Planning and Environmental Consultants

Environmental Impact Assessment Report

Taurbeg Wind Farm Extension of Operational Life

Chapter 4 – Description of the Proposed Project

DOCUMENT DETAILS

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Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

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04	Final	30/06/2025	NS	EM

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4. DESCRIPTION OF THE PROPOSED PROJECT

4.1 Introduction

Planning permission is being sought for the extension of the operational life of Taurbeg Wind Farm (Proposed Lifetime Extension) as permitted by Cork County Council under planning regulation ref N/2002/3608, for a further period of 10 years from the date of expiry (2026) per Condition no. 7 of the original planning consent issued, with decommissioning of the wind farm at the end of the proposed extension period.

The Proposed Lifetime Extension does not comprise any alterations to the existing operational wind farm. The Applicant intends to submit an application to Cork County Council for the Proposed Lifetime Extension.

The Proposed Lifetime Extension comprises:

i. *11 no. existing wind turbines with a tip height of 108.2 metres and all associated foundations and hardstanding areas;*
ii. *1 no. existing onsite 38kV electrical substation including a control building, associated electrical plant and equipment, welfare facilities and a wastewater holding tank;*
iii. *1 no. existing meteorological mast with a height of 67m;*
iv. *All existing underground electrical and communications cabling connecting the existing wind turbines to the existing onsite 38kV Substation;*
v. *An existing gated site entrance and existing internal access tracks;*
vi. *Existing site drainage;*
vii. *Existing ancillary infrastructure, associated site fencing and signage.*

The Taurbeg Wind Farm is connected to the national electricity grid at the existing Glenlara 110kV Substation. A 38kV underground cable runs between the onsite substation and a mast at the south of the site. A 38kV overhead line runs from the mast to the existing Glenlara 110kV Substation. The grid connection does not form part of the current planning application.

The Proposed Lifetime Extension is expected to have significant negative effects on displacement of Hen Harrier. Proposed Offsetting Measures have been developed to offset these effects. The lands within which these measures are proposed are located c. 12km east of the Taurbeg Wind Farm Site in Co. Kerry. The Applicant intends to submit an application to Kerry County Council for the Proposed Offsetting Measures.

The Proposed Offsetting Measures comprise:

i. *Permanent removal of commercial forestry (deforestation) over an area of approx. 105.5 Ha and the restoration of open peatland and creation of scrub habitat within the felled area.*
ii. *Restoration of farmland habitat to good quality hen harrier foraging habitat through diversifying the range and extent of habitats over an area of approx. 17.7 Ha;*
iii. *All associated site development works including fencing.*

A full description of the Proposed Project for the purposes of the planning application and the additional elements that form part of the overall project, assessed in this EIAR, is outlined in Chapter 4 of this EIAR. Further details of the Proposed Offsetting Measures can also be found in Appendix 7-7 of the EIAR.

4.2 Development Layout

The layout of the existing Taurbeg Wind Farm was originally designed to minimise the potential environmental effects of the wind farm, while at the same time maximising the energy yield of the wind resource passing over the site.

The existing Taurbeg Wind Farm site was chosen initially as being particularly suited to a wind energy development due to the favourable wind conditions. The prevailing southwesterly winds sweep across the island of Ireland providing one of the best wind resources in Europe. The estimated long-term mean wind speed on the site is 6.6m/s.

The overall layout of the existing Taurbeg Wind Farm is shown on Figure 4-1. This drawing shows the locations of the existing wind farm infrastructure. Detailed site layout drawings of the existing development are included in Appendix 4-1 to this EIAR.

Map Legend

- Taurbeg EIAR Site Boundary
- Existing Turbines
- Existing Site Roads
- Turbine Foundation and Hardstand
- Existing Onsite Substation
- Existing Met Mast

N

Drawing Title
Proposed Lifetime Extension Layout Map

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
231030	Figure 4-1
Scale	Date
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4.3 Development Components

The Proposed Project components are listed under Section 4.1 above. Table 4-1 below provides a summary of the footprint of the Proposed Lifetime Extension components, which are subject to this planning application.

There are no changes proposed to the existing Taurbeg Wind Farm components as part of the Proposed Lifetime Extension. The various elements of the existing Taurbeg Wind Farm will remain in their current condition and will be subject to ongoing routine maintenance.

