingean Main Street / Edenderry Road** 	Loads will continue through Daingean on the R402. The proximity to the utility poles in the western and northern verges should be confirmed during the test run. All street furniture and parking should be removed from the identified areas. A load bearing surface should be laid in the northern footway to allow loads to overrun and oversail. Parking at this location should be suspended during deliveries to allow loads safe passage. Swept path drawing SK09 is included in Appendix B.
26	**R402 Southwest of Castlebarnagh Golf Course** 	Loads will continue on the R402 eastbound. At this location, traffic calming measures have been put in place by way of a traffic island with associated signage. To allow oversail of wider loads, one bollard and one road sign should be removed from the southern verge, and two bollards and one road sign should be removed from the traffic island.
27	**R402 Southeast of Killoneen** 	Loads will continue on the R402 eastbound. The road surface was noted to be deteriorating.
28	**R402 South of Ballyhough** 	Loads will continue on the R402 eastbound. Two bollards and one road sign should be removed from each of the two crossing islands.

POI	Key Constraint	Details
29, 30	**R402 / R400 Junction & River Philipstown Bridge**  	Loads will turn right prior to the junction, through the field and rejoin the R400. New access bridge and track to be constructed. Swept path drawing SK10 is included in Appendix B.
31	**R400 North of Drumcaw Or Mountlucas** 	Loads will head southeast on the R400 through a left bend. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints. Vegetation in the northern verge should be trimmed. Trees and vegetation in the western verge should be trimmed. A load bearing surface should be laid in the southern verge to allow loads to overrun and oversail. One utility pole should be removed from the southern verge where vegetation should be cleared and trees should be trimmed. It is recommended that the swept path assessment is repeated on a topographical survey base to confirm the clearances to the northern fence and gate, western fence and southern wall. Swept path drawing SK11 is included in Appendix B.
32	**R400 East of Mountlucas** 	Loads will continue on the R400 southbound. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints. A load bearing surface should be laid in the western verge to allow loads to overrun and oversail into **third party land**. The land should be reprofiled and the trees and vegetation should be cleared. Swept path drawing SK12 is included in Appendix B.

POI	Key Constraint	Details
33	**R400 Southeast of Mountlucas** 	Loads will continue on the R400 southbound. Loads will overrun and oversail the eastern verges where a load bearing surface should be laid, one utility pole and a safety barrier should be removed, and vegetation should be cleared. Swept path drawing SK13 is included in Appendix B.
34	**R400 Northeast of Brackagh** 	Loads will continue on the R400 southbound. The vertical profile of the road from this location to the site is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding. Tree canopy trimming is required from this location onwards to provide a clear 5m head height from the road surface. Trimming of the tree canopy can be subject to ecological constraints. Vegetation in the western verge should be trimmed. Trees and vegetation in the eastern verge should be trimmed. Swept path drawing SK14 is included in Appendix B.
35, 36	**R400 South of Enaghan**  	Loads will drive over a bridge, then continue straight at the junction through the field and rejoin the R400 following the right bend. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints. Swept path drawing SK15 is included in Appendix B.
37	**R400 Bridge over River Cushina** 	The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.

POI	Key Constraint	Details
38	**R400 East of Moanvane** 	Loads will continue on the R400 heading southeast through a left bend. A load bearing surface should be laid in the northeastern verge to allow loads to overrun and oversail. One utility pole and two bollards should be removed. Trees and vegetation should be cleared. Client provided option area depicted in black. Swept path drawing SK16 is included in Appendix B.
39	**R400 Bord Na Mona Machinery Crossing** 	The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.
40	**R400 Bord Na Mona Railway Crossing** 	Loads will continue east on the R400 driving over a peat railway crossing. Care should be taken to ensure that no trains are approaching whilst loads are crossing.
41	**R400 North of Derryounce Lakes** 	Loads will head east on the R400 through a left bend, oversailing both verges where trees and vegetation should be trimmed. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints. Swept path drawing SK17 is included in Appendix B.
43	**R400 North of Derryounce Lakes** 	Loads will continue east on the R400, oversailing both verges where vegetation should be trimmed. Swept path drawing SK18 is included in Appendix B.

POI	Key Constraint	Details
44	**R400 North of Derryvilla** 	Loads will continue east on the R400 driving over a peat railway crossing. Care should be taken to ensure that no trains are approaching whilst loads are crossing. Loads will oversail both verges at this location; however, no further mitigation is necessary.
45	**R400 North of Derryvilla** 	The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.
46, 47	**R400 / R419 Junction**  	Loads will head east on the R400 through two right bends then turn left onto the R419 at the junction heading northeast. Vegetation in both verges through both bends should be trimmed. A load bearing surface should be laid in the southeastern verge following the junction to allow loads to overrun and oversail. Two utility poles and two road signs should be removed. Trees and vegetation should be cleared. Swept path drawing SK19 is included in Appendix B.
48	**Proposed Site Entry** 	Loads will exit the R419 turning into a newly constructed site access junction.

3.3 Swept Path Assessment Results and Summary

The detailed swept path drawings for the locations assessed are provided in Appendix B for review. The drawings in Appendix B illustrate tracking undertaken for the worst case loads at each location.

The colours illustrated on the swept paths are:

- Grey / Black – OS / Topographical Base Mapping;
- Green – Vehicle body outline (body swept path);
- Red – Tracked pathway of the wheels (wheel swept path); and
- Magenta – The oversail tracked path of the load where it encroaches outwith the trailer (load swept path).

Where mitigation works are required, the extents of overrun and oversail areas are illustrated on the swept path drawings. Please note that where assessments have been undertaken using Ordnance Survey Ireland (OSI) base mapping or available CAD based aerial mapping, there can be errors in the data source. Where provided by the client, topographical data has been utilised. Please note that PF cannot accept liability for errors on the data source, be that OSI base mapping or client supplied data.

3.4 Access Junction Considerations

The access junction into the site would need to be built to accommodate the proposed physical size of loads and the number of trips predicted during the construction phase.

The design and form of the junction would need to be discussed with the local road authority. The design of the junctions should take into account the requirement for provision of visibility splays which should be defined by the road authority.

The junctions would also need to be built in accordance with the turbine supplier design criteria.

3.5 Third Party Land

A review of third party land should be undertaken by the client to ensure that no additional land rights are required to enable deliveries or mitigation works. Pell Frischmann accepts no responsibility for the accuracy of land ownership assumptions, all of which should be confirmed across the entire access route by a qualified land agent.

3.6 Summary Issues

It is strongly suggested that following a review of the RSR, FT should undertake the following prior to the delivery of the first abnormal loads, to ensure load and road user safety:

- A review of axle loading on structures along the entire access route with the various road agencies is undertaken immediately prior to the loads being transported in case of last minute changes to structures;
- A review of clear heights with utility providers and the transport agencies along the route to ensure that there is sufficient space to allow for loads plus sufficient flashover protection (to electrical installations);
- That any verge vegetation and tree canopies which may foul loads is trimmed prior to loads moving;
- That a review of potential roadworks and or closures is undertaken once the delivery schedule is established in draft form;
- That a test run is completed to confirm the route and review any vertical clearance issues; and
- That a condition survey is undertaken to ascertain the extents of road defects prior to loads commencing to protect the developer from spurious damage claims.

4 Summary

4.1 Summary of Access Review

Pell Frischmann has been commissioned by FT to prepare a Route Survey Report to examine the issues associated with the transport of abnormal load turbine components to Derrynadarragh Wind Farm.

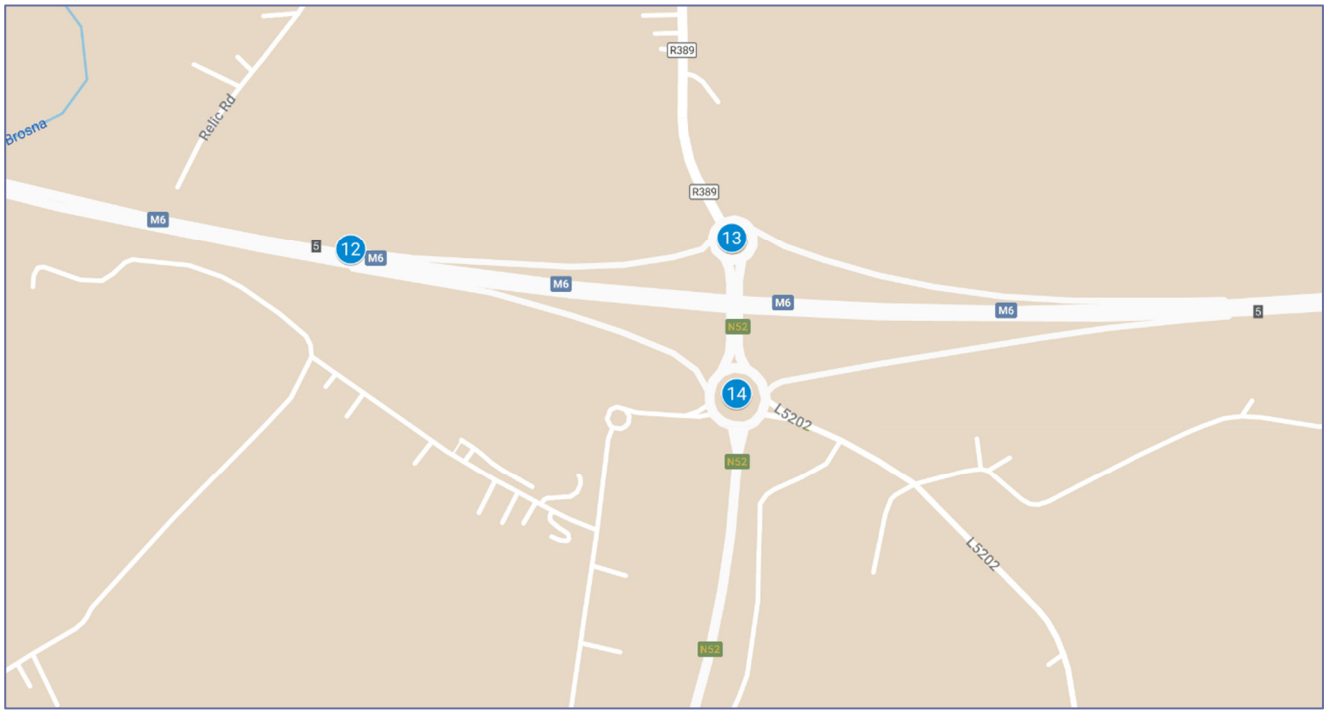
This report identifies the key points and issues associated with the proposed route and outlines the issues that will need to be considered for successful delivery of components.

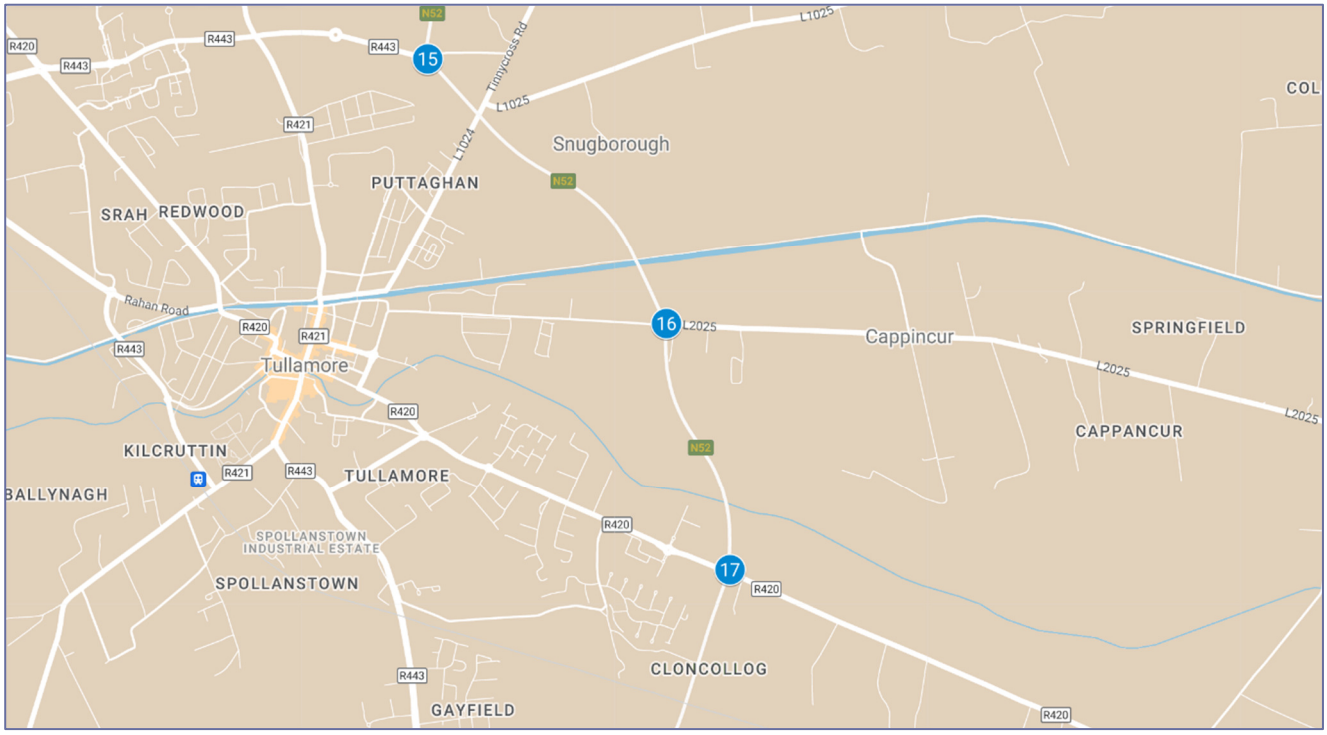
The report is presented for consideration to FT. Various road modifications, structural reviews, and interventions are required to successfully access the site.

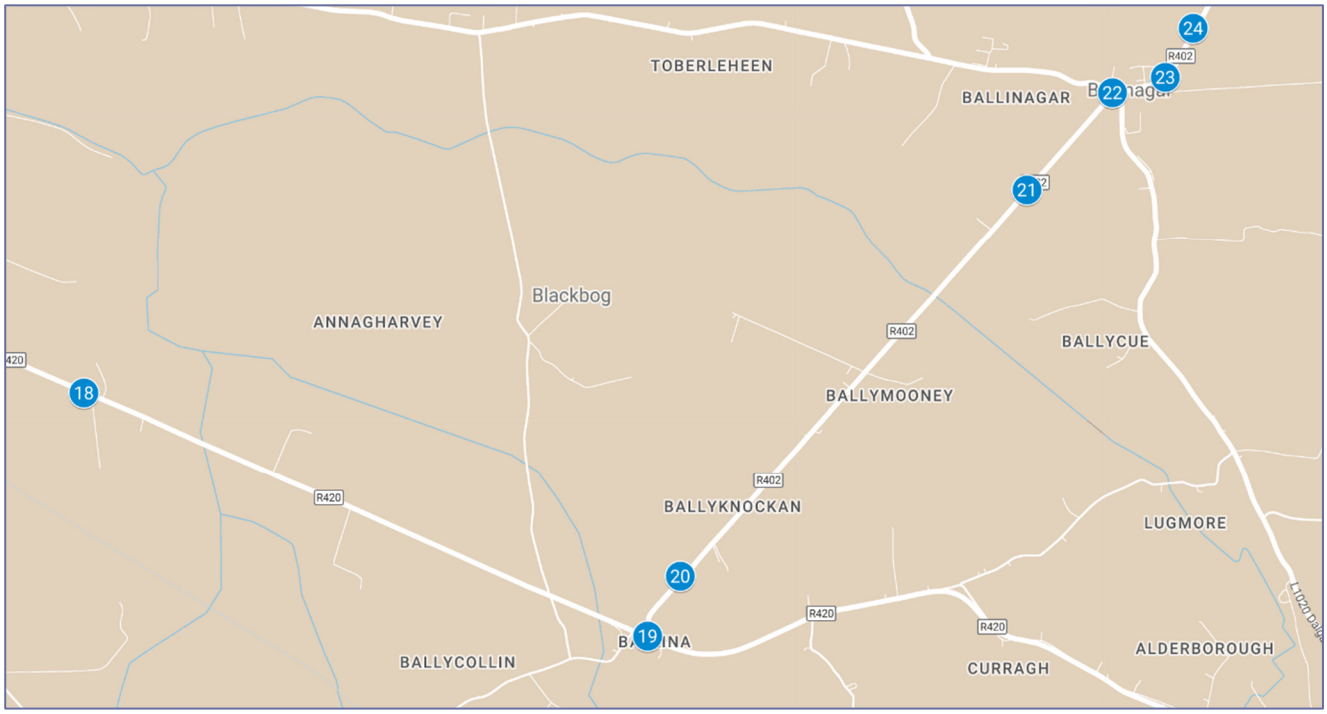
Appendix A Points of Interest

An electronic copy of the POI plan can be found at the following link:

https://www.google.com/maps/d/edit?mid=1cXvxv6Ex_eAMe77TwA3cm4vomTjP6Lg&usp=sharing






TOBERLEHEEN
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ANNAGHARVEY
Blackbog
BALLYCUE
BALLYMOONEY
BALLYKNOCKAN
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23
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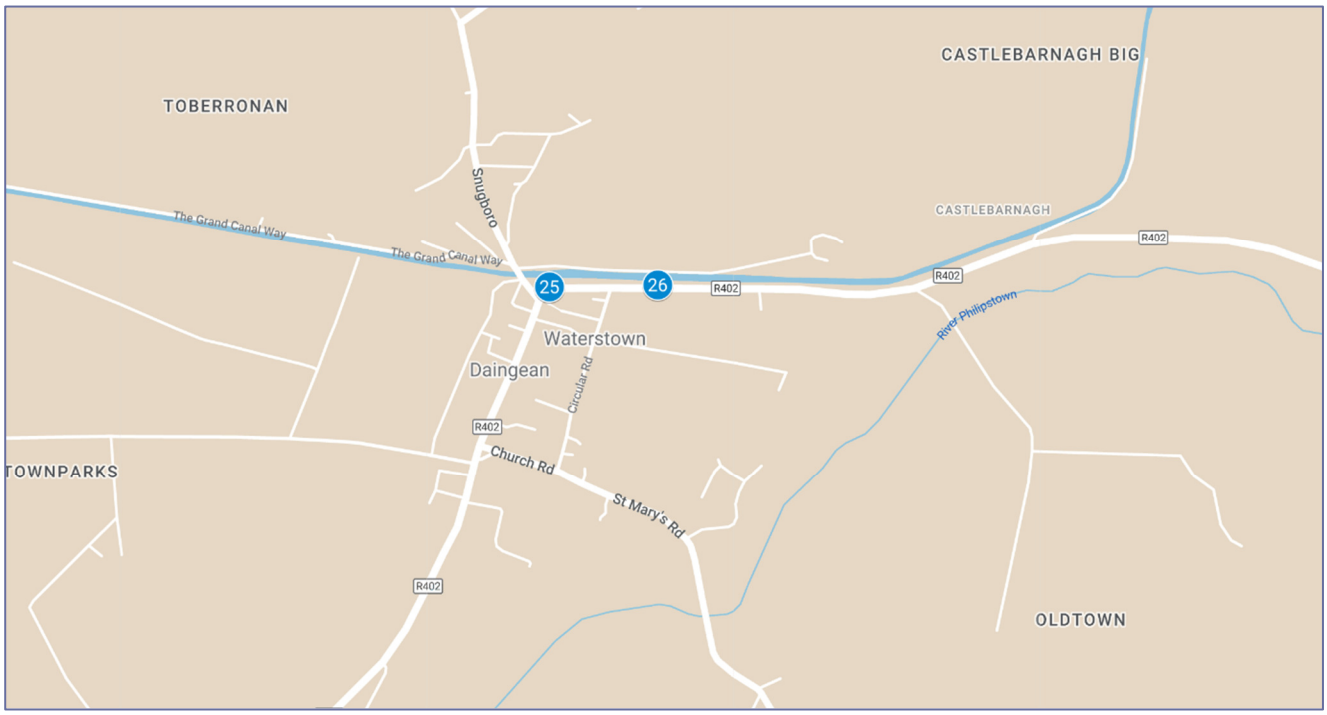
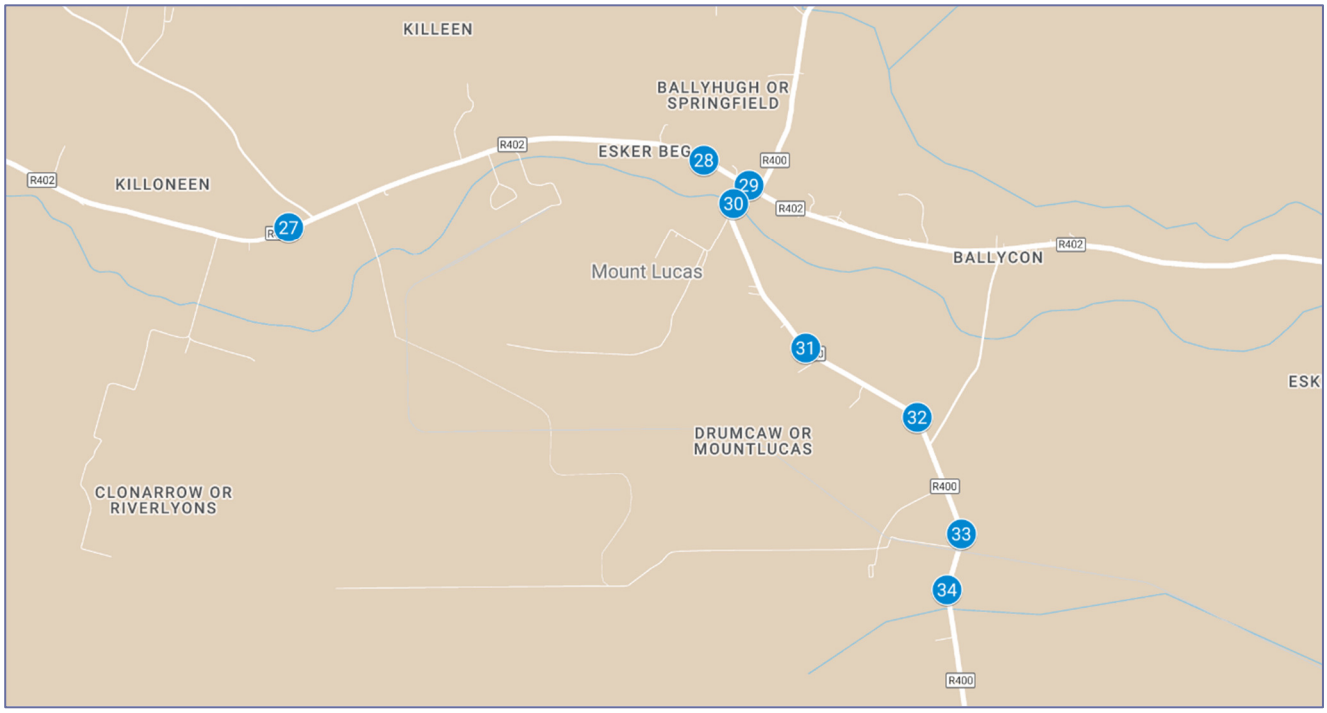

CASTLEBARNAGH BIG
TOBERRONAN
The Grand Canal Way
Snugboro
CASTLEBARNAGH
Waterstown
Daingean
Circular Rd
River Philipstown
Church Rd
St Mary's Rd
TOWNPARKS
OLDTOWN
R402
25
26


KILLEEN
BALLYHUGH OR SPRINGFIELD
ESKER BEG
KILLONEEN
R402
R400
BALLYCON
Mount Lucas
DRUMCAW OR MOUNTLUCAS
CLONARROW OR RIVERLYONS
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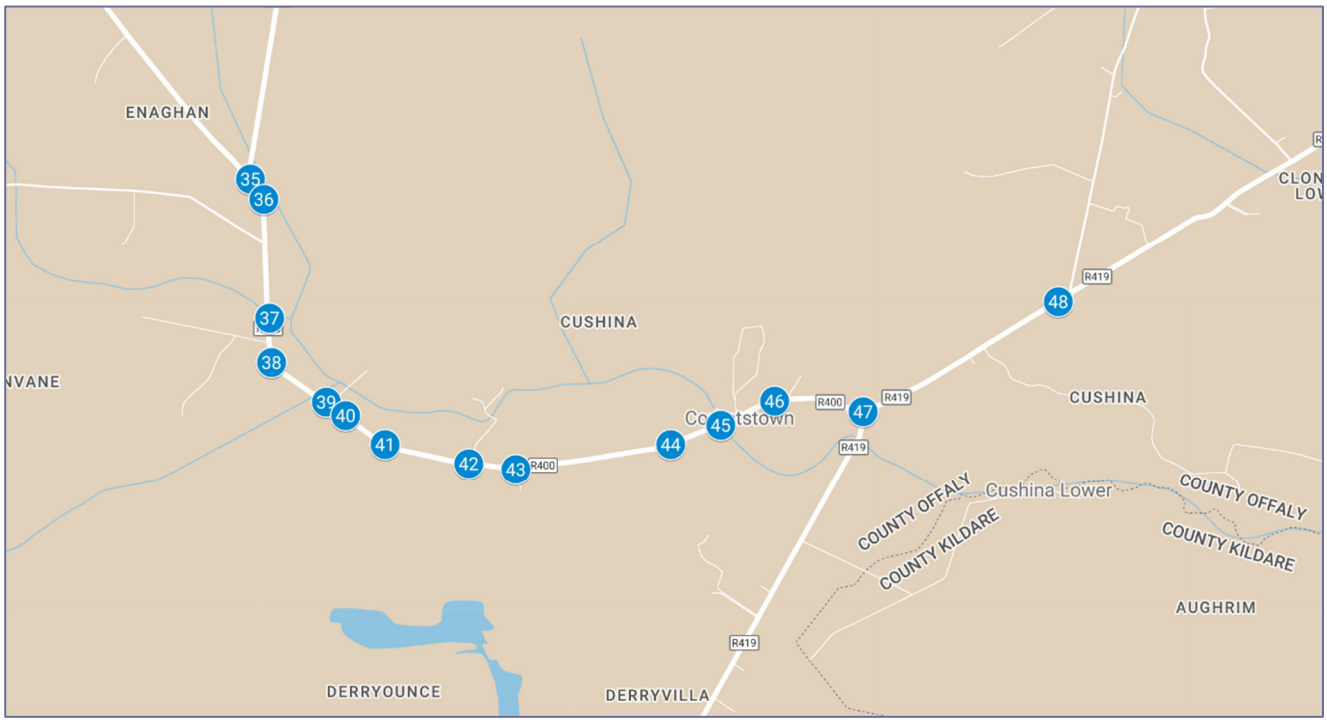
34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CUSHINA
CUSHINA
Cushina Lower
COUNTY OFFALY
COUNTY KILDARE
COUNTY OFFALY
COUNTY KILDARE
AUGHRIM
DERRYOUNCE
DERRYVILLA
R419
R400
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Appendix B Swept Path Assessments

Blade

Tower

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: M6 Slip Road / N52 Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		13

Scale: 1:500 @ A3

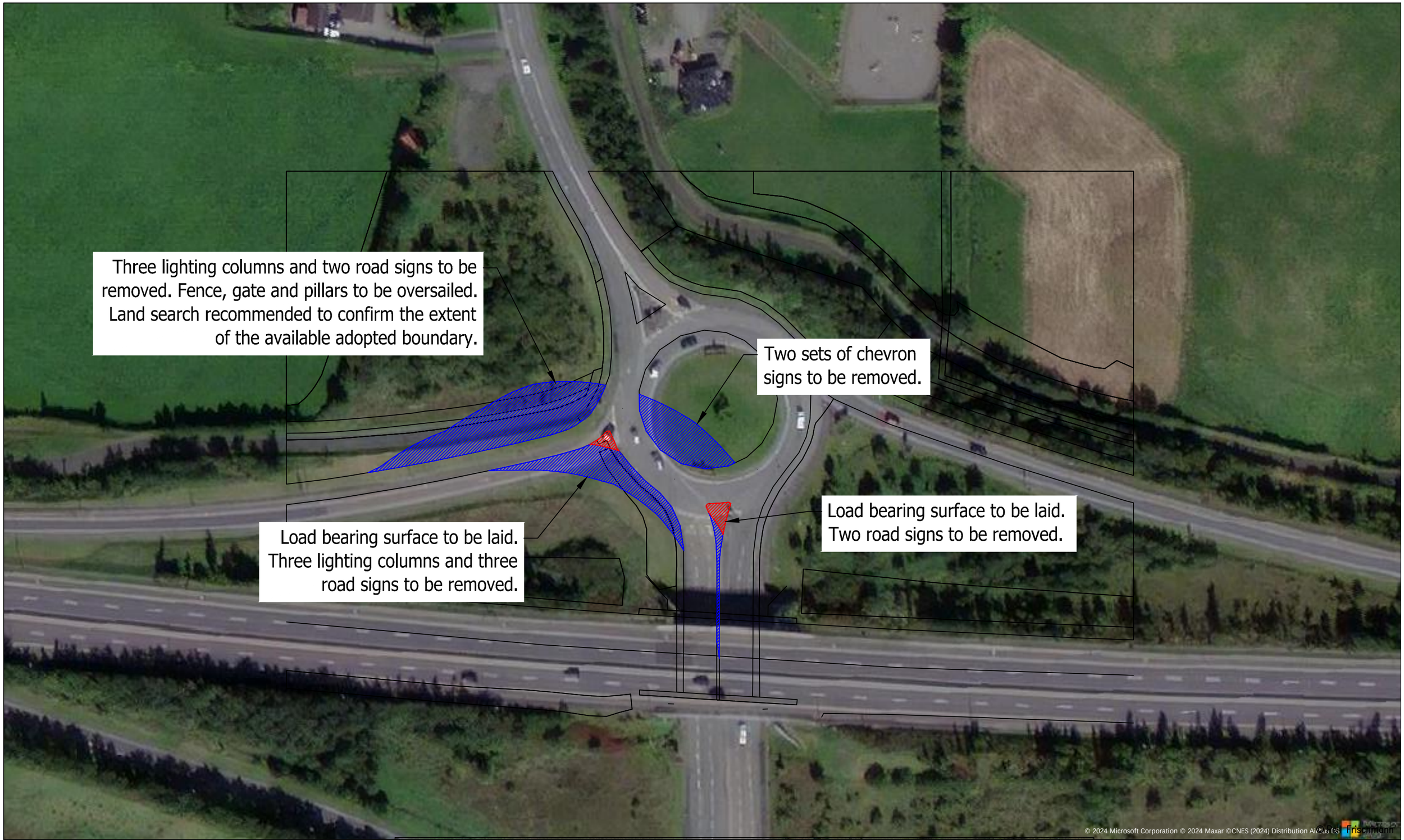
File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK10

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: M6 Slip Road / N52 Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		13

Scale: 1:1000 @ A3

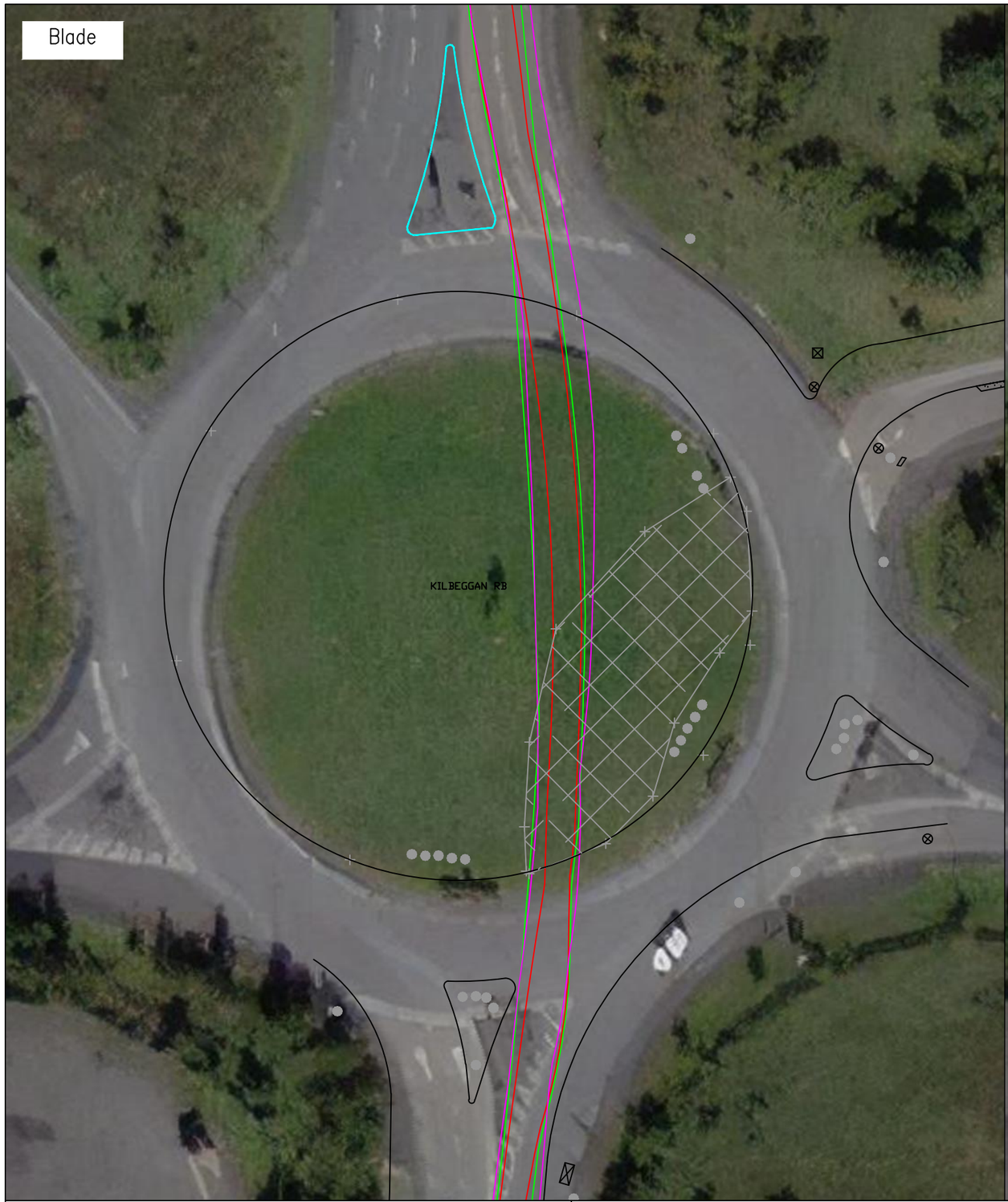
File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