Table 4-1 Proposed Lifetime Extension components footprint

Component Description	Approx. Area (hectares)
11 no. Turbines and associated hardstandings, substation and met mast	0.54 ha
Internal site access roads (approximate 5.5m running width for site roads)	3.22 ha
Total	3.76 ha

Further details on each of the Proposed Lifetime Extension components are presented in Sections 4.3.1 to 4.3.4 below.

4.3.1 Wind Turbines

4.3.1.1 Turbine Locations

The existing Taurbeg Wind Farm layout was optimised using industry-standard wind farm design software at the initial design stage in order to maximise the energy yield from the site, while maintaining sufficient distances between the proposed turbines to ensure turbulence and wake effects did not compromise turbine performance. The Grid Reference coordinates of the existing turbine locations are listed in Table 4-2 below. (Note: eleven of the fourteen turbines consented under Pl. Reg. Ref: N/2002/3608 were constructed, with the planning permission of the remaining three turbines now expired. Therefore, there are eleven operational turbines at the existing Taurbeg Wind Farm, and there is no turbine T4 onsite.)

Table 4-2 Existing Taurbeg Wind Turbine Locations and Elevations

Turbine No.	Irish Transverse Mercator (ITM) Co-ordinates		Turbine Base Elevation (m OD)
	Easting (m)	Northing (m)	
1	522662	611398	387
2	522413	611954	370
3	521984	611963	370
5	522261	612222	392
6	522587	612258	360

Turbine No.	Irish Transverse Mercator (ITM) Co-ordinates		Turbine Base Elevation (m OD)
	Easting (m)	Northing (m)	
7	522864	612167	330
8	522133	611695	361
9	522873	611650	373
10	522890	610978	397
11	522969	611300	401
12	522440	611636	372

4.3.1.2 Turbine Type

Wind turbines use the energy from the wind to generate electricity. A wind turbine, as shown in Plate 4-1 below, typically consists of four main components:

- Foundation
- Tower
- Nacelle (turbine housing)
- Rotor

Plate 4-1 Typical wind turbine components

The existing wind turbines have a tip-height of 108.2m, a hub height of 67m, a rotor diameter of 82.4m, and a ground to lowest blade swept path of 25.8m. The wind turbines that are installed on the site are conventional three-blade turbines, that are geared to ensure the rotors of all turbines rotate in the same direction at all times.

The existing wind turbines at the Taurbeg Wind Farm are Bonus (now Siemens) SWT 2.3 82 turbines 2.3 MW model installed at Taurbeg Wind Farm (See Plate 4-2 as a reference to an existing turbine at the site). Each turbine is capable of producing 2.3MW of electricity.

Plate 4-2 Existing Taurbeg Wind Farm turbines

Turbine design parameters have a bearing on the assessment of shadow flicker, noise, visual impact and ecology (specifically birds), as addressed elsewhere in this EIAR. Since there are no changes proposed to the existing turbines at the Site, the parameters of the existing turbines have been used in each EIAR section that requires consideration as part of the impact assessment.

A drawing of the existing wind turbine model is shown in Figure 4-3. The individual components of a typical geared wind turbine nacelle and hub are shown in Figure 4-2 below.

Figure 4-4 shows a typical turbine base layout, including turbine foundation, hard standing area, assembly area, access road and surrounding works area.