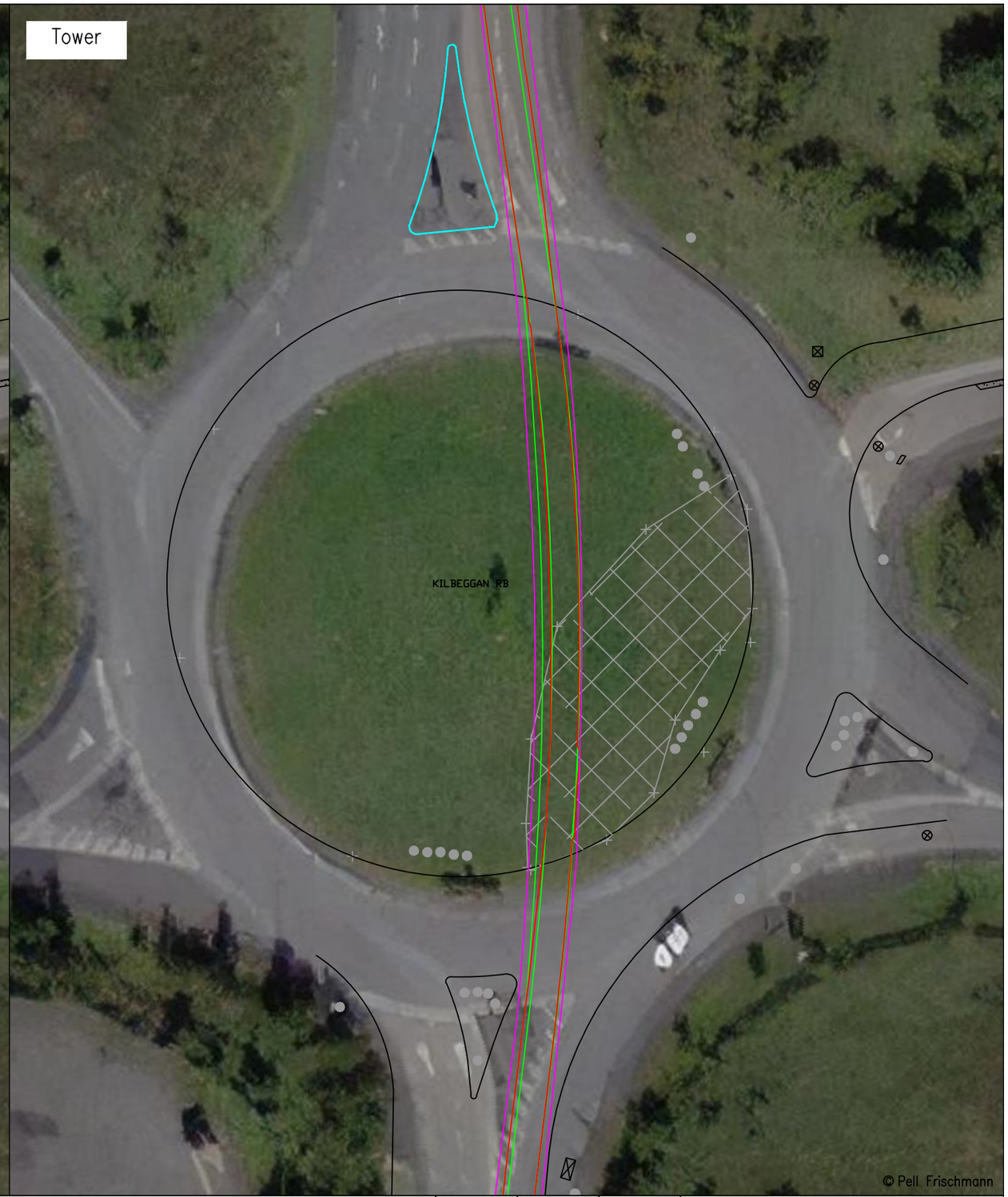
Drawing Status: Draft

Drawing No.: SK10A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1





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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 / L5202 Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		14

Scale: 1:500 @ A3

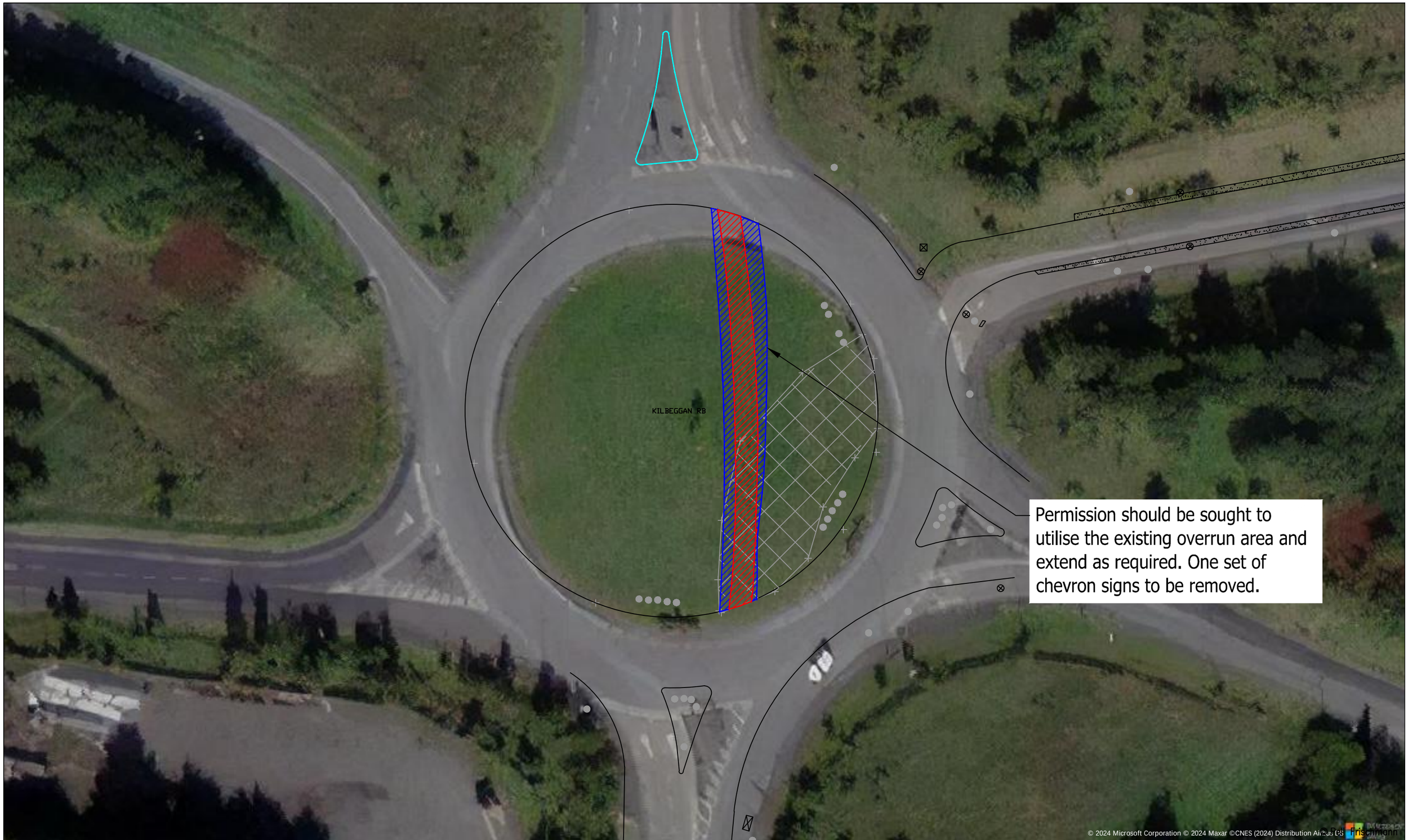
File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK11

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 / L5202 Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		14

Scale: 1:500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK11A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Ardan Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		15

Scale: 1:1000 @ A3

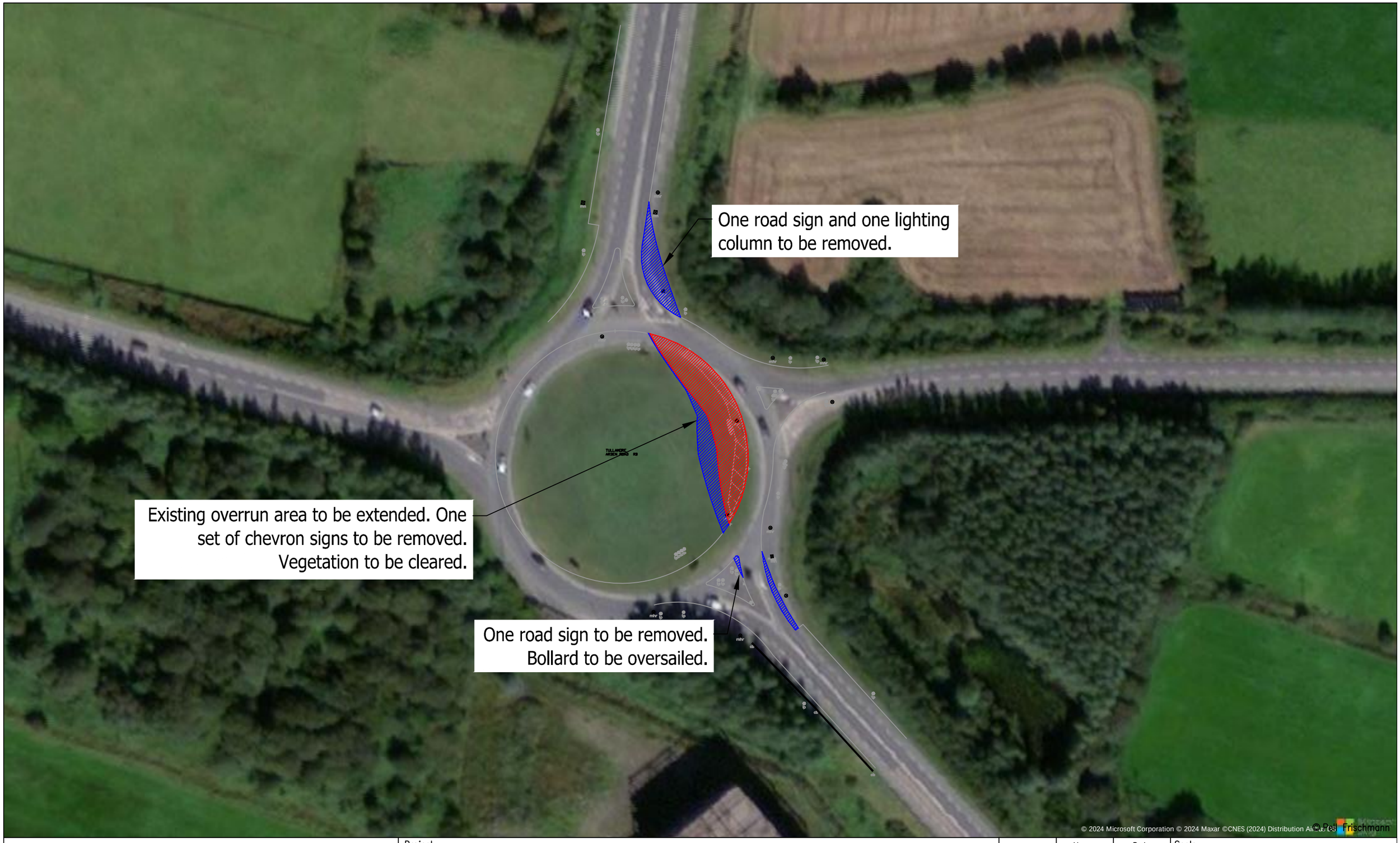
File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK12

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Ardan Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		15

Scale: 1:1000 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK12A

Notes:
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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Cappancur Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		16

Scale: 1:500 @ A3

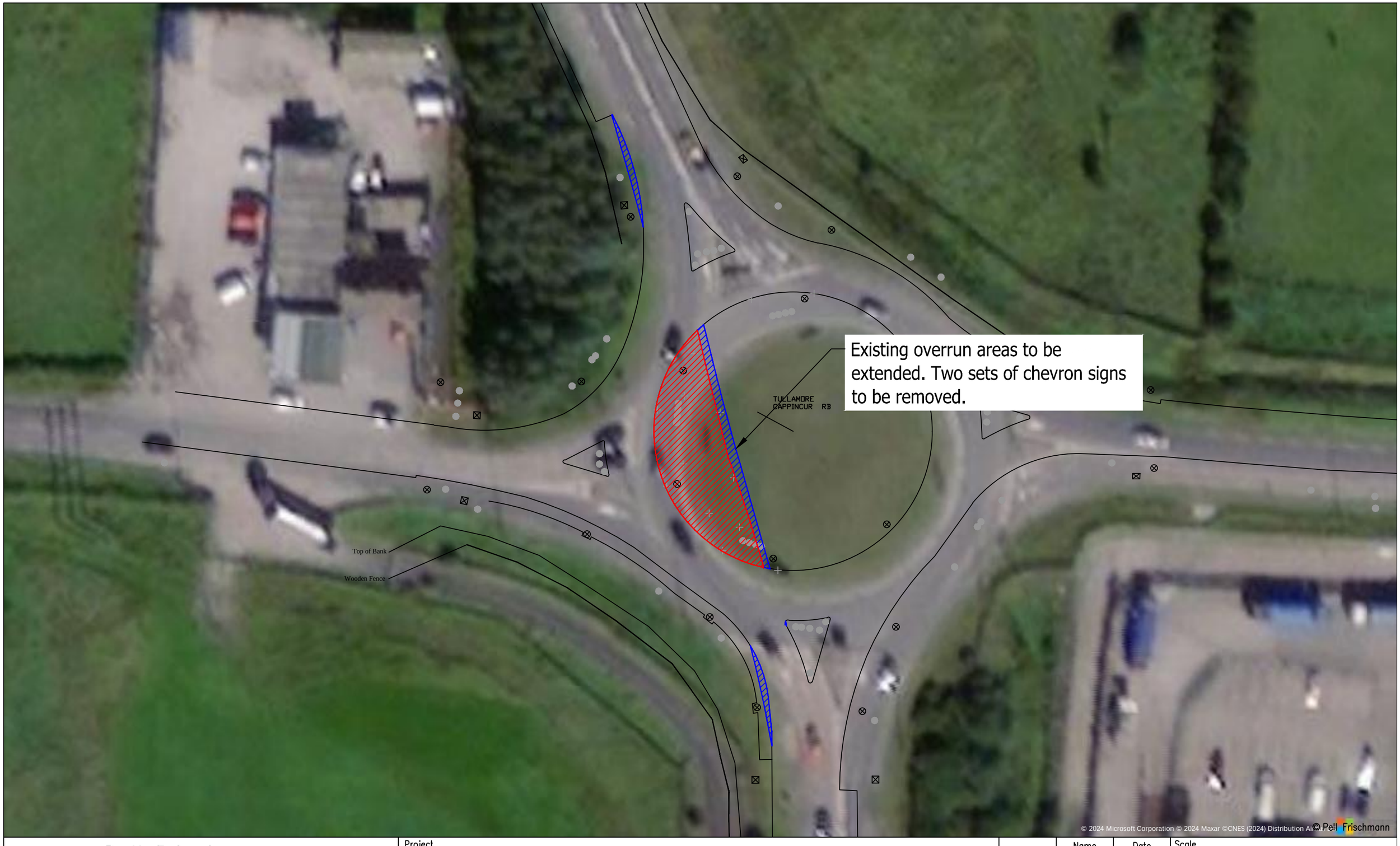
File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK13

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Cappancur Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		16

Scale: 1:500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK13A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Cloncollog Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		17

Scale: 1:1000 @ A3

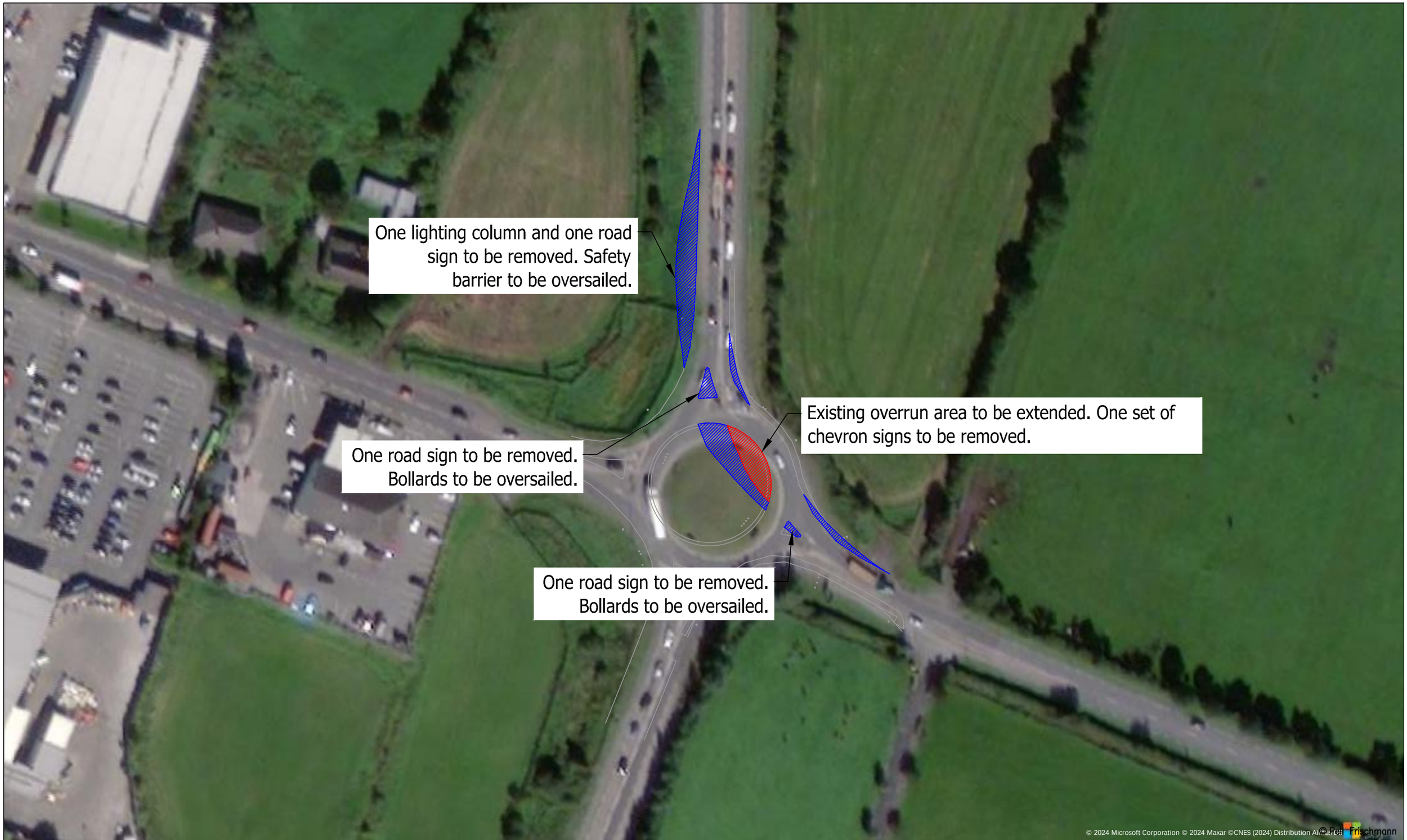
File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK14

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: N52 Cloncollog Roundabout

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		17

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK14A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Fehily Timoney and Company

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Overrun; Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R420 / R402 Junction