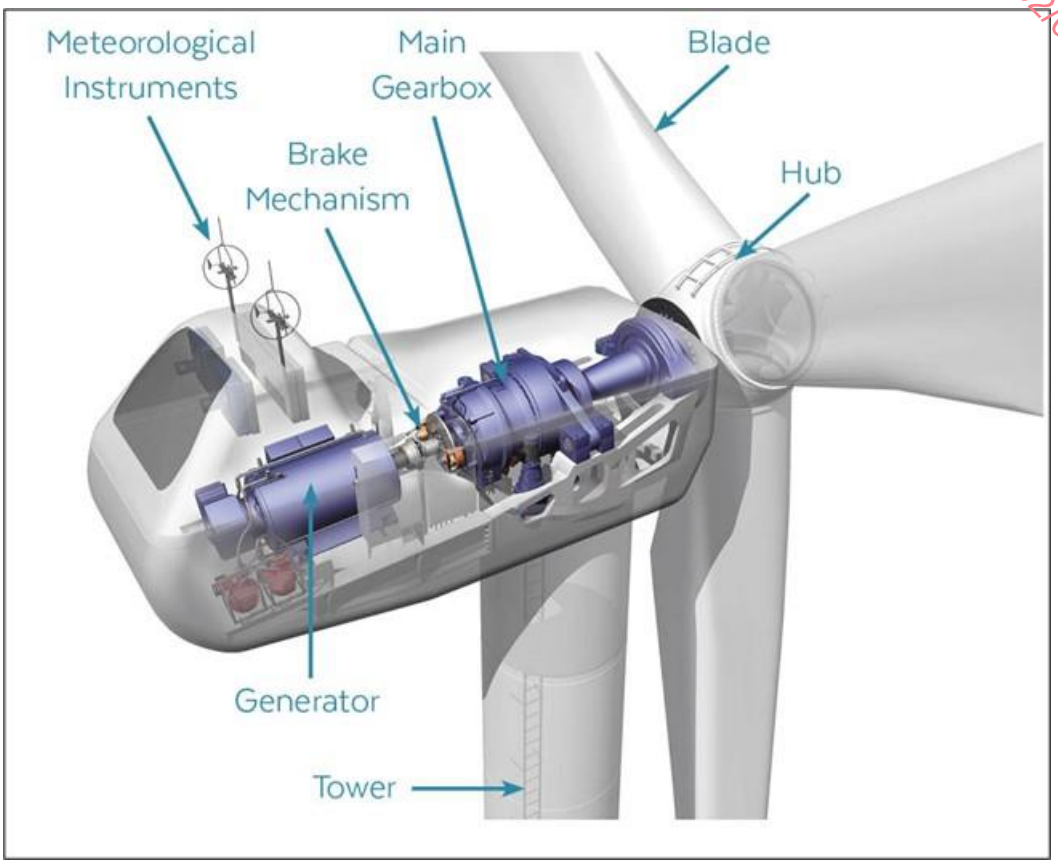
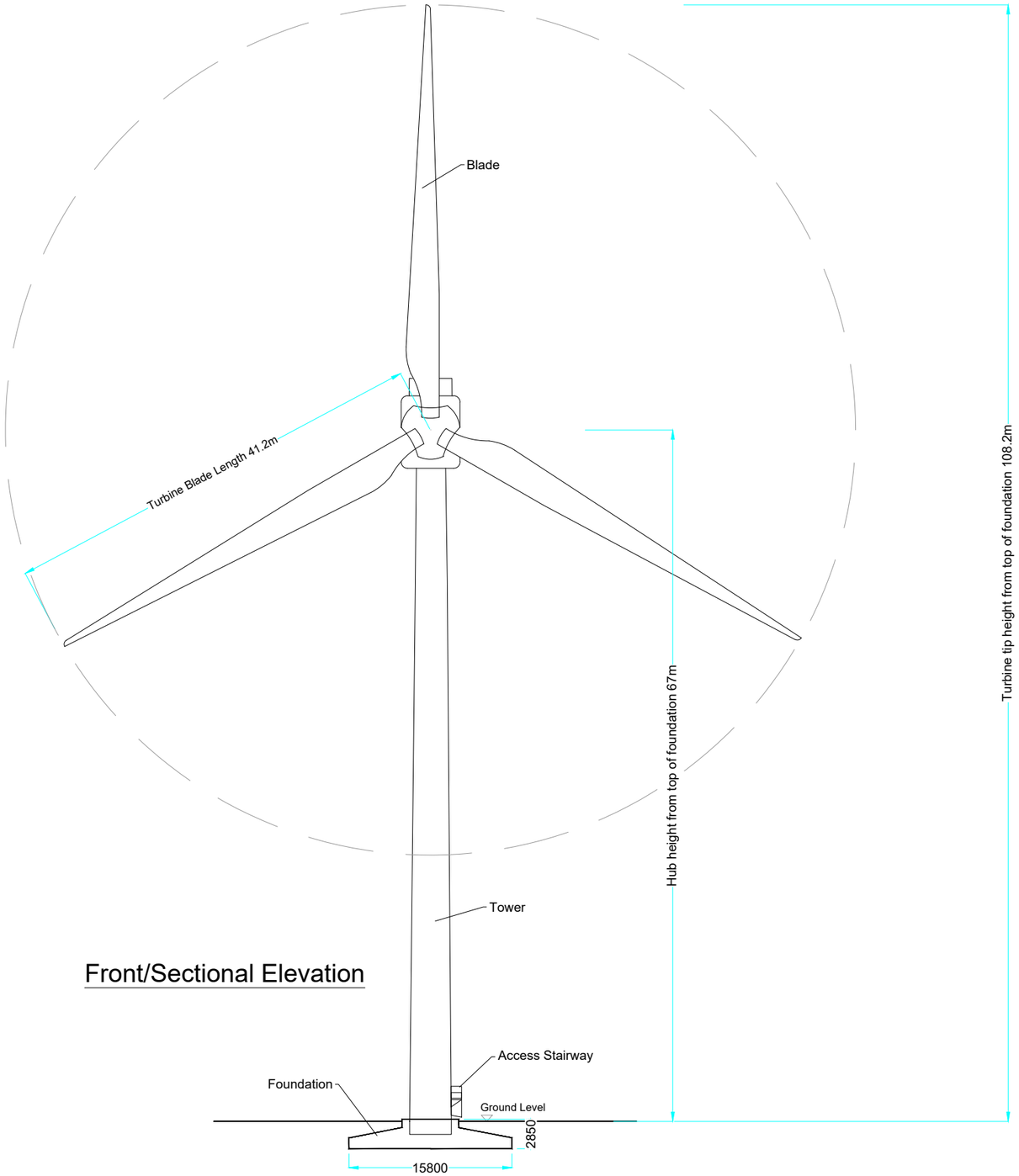
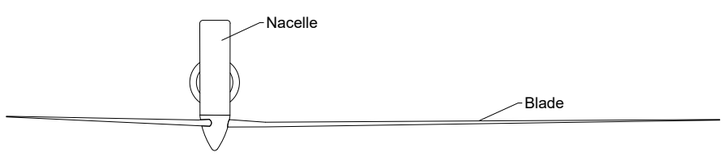