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		19

Scale: 1:1000 @ A3

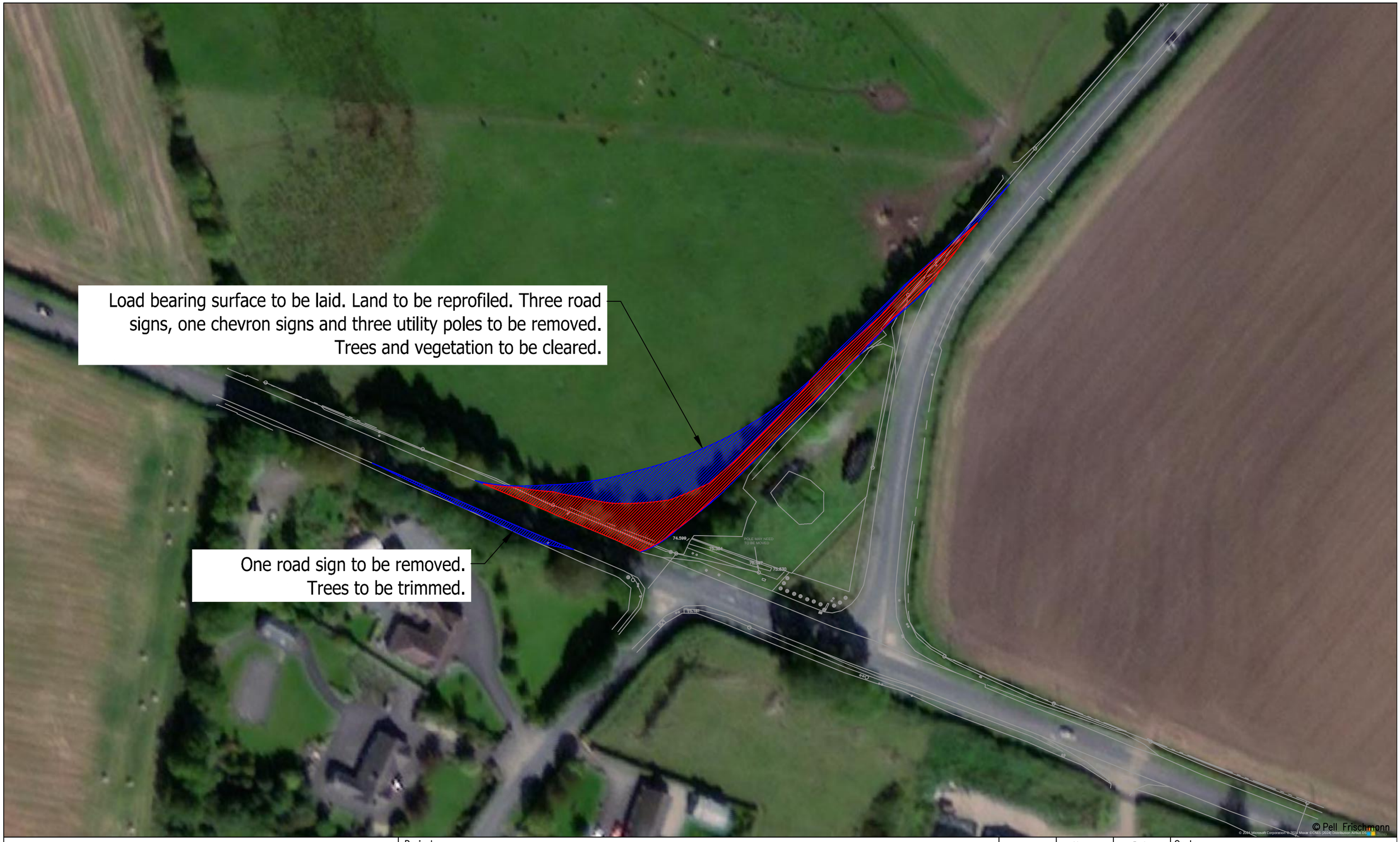
File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK15

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 2



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R420 / R402 Junction

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		19

Scale: 1:1000 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK15A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 2

Blade

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Client: Fehily Timoney and Company

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Overrun; Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 St Joseph's National School

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		22

Scale: 1:1000 @ A3

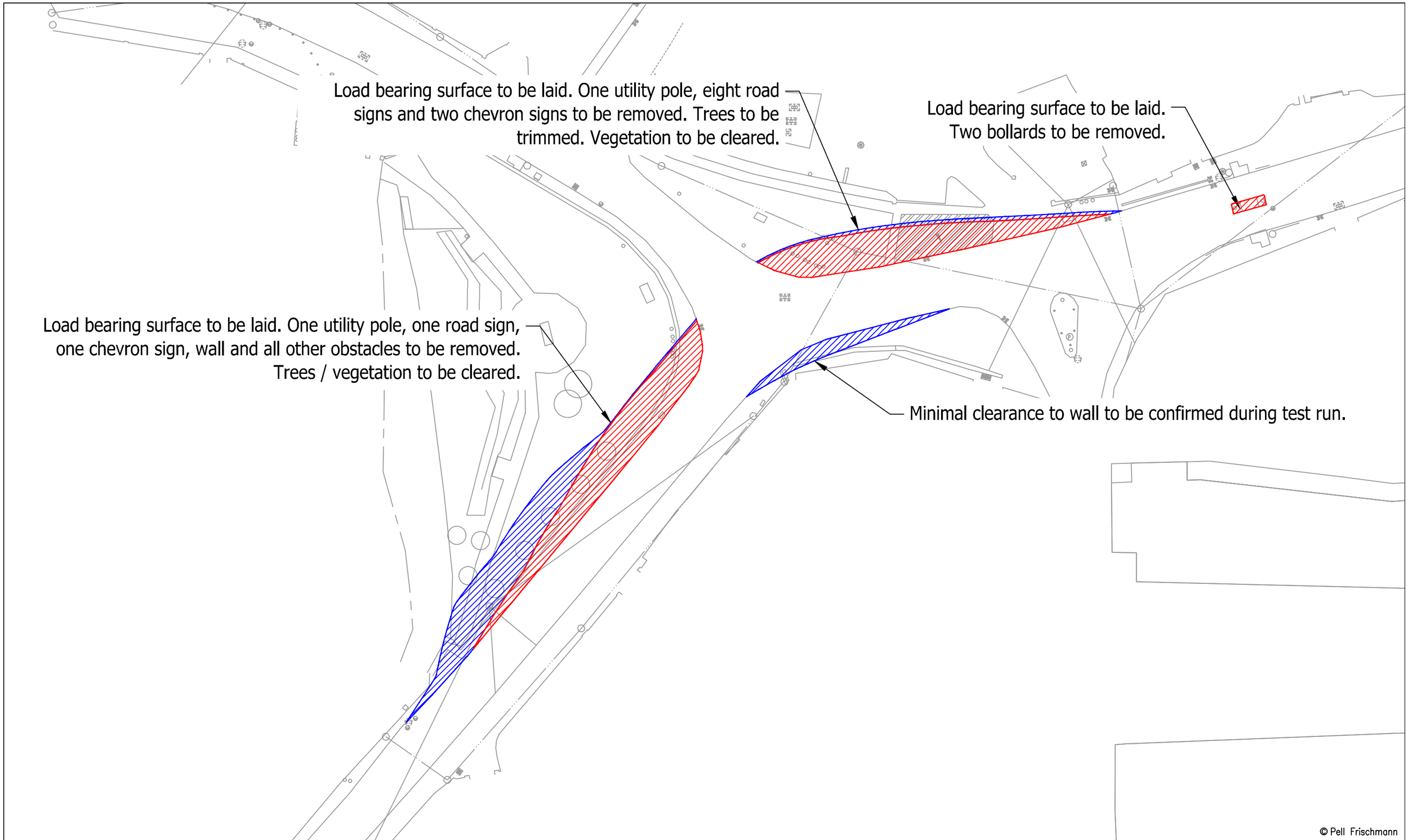
File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK16

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 2



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 St Joseph's National School

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		22

Scale: 1:500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK16A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 2

Blade

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 St Joseph's Cemetery

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		23

Scale: 1:1000 @ A3

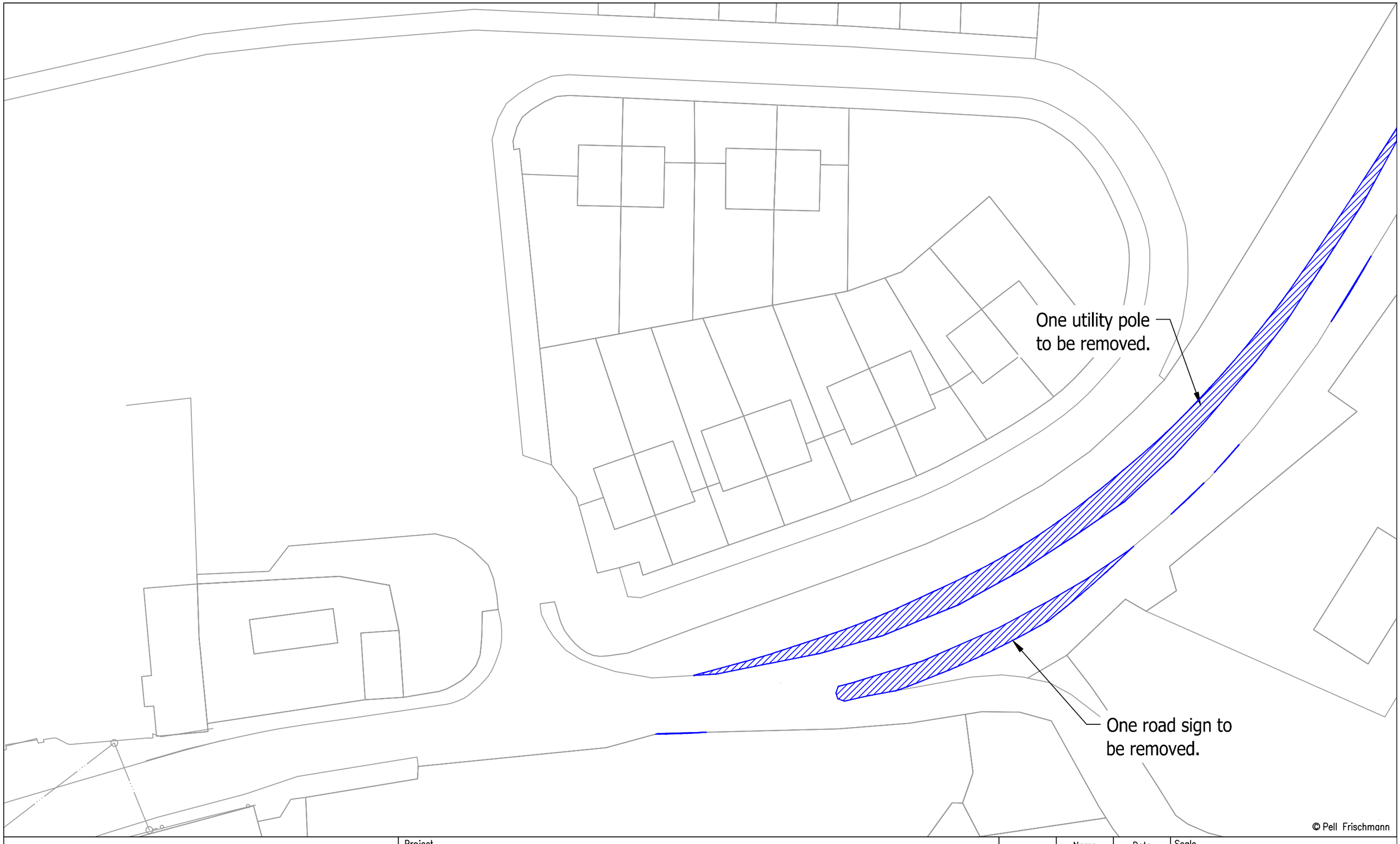
File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK17

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 St Joseph's Cemetery

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		23

Scale: 1:500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

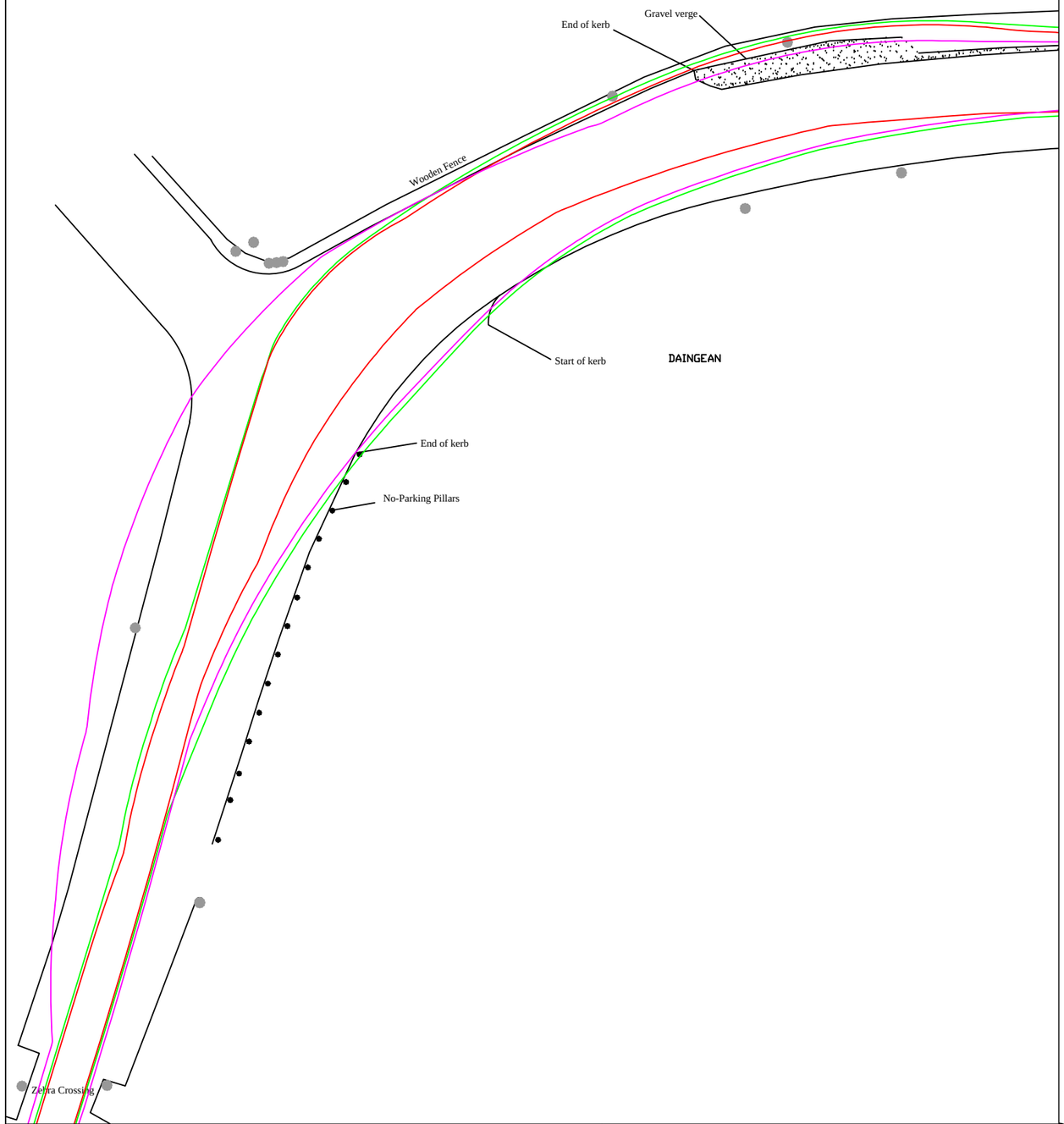
Drawing Status: Draft

Drawing No.: SK17A

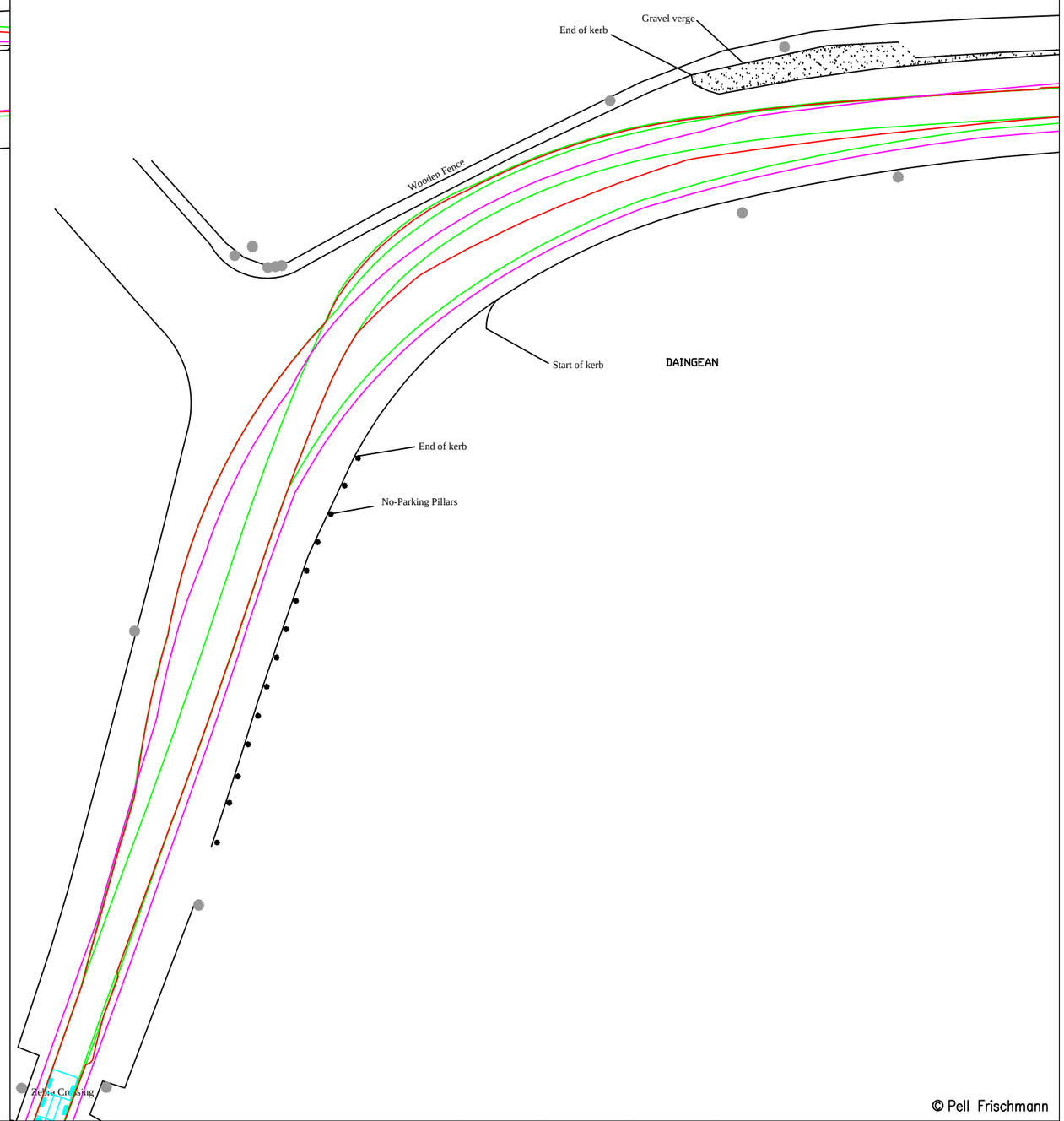
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: Daingean Main Street / Edenderry Road