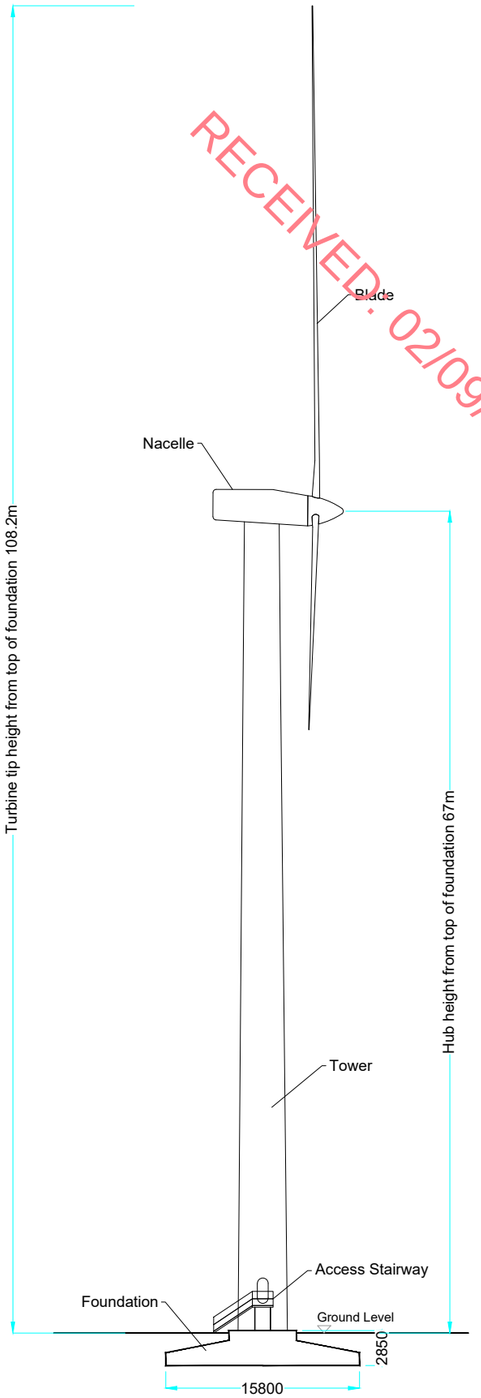
Figure 4-2 Turbine nacelle and hub components