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		25

Scale: 1:500 @ A3

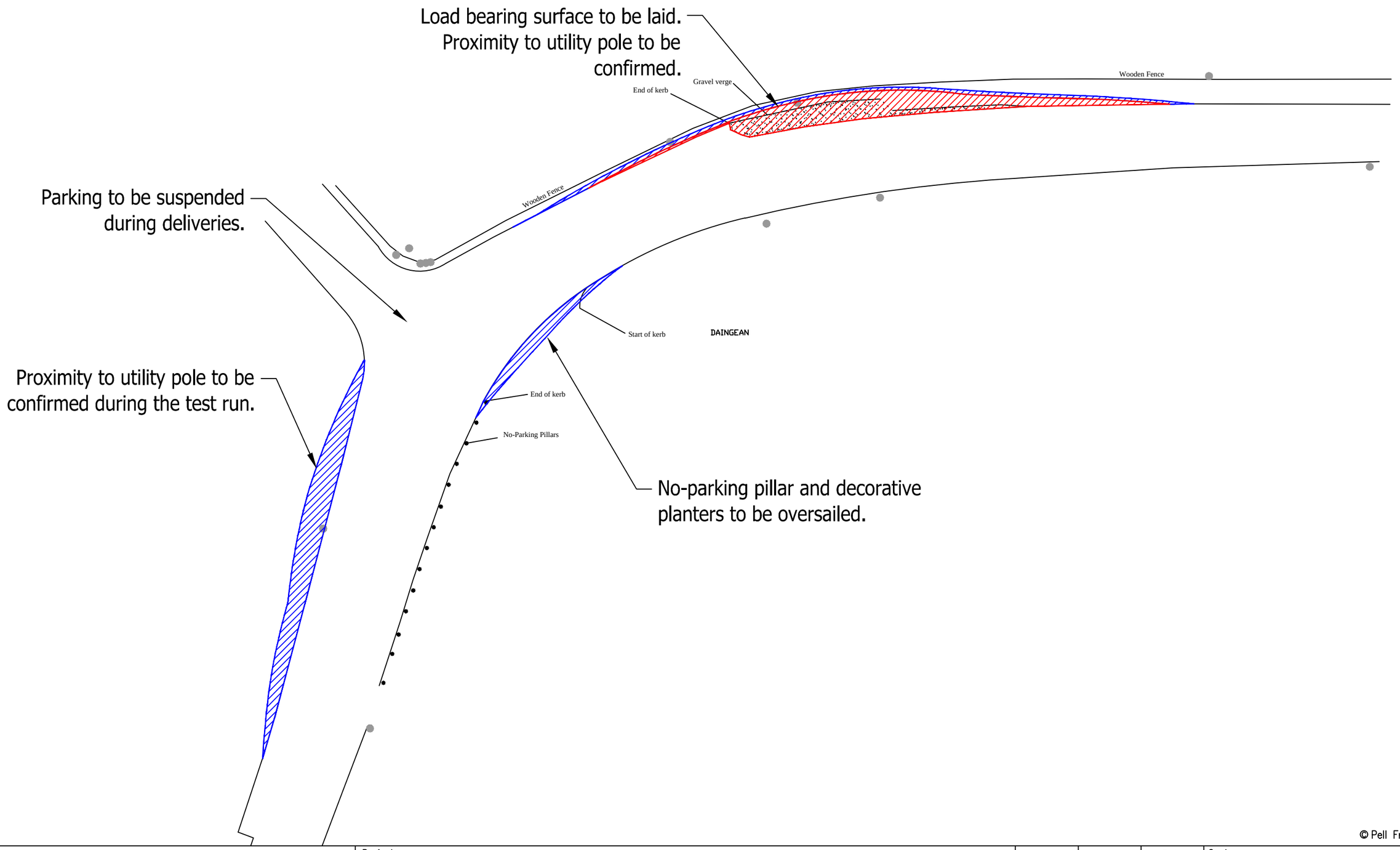
File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK18

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: Daingean Main Street / Edenderry Road

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		25

Scale: 1:500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK18A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 / R400 Junction & River Philipstown Bridge

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		29, 30

Scale: Custom @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK19

Notes:
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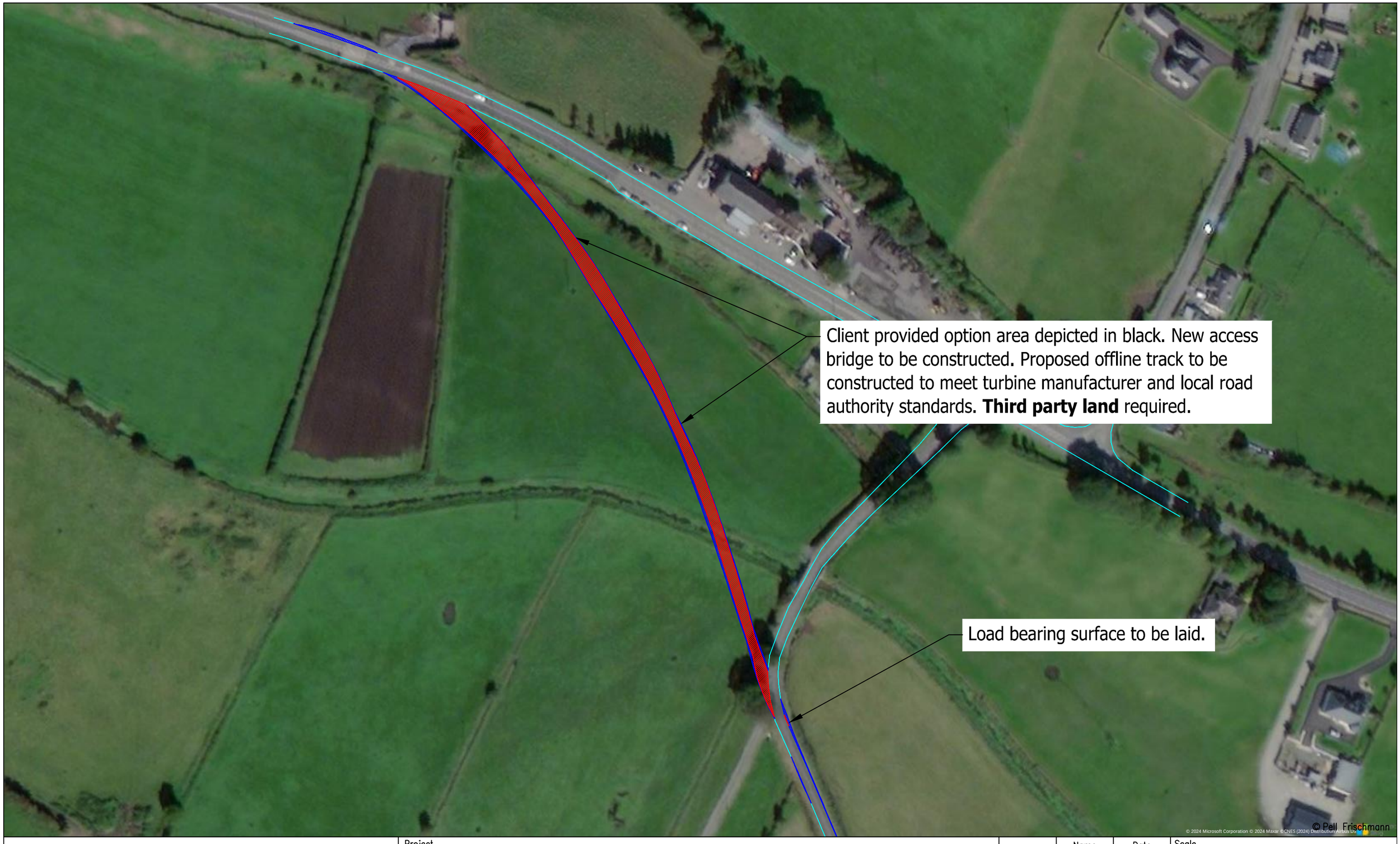

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R402 / R400 Junction & River Philipstown Bridge

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		29, 30

Scale: 1:1500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK19A

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Blade

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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Drumcaw Or Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		31

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK20

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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Drumcaw Or Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		31

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK20A

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 East of Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		32

Scale: 1:1500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK21

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 East of Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		32

Scale: 1:1500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK21A

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 East of Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		32

Scale: 1:1500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK21B

Notes:
1. All mitigation is subject to confirmation through a test run.
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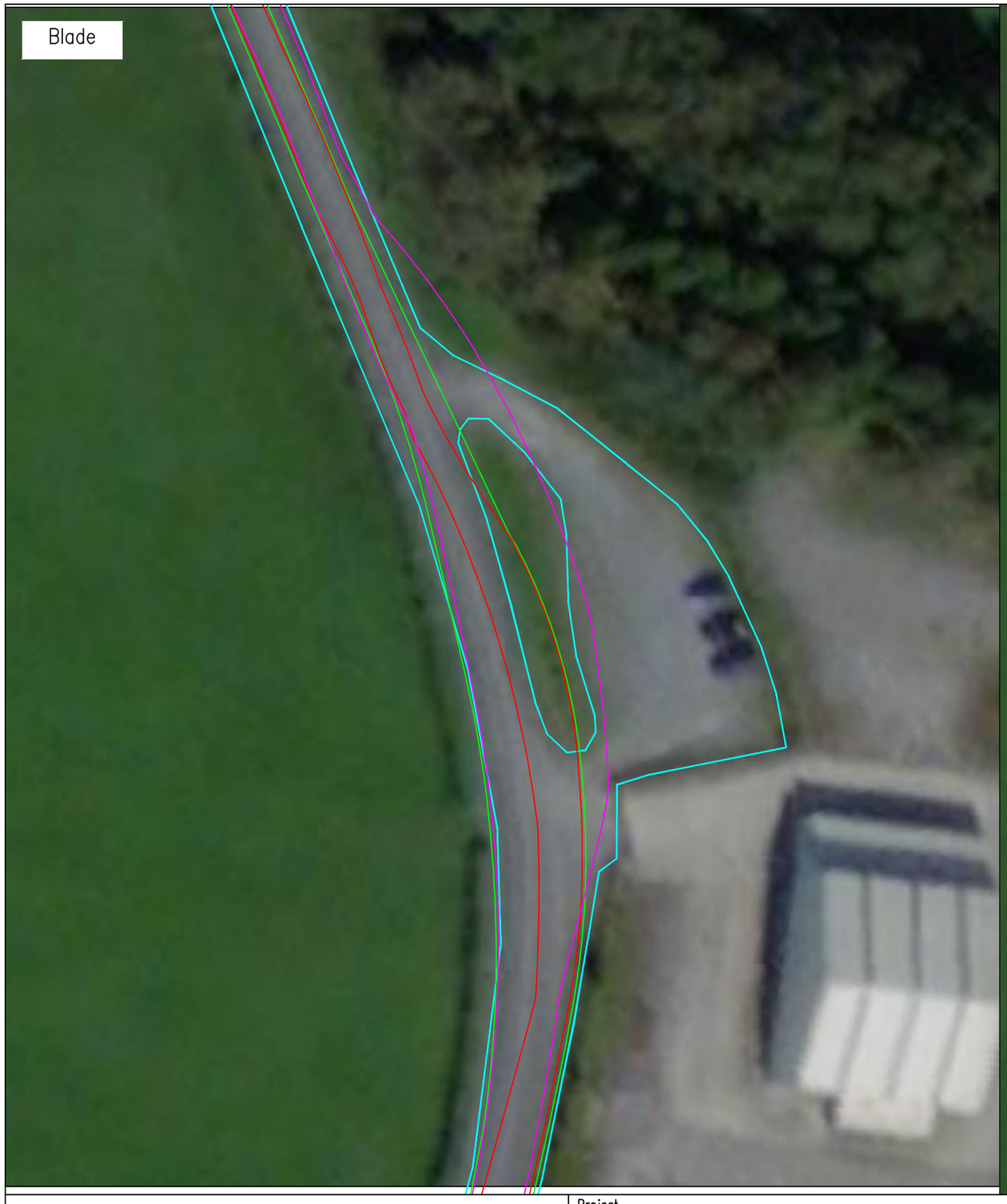
Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 Southeast of Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		33

Scale: Custom @ A3

File No.: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK22

Notes:
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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 Southeast of Mountlucas

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		33

Scale: 1:500 @ A3

File No.: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK22A

Notes:
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Client: Fehily Timoney and Company

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Overrun; Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 Northeast of Brackagh

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		34

Scale: 1:1000 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK23

Notes:
1. All mitigation is subject to confirmation through a test run.
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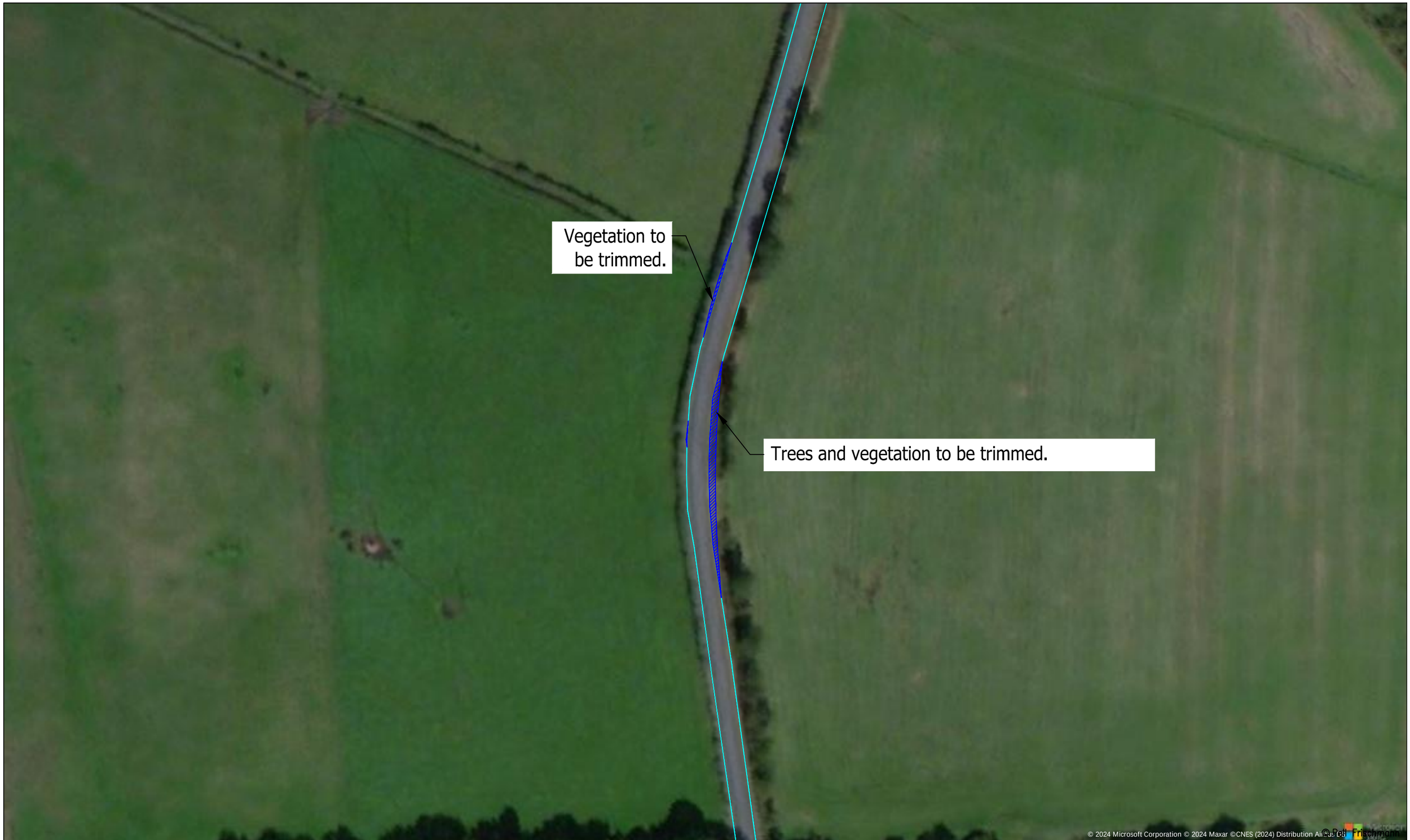
Revision: 1



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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 Northeast of Brackagh

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		34

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK23A

Notes:
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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 South of Enaghan

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		35, 36

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK24

Notes:
1. All mitigation is subject to confirmation through a test run.
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The proposed offline track is to be constructed to meet manufacturer and local road authority standards. Full detailed design of the track is required.

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 South of Enaghan

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		35, 36

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK24A

Notes:
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Blade

Tower

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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 East of Moanvane

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		38

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK25

Notes:
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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 East of Moanvane

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		38

Scale: 1:1000 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK25A

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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Derryounce Lakes

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		41

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK26

Notes:
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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Derryounce Lakes

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		41

Scale: 1:1000 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK26A

Notes:
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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Derryounce Lakes

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		43

Scale: 1:1500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK27

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 North of Derryounce Lakes

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		43

Scale: 1:1500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK27A

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Client: Fehily Timoney and Company

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Overrun; Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 / R419 Junction

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		46, 47

Scale: 1:1500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK28

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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: R400 / R419 Junction

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		46, 47

Scale: 1:1500 @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK28A

Notes:
1. All mitigation is subject to confirmation through a test run.
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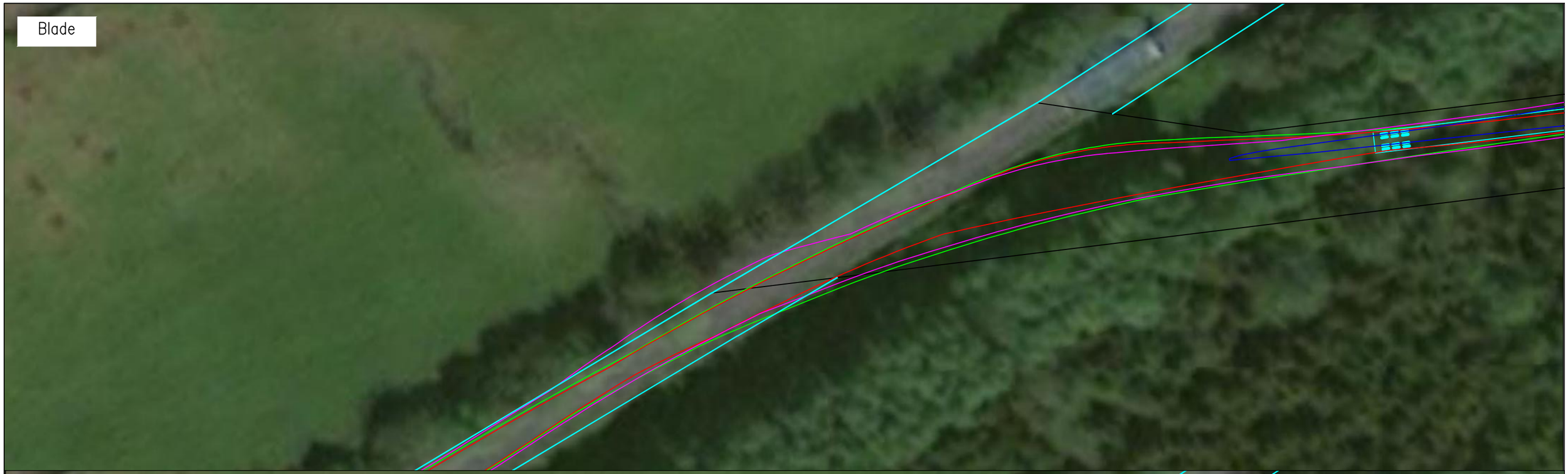
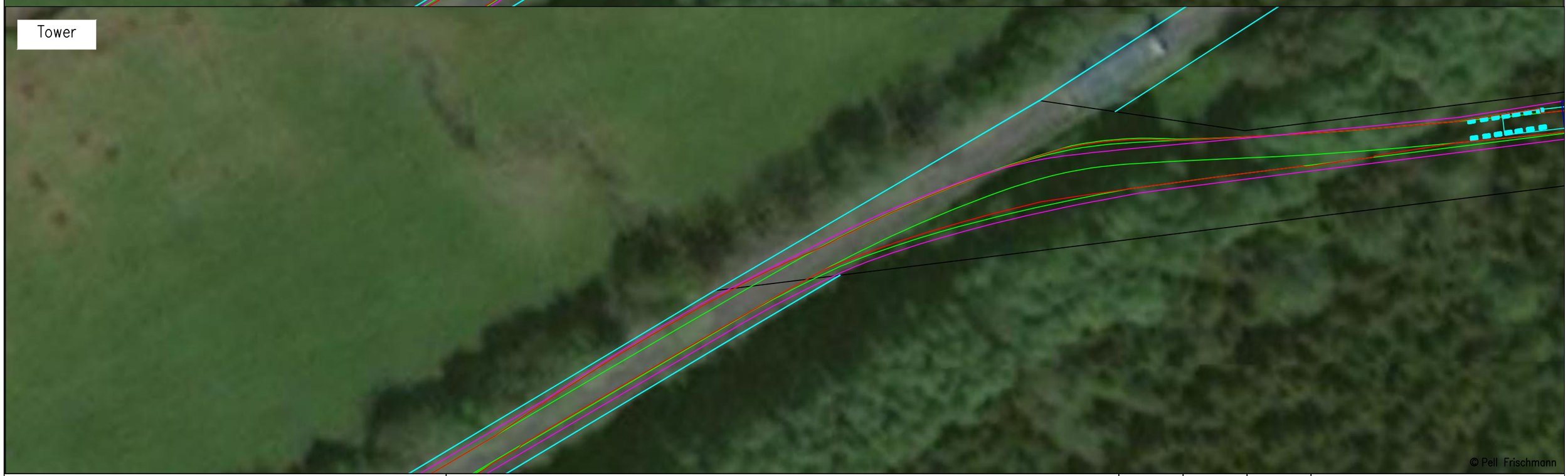
Revision: 2

Blade



Tower



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Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: Indicative Site Access

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		48

Scale: Custom @ A3

File No: 2411210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK29

Notes:
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Client: Fehily Timoney and Company

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Derrynadarragh Wind Farm

Drawing Title: Nordex N163 Blade & Tower

SPA Location: Indicative Site Access

	Name	Date
Drawn	AD	10/12/2024
Designed	TL	10/12/2024
Checked	GB	10/12/2024
Point of Interest		48

Scale: 1:500 @ A3

File No: 241210 Derrynadarragh SPA N163 Rev 1.dwg

Drawing Status: Draft

Drawing No.: SK29A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 2

APPENDIX 2.4

Amended Turbine Delivery Route Nodes at 5 no. locations (Dara Energy Ltd)

Derrynadarragh Wind Farm

Turbine Delivery Route
Updated Assessments

DERRYNADARRAGH WIND FARM

Dara Energy Limited

Transport Delivery route – Updated Swept Path Assessment
DERRYNADARRAGH WIND FARM

Abstract: This Report is an updated the assessment of the Points of interest to take account of Topographical surveys carried and change of approach following landowner agreement.

1. TABLE OF CONTENTS

2. INTRODUCTION

2.1 Purpose

The purpose of this assessment is to update the original assessment carried out by Pell Fischmann report on the Points of interest (POI) to take account of Topographical surveys and change of approach following engagement with landowners.

2.2 Location of Points of Interest Assessed

The TDR Points of interest updated included in this report are POI 19, POI 22, POI 31, POI 32, POI 33, POI 41.

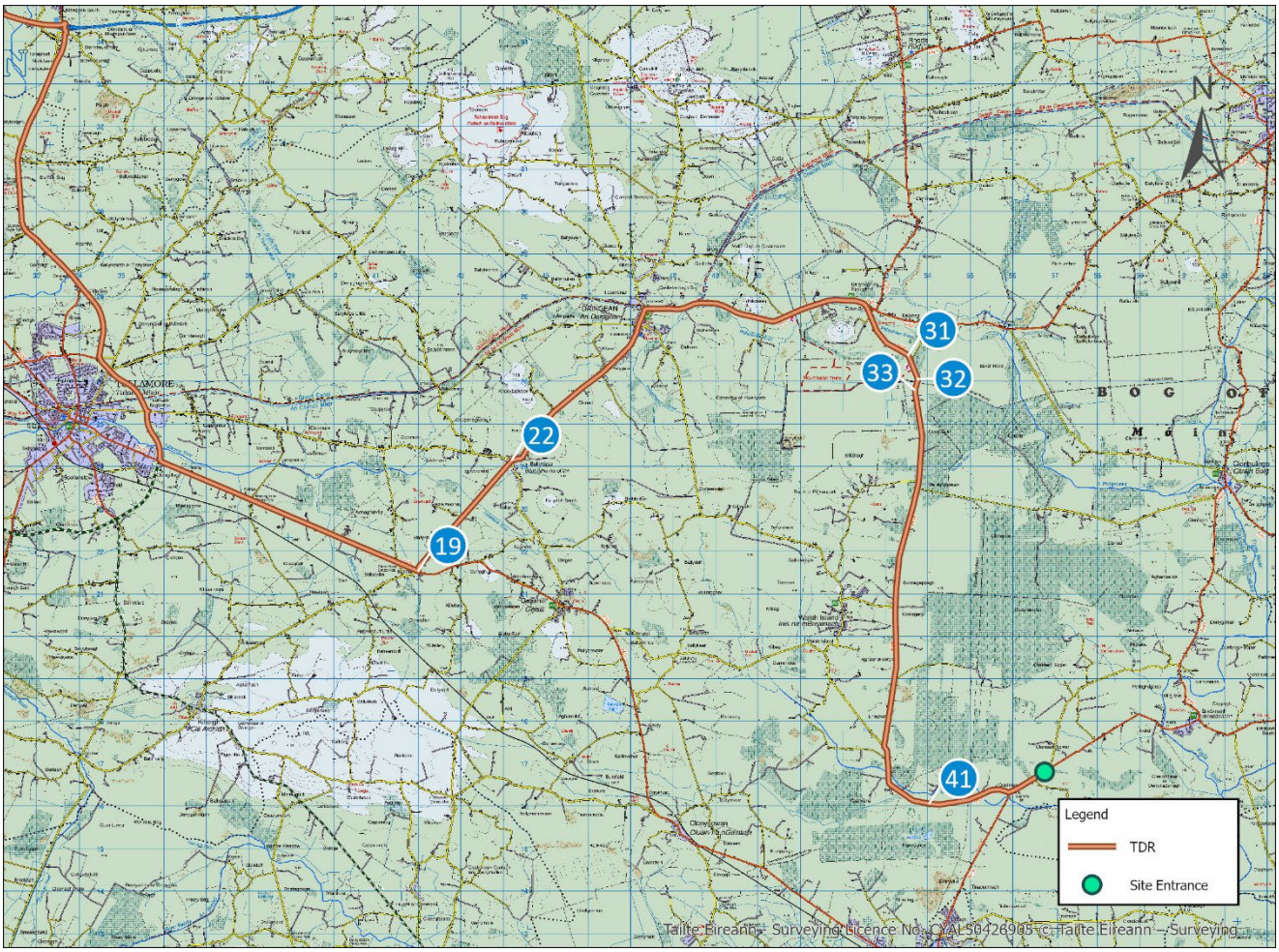


Figure 1.1 – Location of Points of Interest Assessed

3. ASSESSMENT

3.1 Assessment Methodology

The Swept Path Assessment was undertaken using AutoTURN, a recognised specialist software widely used in transport and infrastructure planning. This software enables accurate simulation of vehicle movements along the proposed delivery route, ensuring that abnormal loads—such as wind turbine components—can be transported safely and efficiently.

The model incorporated topographical survey data, which provided detailed information on road geometry, verge widths, and the location of street furniture and other potential obstacles. This allowed for a realistic representation of the physical environment and ensured that all constraints were appropriately considered during the assessment.

The vehicle dimensions used in the simulation—including those of the delivery truck and turbine blade—are detailed in Figure 2.2 below. These specifications were input into the model to assess turning movements, clearance requirements.

As part of the assessment, the oversail of the wind turbine blade and the running path of the truck and trailer were identified. These outputs informed the identification of areas where measures are be required, such as the removal or relocation of street furniture, trimming of vegetation, or the widening of the road verge.

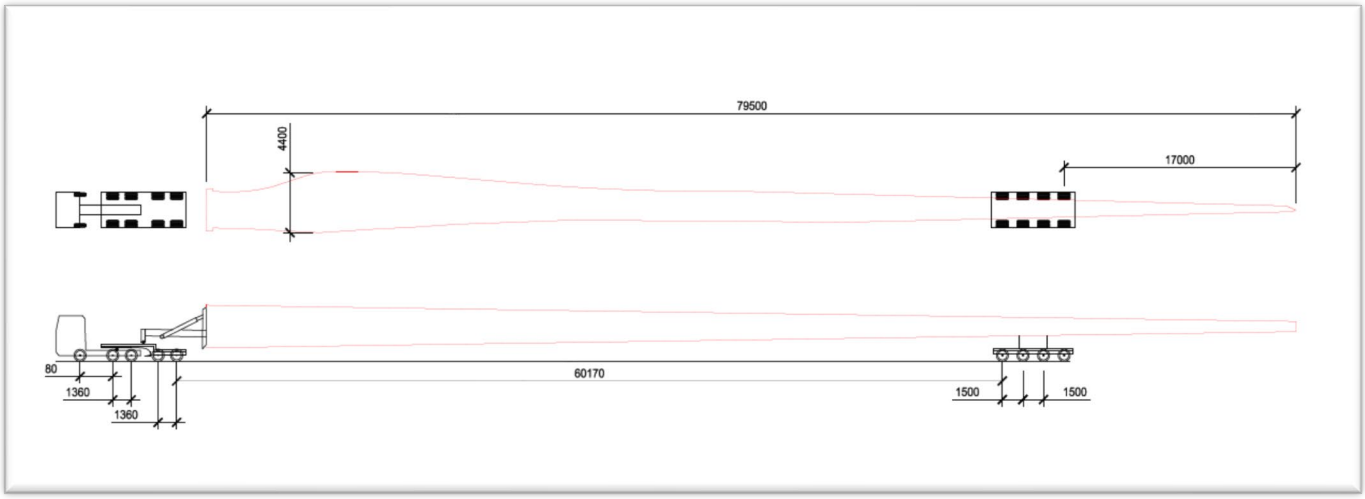
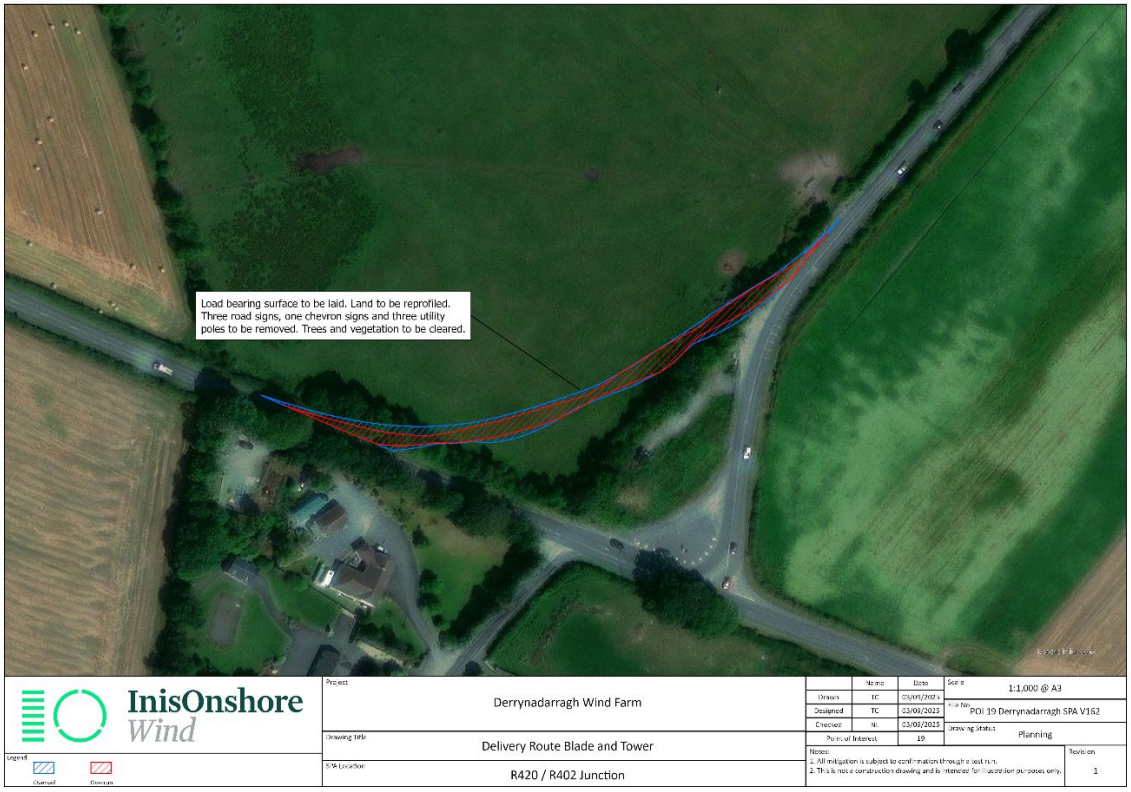
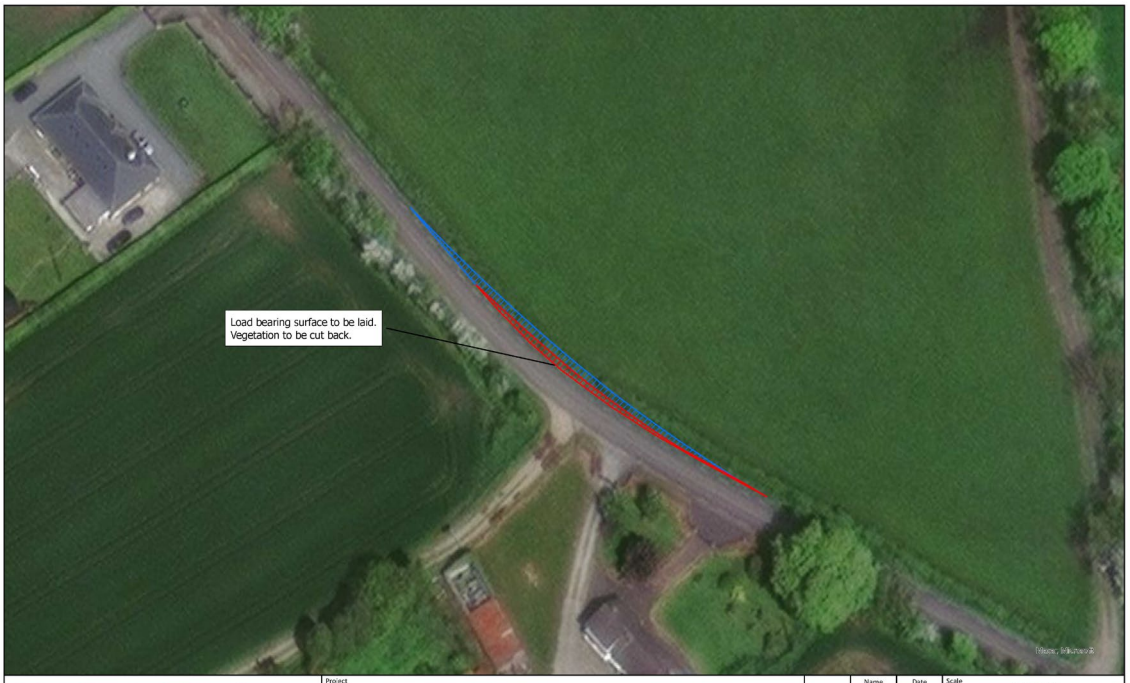