Front/Sectional Elevation



Plan



Side/Section Elevation

Figure 4-3

PROJECT TITLE: **Taurbeg Wind Farm Extension of Operational Life**			
DRAWING TITLE: **As Built Turbine Elevations & Plan**			
PROJECT No.: **231030**		DRAWING No.: **231030 - 05**	SCALE: **1:500 @ A3**
DRAWN BY: **GO**	CHECKED BY: **RD**	DATE: **04.07.2025**	REVISION.: P01

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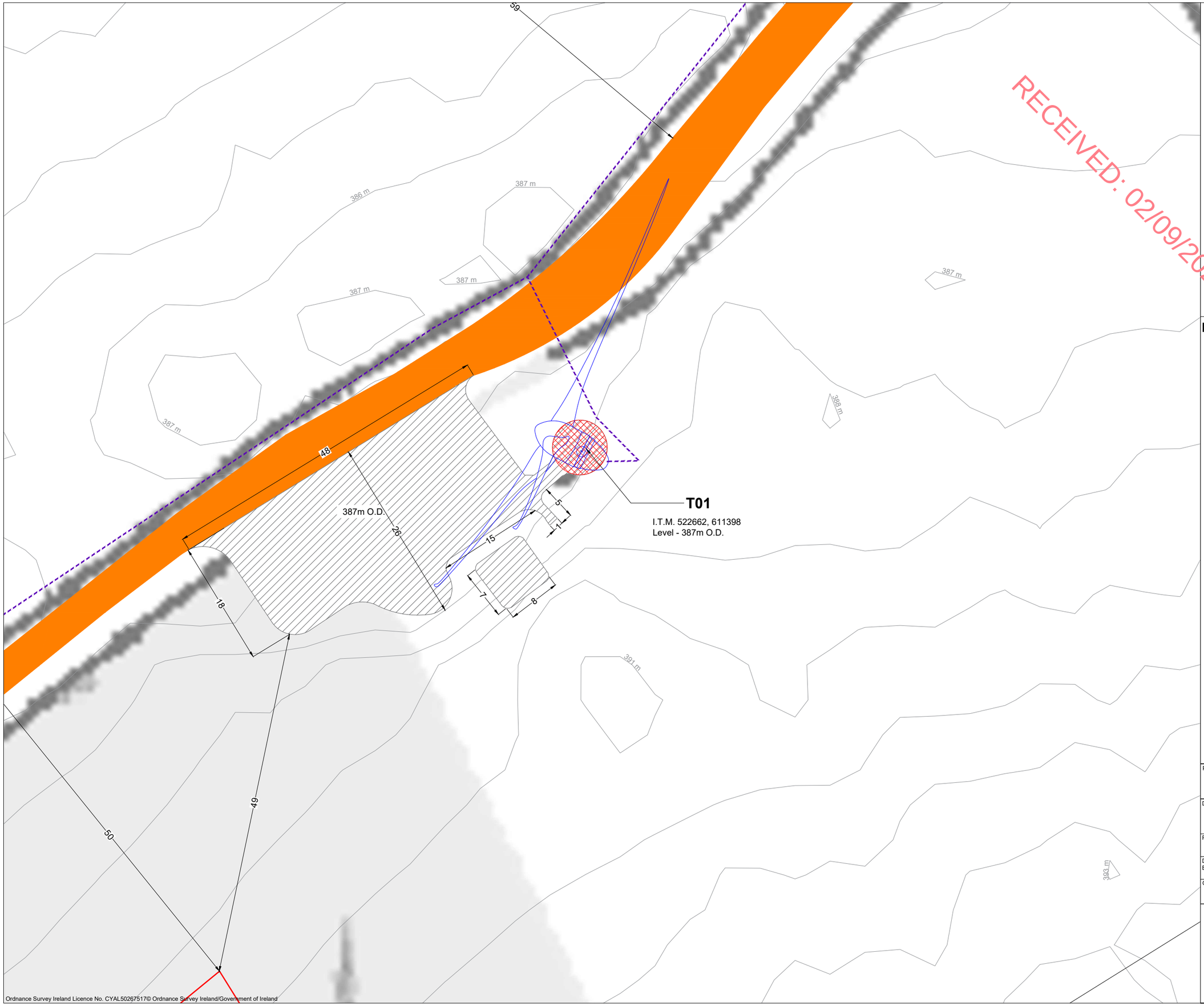