Figure 2.2 – Dimensions of Blade and Truck Assessed

4. POINTS OF INTEREST





InisOnshore Wind

Legend: Oversail, Overrun

Project	Derrynadarragh Wind Farm
Drawing Title	Delivery Route Blade and Tower
SPA Location	R400 North of Drumcaw or Mountlucas

	Name	Date
Drawn	TC	27/08/2025
Designed	TC	27/08/2025
Checked	NL	27/08/2025
Point of Interest		31

Scale: 1:500 @ A3
File No: POI 31 Derrynadarragh SPA V162
Drawing Status: Planning
Revision: 1

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

InisOnshore Wind

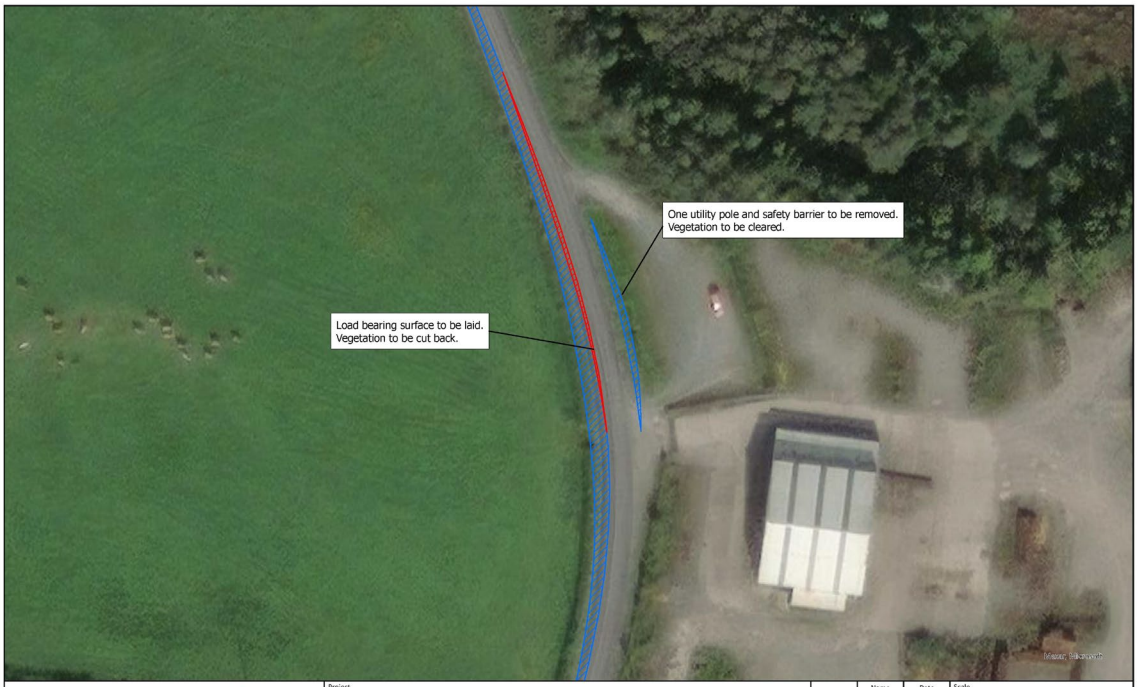
Legend: Oversail, Overrun

Project	Derrynadarragh Wind Farm
Drawing Title	Delivery Route Blade and Tower
SPA Location	R400 East of Mountlucas

	Name	Date
Drawn	TC	27/08/2025
Designed	TC	27/08/2025
Checked	NL	27/08/2025
Point of Interest		32

Scale: 1:500 @ A3
File No: POI 32 Derrynadarragh SPA V162
Drawing Status: Planning
Revision: 1

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.



InisOnshore Wind

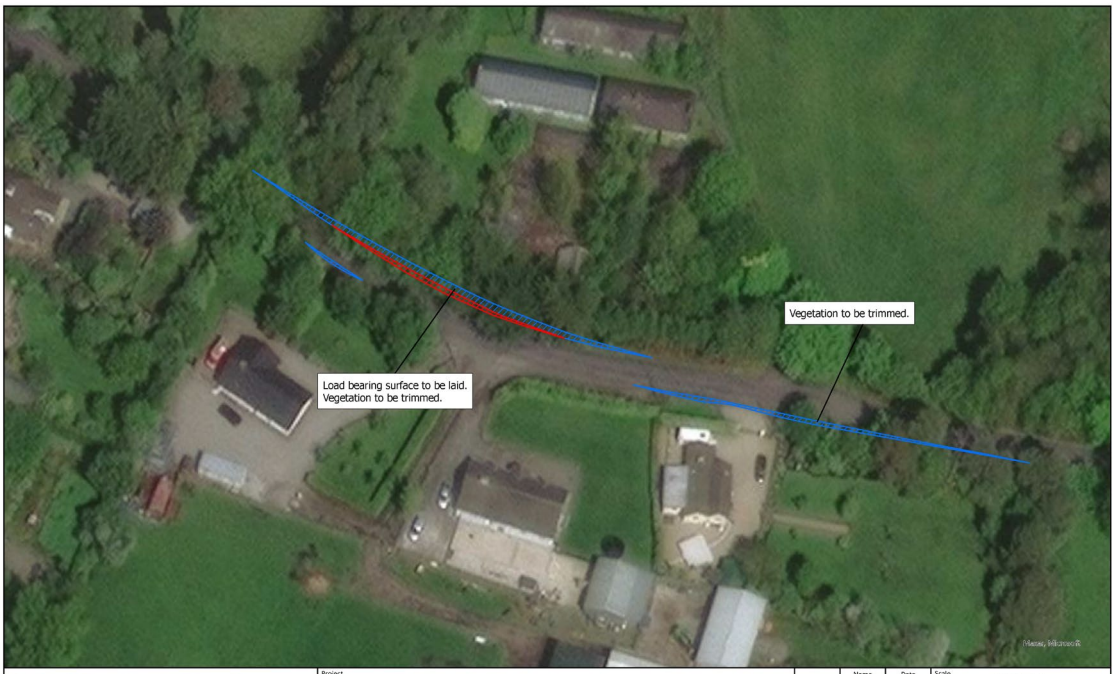
Legend: Overall, Overrun

Project	Derrynadarragh Wind Farm
Drawing Title	Delivery Route Blade and Tower
SPA Location	R400 Southeast of Mountlucas

	Name	Date
Drawn	TC	27/08/2025
Designed	TC	27/08/2025
Checked	NL	27/08/2025
Point of Interest		33

Scale: 1:500 @ A3
File No: POI 33 Derrynadarragh SPA V162
Drawing Status: Planning
Revision: 1

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.



InisOnshore Wind

Legend: Overall, Overrun

Project	Derrynadarragh Wind Farm
Drawing Title	Delivery Route Blade and Tower
SPA Location	R400 North of Derryounce Lakes

	Name	Date
Drawn	TC	26/08/2025
Designed	TC	26/08/2025
Checked	NL	26/08/2025
Point of Interest		41

Scale: 1:500 @ A3
File No: POI 41 Derrynadarragh SPA V162
Drawing Status: Planning
Revision: 1

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

APPENDIX 2.5

Schedule of Planning Drawings Referenced in the EIAR

.

Sheet List Table		
Drawing No.	Drawing Title	Rev.
P22-145-0000-0001	DRAWING INDEX SHEET	A
P22-145-0100-0000	PLANNING APPLICATION OVERVIEW SITE NOTICE LOCATIONS	A
P22-145-0100-0001	1:10000 SITE LAYOUT	A
P22-145-0100-0002	1:2500 SITE LAYOUT SHEET 1 OF 4	A
P22-145-0100-0003	1:2500 SITE LAYOUT SHEET 2 OF 4	A
P22-145-0100-0004	1:2500 SITE LAYOUT SHEET 3 OF 4	A
P22-145-0100-0005	1:2500 SITE LAYOUT SHEET 4 OF 4	A
P22-145-0100-0006	1:500 SITE LAYOUT PLAN SHEET 1 OF 54	A
P22-145-0100-0007	1:500 SITE LAYOUT PLAN SHEET 2 OF 54	A
P22-145-0100-0008	1:500 SITE LAYOUT PLAN SHEET 3 OF 54	A
P22-145-0100-0009	1:500 SITE LAYOUT PLAN SHEET 4 OF 54	A
P22-145-0100-0010	1:500 SITE LAYOUT PLAN SHEET 5 OF 54	A
P22-145-0100-0011	1:500 SITE LAYOUT PLAN SHEET 6 OF 54	A
P22-145-0100-0012	1:500 SITE LAYOUT PLAN SHEET 7 OF 54	A
P22-145-0100-0013	1:500 SITE LAYOUT PLAN SHEET 8 OF 54	A
P22-145-0100-0014	1:500 SITE LAYOUT PLAN SHEET 9 OF 54	A
P22-145-0100-0015	1:500 SITE LAYOUT PLAN SHEET 10 OF 54	A
P22-145-0100-0016	1:500 SITE LAYOUT PLAN SHEET 11 OF 54	A
P22-145-0100-0017	1:500 SITE LAYOUT PLAN SHEET 12 OF 54	A
P22-145-0100-0018	1:500 SITE LAYOUT PLAN SHEET 13 OF 54	A
P22-145-0100-0019	1:500 SITE LAYOUT PLAN SHEET 14 OF 54	A
P22-145-0100-0020	1:500 SITE LAYOUT PLAN SHEET 15 OF 54	A
P22-145-0100-0021	1:500 SITE LAYOUT PLAN SHEET 16 OF 54	A
P22-145-0100-0022	1:500 SITE LAYOUT PLAN SHEET 17 OF 54	A
P22-145-0100-0023	1:500 SITE LAYOUT PLAN SHEET 18 OF 54	A
P22-145-0100-0024	1:500 SITE LAYOUT PLAN SHEET 19 OF 54	A
P22-145-0100-0025	1:500 SITE LAYOUT PLAN SHEET 20 OF 54	A
P22-145-0100-0026	1:500 SITE LAYOUT PLAN SHEET 21 OF 54	A
P22-145-0100-0027	1:500 SITE LAYOUT PLAN SHEET 22 OF 54	A
P22-145-0100-0028	1:500 SITE LAYOUT PLAN SHEET 23 OF 54	A
P22-145-0100-0029	1:500 SITE LAYOUT PLAN SHEET 24 OF 54	A
P22-145-0100-0030	1:500 SITE LAYOUT PLAN SHEET 25 OF 54	A
P22-145-0100-0031	1:500 SITE LAYOUT PLAN SHEET 26 OF 54	A
P22-145-0100-0032	1:500 SITE LAYOUT PLAN SHEET 27 OF 54	A
P22-145-0100-0033	1:500 SITE LAYOUT PLAN SHEET 28 OF 54	A
P22-145-0100-0034	1:500 SITE LAYOUT PLAN SHEET 29 OF 54	A
P22-145-0100-0035	1:500 SITE LAYOUT PLAN SHEET 30 OF 54	A
P22-145-0100-0036	1:500 SITE LAYOUT PLAN SHEET 31 OF 54	A
P22-145-0100-0037	1:500 SITE LAYOUT PLAN SHEET 32 OF 54	A
P22-145-0100-0038	1:500 SITE LAYOUT PLAN SHEET 33 OF 54	A
P22-145-0100-0039	1:500 SITE LAYOUT PLAN SHEET 34 OF 54	A
P22-145-0100-0040	1:500 SITE LAYOUT PLAN SHEET 35 OF 54	A
P22-145-0100-0041	1:500 SITE LAYOUT PLAN SHEET 36 OF 54	A
P22-145-0100-0042	1:500 SITE LAYOUT PLAN SHEET 37 OF 54	A
P22-145-0100-0043	1:500 SITE LAYOUT PLAN SHEET 38 OF 54	A
P22-145-0100-0044	1:500 SITE LAYOUT PLAN SHEET 39 OF 54	A
P22-145-0100-0045	1:500 SITE LAYOUT PLAN SHEET 40 OF 54	A
P22-145-0100-0046	1:500 SITE LAYOUT PLAN SHEET 41 OF 54	A
P22-145-0100-0047	1:500 SITE LAYOUT PLAN SHEET 42 OF 54	A
P22-145-0100-0048	1:500 SITE LAYOUT PLAN SHEET 43 OF 54	A
P22-145-0100-0049	1:500 SITE LAYOUT PLAN SHEET 44 OF 54	A
P22-145-0100-0050	1:500 SITE LAYOUT PLAN SHEET 45 OF 54	A
P22-145-0100-0051	1:500 SITE LAYOUT PLAN SHEET 46 OF 54	A
P22-145-0100-0052	1:500 SITE LAYOUT PLAN SHEET 47 OF 54	A
P22-145-0100-0053	1:500 SITE LAYOUT PLAN SHEET 48 OF 54	A
P22-145-0100-0054	1:500 SITE LAYOUT PLAN SHEET 49 OF 54	A
P22-145-0100-0055	1:500 SITE LAYOUT PLAN SHEET 50 OF 54	A
P22-145-0100-0056	1:500 SITE LAYOUT PLAN SHEET 51 OF 54	A
P22-145-0100-0057	1:500 SITE LAYOUT PLAN SHEET 52 OF 54	A
P22-145-0100-0058	1:500 SITE LAYOUT PLAN SHEET 53 OF 54	A
P22-145-0100-0059	1:500 SITE LAYOUT PLAN SHEET 54 OF 54	A
P22-145-0200-0001	1:2500 SITE LOCATION PLAN (SHEET 1 OF 18)	A
P22-145-0200-0002	1:2500 SITE LOCATION PLAN (SHEET 2 OF 18)	A
P22-145-0200-0003	1:2500 SITE LOCATION PLAN (SHEET 3 OF 18)	A
P22-145-0200-0004	1:2500 SITE LOCATION PLAN (SHEET 4 OF 18)	A
P22-145-0200-0005	1:2500 SITE LOCATION PLAN (SHEET 5 OF 18)	A
P22-145-0200-0006	1:2500 SITE LOCATION PLAN (SHEET 6 OF 18)	A
P22-145-0200-0007	1:2500 SITE LOCATION PLAN (SHEET 7 OF 18)	A
P22-145-0200-0008	1:2500 SITE LOCATION PLAN (SHEET 8 OF 18)	A
P22-145-0200-0009	1:2500 SITE LOCATION PLAN (SHEET 9 OF 18)	A
P22-145-0200-0010	1:2500 SITE LOCATION PLAN (SHEET 10 OF 18)	A
P22-145-0200-0011	1:2500 SITE LOCATION PLAN (SHEET 11 OF 18)	A
P22-145-0200-0012	1:2500 SITE LOCATION PLAN (SHEET 12 OF 18)	A
P22-145-0200-0013	1:2500 SITE LOCATION PLAN (SHEET 13 OF 18)	A
P22-145-0200-0014	1:2500 SITE LOCATION PLAN (SHEET 14 OF 18)	A
P22-145-0200-0015	1:2500 SITE LOCATION PLAN (SHEET 15 OF 18)	A
P22-145-0200-0016	1:2500 SITE LOCATION PLAN (SHEET 16 OF 18)	A
P22-145-0200-0017	1:2500 SITE LOCATION PLAN (SHEET 17 OF 18)	A
P22-145-0200-0018	1:2500 SITE LOCATION PLAN (SHEET 18 OF 18)	A
P22-145-0101-0001	SITE ENTRANCE LAYOUT	A
P22-145-0102-0001	T1 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0002	T2 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0003	T3 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0004	T4 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0005	T5 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0006	T6 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0007	T7 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0008	T8 HARDSTAND - PLAN & SECTIONS	A
P22-145-0102-0009	T9 HARDSTAND - PLAN & SECTIONS	A
P22-145-0103-0001	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 1 OF 7	A
P22-145-0103-0002	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 2 OF 7	A
P22-145-0103-0003	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 3 OF 7	A
P22-145-0103-0004	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 4 OF 7	A
P22-145-0103-0005	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 5 OF 7	A
P22-145-0103-0006	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 6 OF 7	A
P22-145-0103-0007	1:2500 EXPORT GRID CONNECTION LAYOUT SHEET 7 OF 7	A
P22-145-0300-0001	PRELIMINARY DESIGN - CUSHINA BRIDGE CROSSING DETAIL	A
P22-145-0300-0002	PRELIMINARY DESIGN - TDR BRIDGE CROSSING DETAIL - SHEET 1 OF 2	A
P22-145-0300-0003	PRELIMINARY DESIGN - TDR BRIDGE CROSSING DETAIL - SHEET 2 OF 2	A
P22-145-0300-0004	PRELIMINARY DESIGN - TDR NODE LOCATION 29/30-ROAD PLAN & PROFILE	A
P22-145-0300-0005	TDR LOCATION 46/47	A
P22-145-0300-0006	TDR LOCATION 38	A
P22-145-0300-0007	TDR LOCATION 35/36	A
P22-145-0300-0008	TDR LOCATION 22	A
P22-145-0300-0009	TDR LOCATION 19	A
P22-145-0300-0010	TDR LOCATION 32	A
P22-145-0300-0011	TDR LOCATION 29/30	A
P22-145-0300-0012	TRAFFIC MANAGEMENT PLAN AT TDR NODE LOCATION 35/36	A
P22-145-0300-0013	TRAFFIC MANAGEMENT PLAN AT TDR NODE LOCATION 29/30	A
P22-145-0300-0014	TRAFFIC MANAGEMENT PLAN AT TDR NODE LOCATION 19	A
P22-145-0300-0015	PLANNING APPLICATION OVERVIEW TDR NODE LOCATIONS	A
P22-145-0400-0001	TURBINE ELEVATION & HARDSTAND DETAILS	A
P22-145-0500-0001	TEMPORARY CONSTRUCTION COMPOUND 2 LAYOUT	A
P22-145-0500-0002	ACCESS TRACK DETAILS	A
P22-145-0500-0003	INTERNAL JOINT BAY DETAILS	A
P22-145-0500-0004	TRENCH DETAILS FOR INTERNAL COLLECTOR CABLES	A
P22-145-0500-0005	SILT FENCE DETAILS	A
P22-145-0500-0006	CULVERT DETAILS	A
P22-145-0500-0007	BUNDED FUEL SLAB DETAIL	A
P22-145-0500-0008	CROSS DRAIN WITH DIFFUSE OUTFALL DETAILS	A
P22-145-0500-0009	FUEL RETENTION PETROL INTERCEPTOR	A
P22-145-0500-0010	WHEEL WASH DETAIL	A
P22-145-0500-0011	RECREATION AMENITY DETAILS	A
P22-145-0500-0012	PROPOSED AMENITY LAYOUT	A
P22-145-0500-0013	TEMPORARY CONSTRUCTION COMPOUND 3 LAYOUT	A
P22-145-0500-0014	SETTLEMENT POND DETAILS SHEET 1 OF 2	A
P22-145-0500-0015	SETTLEMENT POND DETAILS SHEET 2 OF 2	A

Danu Energy Drawings

Drawing No.	Drawing Title	Rev.
DANU-DAR-SK001	JOINT BAY GENERAL ARRANGEMENT	V1
DANU-DAR-SK002	SUBSTATION BUILDING	V1
DANU-DAR-SK003	CONTROL BUILDING	V1
DANU-DAR-SK004	SUBSTATION COMPOUND LAYOUT	V1
DANU-DAR-SK005	SUBSTATION COMPOUND CROSS SECTIONS	V1
DANU-DAR-SK006	SUBSTATION FENCE, COMPOUND, TRENCH DETAILS	V1
XDC-CBL-STND-H-008	TRENCH CROSSE SECTION FOR 160mm POWER DUCTS IN TREFOIL FORMATION	00
XDC-CBL-STND-H-006	BRIDGE CARRIAGEWAY STANDARD 110kV CABLE TRENCH	00
DANU-DAR-D001.1	CULVERT NO.1 DIRECTIONAL (HDD) DETAIL	V1
DANU-DAR-D001.2	BRIDGE OVER RIVER BARROW DIRECTIONAL (HDD) DETAIL	V1
DANU-DAR-D001.3	CULVERT NO.2 CROSSING DETAIL	V1
DANU-DAR-D001.4	CULVERT NO.3 DIRECTIONAL (HDD) DETAIL	V1

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www.fehilytimoney.ie

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Rev.	Description	App By	Date
A	ISSUE FOR PLANNING	JH	15.09.25

PROJECT: **DERRYNADARRAGH WIND FARM**

CLIENT: Dara Energy Limited

SHEET: **DRAWING INDEX SHEET**

Date: 15.09.25	Project number: P22-145	Scale (@ A1-) Scale N/A
Drawn by: CS	Drawing Number: P22-145-0000-0001	Rev: A
Checked by: LD		

O:\ACAD\2022\P22-145\P22-145-0000-0001

16 September 2025

APPENDIX 2.6

Involved Landowner Letters of Consent

#	Legal Owner	Address
1	Edward Carey	24 Inchicore Terrace South, Dublin 8, D08 XE0W
2	Brian Dunne	54 Willow Grove Mountmellick, Co. Laois
3	Patrick Weldon	Cushina, Portarlington, Co. Offaly, Eneghan, Walsh Island, Geashill, County Offaly R35 EY97
4	Anne Marie Ward	Acaragar, Mountmellick, Co. Laois
5	Arthur Wallace	Cushina, Portarlington, Co. Offaly, R32 KD79
6	Francis Wyer	Cushina, Portarlington, Co. Offaly, R32 EP60
7	George Sherlock	Kilmainham, Mountmellick, Co. Laois, 37 Station Court Portarlington Co. Laois, R32 FK31
8	James & Brid Weldon	Cushina, Portarlington, Co. Offaly, Riverview Cushina Lower Portarlington Co. Offaly, R32 PX51
9	John & Julia Dempsey	Maryville, Shandra, Portarlington, Co. Offaly, R32 C618
10	John Harris	Caragh, Naas, Co. Kildare
11	Michael Fullam	Droughill, Portarlington, Co. Laois, R32 C8C8
12	Patrick & Angela Carey	Clonsast, Rathangan, Co. Kildare, R51 W685
13	Thomas Fennelly	Cloncassion, Clonbullogue, Co. Offaly, R45 Y967
14	Paul Palmer	Mount Lucas, Tullamore, Co. Offaly, R35 X268
15	Eamon Hanlon	Mount Lucas, Daingean, Co. Offaly, R35 Y027
16	Gerard Smyth	Mount Lucas, Daingean, Co. Offaly, R35 R966
17	John Bosco Guinan	Ballina, Geashill, Co. Offaly, R35 RF10
18	Liam Carty	Walsh Island, Tullamore, Co. Offaly, R35 H2T0
19	Norman Cobbe	Moanvane, Portarlington, Co. Laois, Moanvanne House, Moanvanne, Portarlington, R32 FN28
20	Thomas & May Carey	Bracklone Street, Portarlington, Co. Laois, R32 PW98
21	Patrick Fitzgerald	1 Seven Springs, Newbridge Co. Kildare , W12 YK19
	Michael Fitzgerald	2 Meadowlands Moangariff, Clonmel, Co. Tipperary , E91 C8Y0
	Mary Kelly	6 Butlers Court, Cahir, Co. Tipperary , E41 Y7E5
	Brid Ann Dagg	55 Mount Anvil Wood, Goatstown, Dublin 14 , D14 AD77
22	Thomas Mahon	Drumcraw, Mountlucas, Tullamore, Co. Offaly, R35 X983
23	Peter Heraty	Pidgeon Park, Mountlucas, Daingean, Co. Offaly

Date: 29th day of August 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sir,

We hereby give permission to Dara Energy Limited to make a planning application to Offaly County Council and/or An Bord Pleanala for the construction of an access road on our lands (to serve the Wind Farm) which lands are situate at Cushina, Philipstown Upper, Ballyshear, County Offaly comprised in Folio OY1769F.

Yours faithfully,

Patrick Fitgerald

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Michael Fitzgerald

SIGNED
Witness:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Address:

Mary Kelly

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Brid Ann Dagg

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY15108 and of the Register of Freeholders County Offaly and Folio OY127 of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

T Fennelly

SIGNED
Thomas Fennelly

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY18131 of the Register of Freeholders County Offaly and Folio OY23097F of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

Ann Marie Ward
SIGNED
Ann Marie Ward 29-7-25

Date: 23rd day of July 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY12516F and of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Edward Carey

SIGNED
Edward Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE15333F and of the Register of Freeholders County Kildare and Folio KE10690 of the Register of Freeholders County Kildare (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

George Sherlock

SIGNED
George Sherlock

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY18130 and of the Register of Freeholders County Offaly (the "**Lands**").

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Brid Weldon

SIGNED
Brid Weldon

James Weldon

SIGNED
James Weldon

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE25788F and Folio KE14865F of the Register of Freeholders County Kildare and Folio OY11650 of the Register of Freeholders County Offaly (the "Lands").

I hereby give my consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

John Harris

SIGNED
John Harris

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY219 and of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Mary Carey

SIGNED
Mary Carey

SIGNED
Thomas Carey Tom Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY17703F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Peter Heraty

SIGNED
Peter Heraty

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY14927 and of the Register of Freeholders County Offaly and Folio OY17716 of the Register of Freeholders County Offaly (the **"Lands"**).

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Angela Carey

SIGNED
Angela Carey

Pat Carey

SIGNED
Patrick Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY1939 and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Norman Cobbe

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE4777F and of the Register of Freeholders County (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Michael Fullam

SIGNED
Michael Fullam

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY 24241F and of the Register of Freeholders County Offaly and Folio OY16029F of the Register of Freeholders County Offaly (the "**Lands**").

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
John Dempsey

JULIA DEMPSEY
SIGNED
Julia Dempsey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY30374F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Liam Carty

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm.

I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 9230 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

Eamon Hanlon

Eamon Hanlon

SIGNED
Witness:
Address:

Farrell & Partners
Solicitors
O'Connor Square,
Tullamore, Co. Offaly
Tel: 057 9321477

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY26735F of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

Francis Wyer

SIGNED
Francis Wyer

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 465F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

Thomas Mahon

Thomas Mahon

SIGNED
Witness:
Address:

Audrey Goode Solicitor
Byrne & O'Sullivan Solicitors LLP
Windsor Lodge
Edenderry
Co. Offaly.

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY463F (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Gerard Smyth

SIGNED
Gerard Smyth

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY4847F and Folio OY18128 of the Register of Freeholders County Offaly and Folio KE9876 of the Register of Freeholders County Kildare (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

SIGNED
James Wallace

Date: day of 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY1536F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
~~Bridget~~ Palmer
Paul

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 8123 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

John B. Guinan

John Bosco Guinan

SIGNED
Witness: Rhea Mahon
Address: Solicitor
Tullamore

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio OY8207F and OY8209F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

PATRICK WELDON

Patrick Weldon

SIGNED
Witness:
Address:

Brendan Weldon & Co.
Solicitors

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY12516F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Brian Dunne

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 8123 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

John B. Guinan

John Bosco Guinan

SIGNED
Witness: Rhea Mahon
Address: Solicitor
Tullamore

Date: 2 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio OY8207F and OY8209F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

PATRICK WELDON

Patrick Weldon

SIGNED
Witness:
Address:

Brendan Weldon & Co.
Solicitors

Date: 29th day of August 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sir,

We hereby give permission to Dara Energy Limited to make a planning application to Offaly County Council and/or An Bord Pleanala for the construction of an access road on our lands (to serve the Wind Farm) which lands are situate at Cushina, Philipstown Upper, Ballyshear, County Offaly comprised in Folio OY1769F.

Yours faithfully,

Patrick Fitgerald

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Michael Fitzgerald

SIGNED
Witness:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Address:

Mary Kelly

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON
CO LAOIS, R32 KWR4

Brid Ann Dagg

SIGNED
Witness:
Address:

KEVIN O'DONNELL
SOLICITOR &
COMMISSIONER FOR OATHS
PORTARLINGTON

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY15108 and of the Register of Freeholders County Offaly and Folio OY127 of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

T Fennelly

SIGNED
Thomas Fennelly

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY18131 of the Register of Freeholders County Offaly and Folio OY23097F of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

Ann Marie Ward
SIGNED
Ann Marie Ward 29-7-25

Date: 23rd day of July 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY12516F and of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Edward Carey

SIGNED
Edward Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE15333F and of the Register of Freeholders County Kildare and Folio KE10690 of the Register of Freeholders County Kildare (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

George Sherlock

SIGNED
George Sherlock

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY18130 and of the Register of Freeholders County Offaly (the "**Lands**").

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Brid Weldon

SIGNED
Brid Weldon

James Weldon

SIGNED
James Weldon

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE25788F and Folio KE14865F of the Register of Freeholders County Kildare and Folio OY11650 of the Register of Freeholders County Offaly (the "Lands").

I hereby give my consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

John Harris

SIGNED
John Harris

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY219 and of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Mary Carey

SIGNED
Mary Carey

SIGNED
Thomas Carey Tom Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY17703F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Peter Heraty

SIGNED
Peter Heraty

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY14927 and of the Register of Freeholders County Offaly and Folio OY17716 of the Register of Freeholders County Offaly (the **"Lands"**).

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Angela Carey

SIGNED
Angela Carey

Pat Carey

SIGNED
Patrick Carey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY1939 and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Norman Cobbe

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio KE4777F and of the Register of Freeholders County (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Michael Fullam

SIGNED
Michael Fullam

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

We confirm that we are the registered owner of the lands comprised in Folio OY 24241F and of the Register of Freeholders County Offaly and Folio OY16029F of the Register of Freeholders County Offaly (the "**Lands**").

We hereby give our irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
John Dempsey

JULIA DEMPSEY
SIGNED
Julia Dempsey

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY30374F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Liam Carty

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm.

I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 9230 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

Eamon Hanlon

Eamon Hanlon

SIGNED
Witness:
Address:

Farrell & Partners
Solicitors
O'Connor Square,
Tullamore, Co. Offaly
Tel: 057 9321477

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY26735F of the Register of Freeholders County Offaly (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

Francis Wyer

SIGNED
Francis Wyer

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 465F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

Thomas Mahon

Thomas Mahon

SIGNED
Witness:
Address:

Audrey Goode Solicitor
Byrne & O'Sullivan Solicitors LLP
Windsor Lodge
Edenderry
Co. Offaly.

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY463F (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

Gerard Smyth

SIGNED
Gerard Smyth

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY4847F and Folio OY18128 of the Register of Freeholders County Offaly and Folio KE9876 of the Register of Freeholders County Kildare (the "**Lands**").

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands. In addition, I also give my irrevocable consent to Dara Energy Limited its project partners or its associated companies, to implement the habitat management measures that are included in the planning application on my Lands.

Yours faithfully,

SIGNED
James Wallace

Date: day of 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY1536F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
~~Bridget~~ Palmer
Paul

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 8123 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

John B. Guinan

John Bosco Guinan

SIGNED
Witness: Rhea Mahon
Address: Solicitor
Tullamore

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio OY8207F and OY8209F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

PATRICK WELDON

Patrick Weldon

SIGNED
Witness:
Address:

Brendan Weldon & Co.
Solicitors

Date: 02 day of September 2025.

An Coimisiún Pleanála,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Derrynadarragh Wind Farm Planning Consent Letter

Dear Sirs,

I confirm that I am the registered owner of the lands comprised in Folio OY12516F and of the Register of Freeholders County Offaly (the **"Lands"**).

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm, part of which is proposed to be constructed on the Lands.

Yours faithfully,

SIGNED
Brian Dunne

SCHEDULE 2

The Planning Consent Letters

Date: 02 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio 8123 of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

John B. Guinan

John Bosco Guinan

SIGNED
Witness: Rhea Mahon
Address: Solicitor
Tullamore

Date: 2 day of September 2025

An Bord Pleanala,
64 Marlborough Street,
Rotunda,
Dublin 1,
D01 V902.

Re: Proposed Wind Farm Development by Dara Energy Limited (the "Wind Farm")

Dear Sirs,

I hereby give my irrevocable consent to any Planning Application (s) made by or on behalf of Dara Energy Limited, its project partners or its associated companies in connection with the proposed Wind Farm. I also hereby consent to the access route thereto being located on my property. I confirm that I am the registered owner of the lands comprised in Folio OY8207F and OY8209F of the Register of Freeholders for County Offaly and as shown edged red on the attached plan.

Yours faithfully,

PATRICK WELDON

Patrick Weldon

SIGNED
Witness:
Address:

Brendan Weldon & Co.
Solicitors

Comhairle Chontae Uíbh Fhailí
Offaly County Council

Áras an Chontae, Bóthar Charleville,
An Tulach Mhór, Contae Uíbh Fhailí, R35 F893

Áras an Chontae, Charleville Road,
Tullamore, Co. Offaly, R35 F893

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www.offaly.ie

An Coimisiún Pleanála
64 Marlborough Street,
Dublin 1,
D01 V902
19/9/2025

Re: Proposed Derrynadarragh Wind Farm

Dear Sir/Madam,

In relation to proposed temporary works on the R402 adjacent to St Joseph's National School, Ballinagar please find enclosed 1 No. drawing showing works proximate to the junction of the R402 and the L2025 that Derrynadarragh Wind Farm intend on including in a planning permission application for a proposed wind farm at Derrynadarragh, Bracknagh, Co. Offaly.

The drawing titled POI 22 - R402 St Joseph's National School shows a location in Ballinagar village where temporary works is proposed to facilitate delivery of wind farm infrastructure/turbines to the proposed development. The location of the works for which planning permission will be sought is on land in the ownership or under the control of Offaly County Council. St. Josephs National School has been used as a reference point only for the location, the lands in question are in the ownership or control of Offaly County Council.

We, Offaly County Council, provide herewith our written consent to Derrynadarragh Wind Farm to include lands identified in Map POI 22- R402 St Joseph's National School in a planning application for a wind farm development and all associated infrastructure at Derrynadarragh, Bracknagh, Co. Offaly.

Your sincerely,

_____

Paul McLoughlin
Director of Services
Climate Action, Transport, Environmental Services, Rural Water,
The National Waste Collection Permit Office and the Municipal District of Tullamore.

View from traffic island showing the fence, pole and planter boxes which will be temporarily moved

Load bearing surface to be laid, road signs and chevron signs to be temporarily moved.

Fence to be removed and reinstalled after works.

Existing planter boxes and grass to be temporarily moved, and area to be covered with gravel

Primary School

Pole to be temporarily relocated

Post construction, area to be resoiled and planted

0.26

0.24

N

Notes:
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR TON SITE.
3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.
6. SURVEY DATE 20/01/2025

Legend

- Oversail
- Overrun
- Fence
- Gate
- Hedge
- Kerb Bottom
- Road Edge
- Road Sign
- Telegraph Pole
- Wall line as per topographical survey
- Pole

TITLE: POI 22 - R402 St Josephs National School	
PROJECT: DERRYNADARRAGH WIND FARM	
PAPER SIZE (SCALE): A3 (1:500)	DRAWING NUMBER: PR001.TDR.13
DATE: 27/08/2025	REVISION (BY): TC

Derrynadarragh Wind Farm

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