Drawing Legend

- Planning Application Boundary (Cork County Council)
- As Built Site Road
- As Built Hardstanding Area
- As Built Turbine
- As Built Turbine Foundation
- Electrical Cable Trench

Figure 4-4

N

PROJECT TITLE:
Taurbeg Wind Farm Extension of Operational Life

DRAWING TITLE:
Turbine Layout Sheet 01 of 11

PROJECT No.:	DRAWING No.:	SCALE:
231030	231030 - 04A	1:500 @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
GO	RD	04.07.2025	P01

OS SHEET No.:
5597, 5598, 5667, 5668

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4.3.1.3 Turbine Foundations

Each wind turbine is secured to a reinforced concrete foundation that has been installed below the finished ground level. The turbine foundation transmits any load on the wind turbine into the ground.

The existing turbine foundations are circular in plan with an average area of 100m^2. The existing turbine foundations as designed for the Taurbeg Wind Farm are shown in Figure 4-5 and Figure 4-6. There are no changes proposed to the existing turbine foundations as part of the Proposed Lifetime Extension.

Figure 4-5 Typical Turbine Foundation Design - Levelled Turbine Tower 'Can'

Figure 4-6 Steel Reinforcement being added

4.3.1.4 Hard Standing Areas

Hard standing areas consisting of levelled and compacted hardcore are required around each turbine base when constructing a wind farm, to facilitate access, turbine assembly and turbine erection. The hard-standing areas provide a safe, level working area around each turbine position. The hard-standing area is also intended to accommodate a crane during turbine decommissioning and disassembly, and if necessary, during maintenance works.

There will be no changes to the existing hardstanding areas as part of the Proposed Lifetime Extension. The existing hardstand areas vary slightly at each of the 11 no. turbines, with an average area of approximately 722m^2. Plate 4-3 below depicts a typical hardstand at the site. The existing hard standing areas shown on the detailed layout drawings included in Appendix 4-1 to this report will be maintained.

Plate 4-3 Existing hardstand within the Site

4.3.1.5 Power Output

The existing wind turbines have a rated electrical power output in the range of 2.3 Megawatt (MW) per turbine, resulting in an estimated installed capacity of 25.3 MW. The existing wind farm therefore has an average annual power output of 82,002 Megawatt-hours per year (MWh/yr), based on the following calculation:

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

where:

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

B = The capacity factor, which takes into account the intermittent nature of the wind, the availability of wind turbines and array losses etc. A standard capacity factor of 37% is applied here.[1]

C = Rated output of the wind farm: 25.3 MW

This power output would continue for the extended 10-year operation of the existing Taurbeg Wind Farm, subject to planning permission.

The 82,002 MWh/yr of electricity produced by the existing Taurbeg Wind Farm is sufficient to supply approximately 19,524 Irish households with electricity per year, based on the average Irish household using 4.2 MWh[2] of electricity. For context, the 2022 Census of Ireland recorded a total of 128,411 occupied households in Co. Cork. Per annum, based on the current average power output of 82,002 MWh/yr, the existing Taurbeg Wind Farm therefore produces sufficient electricity for the equivalent of approximately 15% of all occupied households in Co. Cork.

[1] *Eirgrid, 2022 Enduring Connection Policy 2.3 Constraints Report for Solar and Wind <https://cms.eirgrid.ie/sites/default/files/publications/ECP-2.3-Solar-and-Wind-Constraints-Report-Results-for-Area-E-v1.1.pdf> The Proposed Lifetime Extension is located within the E wind region for Ireland with an associated capacity factor of 37%.*
[2] March 2017 CER (CRU) Review of Typical Consumption Figures Decision *https://www.cru.ie/document_group/review-of-typical-consumption-figures-decision-paper/*

4.3.2 Site Roads

During the initial construction of the existing Taurbeg Wind Farm, existing tracks were upgraded and new access roads were constructed to provide access within the wind farm site and to connect wind turbines and associated infrastructure. Site roads were constructed of consolidated gravel with an average running width of 5.5m and total length of 8.4km. A typical section through an excavated site road is shown in Figure 4-7.

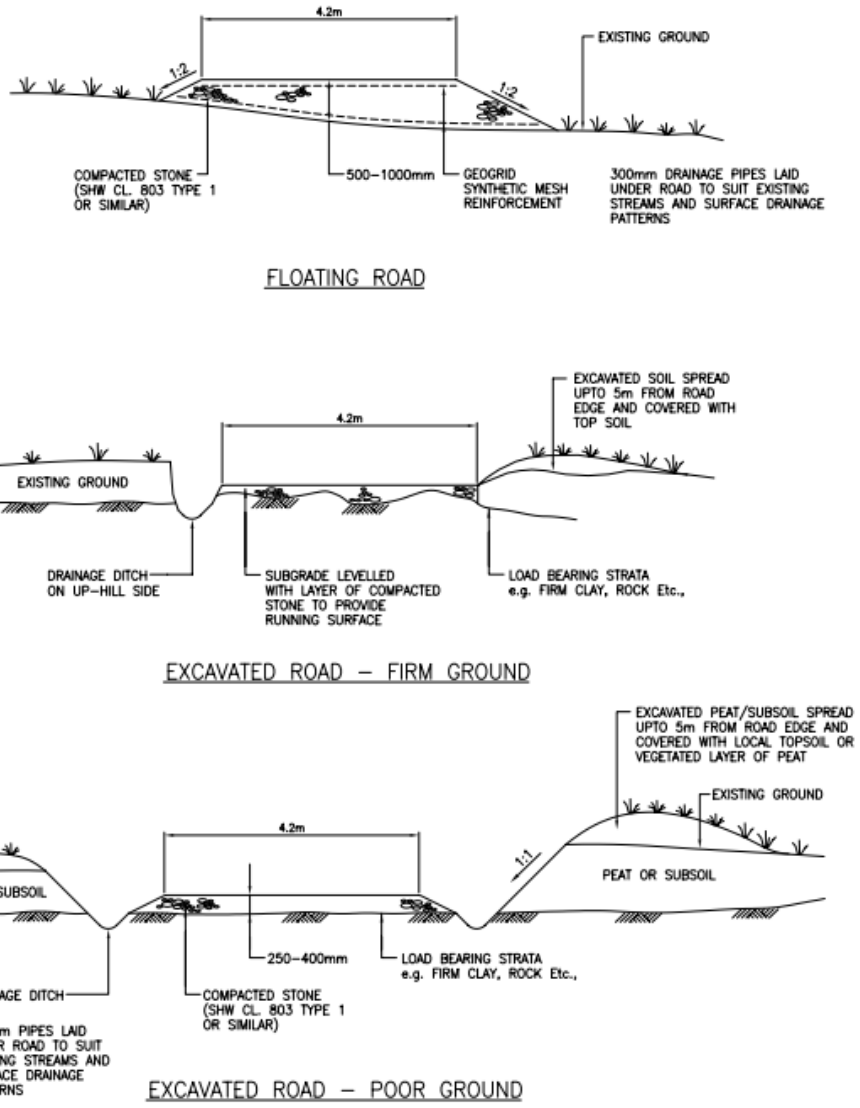


Figure 4-7 Typical Site Access Road Detail

A photograph of a typical existing site road in included as Plate 4-2. There will be no changes to the existing site roads required as part of the Proposed Lifetime Extension.

4.3.2.1 Site Access

The existing Taurbeg Wind Farm is accessed via the wind farm site entrance off the unnamed local road, in the townland of Taurbeg and is served by a network of existing wind farm access roads.

4.3.3 Site Cabling

Each turbine is connected to the on-site electricity substation through underground medium voltage (MV) electricity and communications cabling. Multicore fibre-optic cabling connects each wind turbine to the wind farm control building. The electricity and fibre-optic cabling run in trenches below the ground surface, along the sides of or underneath the internal roadways. The routes of the cabling ducts follow the access tracks to each turbine location.

4.3.4 Wind Farm Site Drainage

There are no groundworks involved in the Proposed Lifetime Extension, and therefore no existing natural drainage features will be altered and there will be no direct or indirect discharges to natural watercourses.

During decommissioning of the existing Taurbeg wind farm, it is intended to limit groundworks other than to rehabilitate constructed areas such as turbine bases and hardstanding areas. This will be done by covering with topsoil to encourage vegetation growth and reduce run-off and sedimentation. Electrical cabling connecting the site infrastructure to the on-site substation will be removed, while the ducting itself will remain in-situ instead of excavating and removing it. The turbines will be removed and transported off-site along their original delivery route, and the turbine concrete bases will remain in the ground and backfilled. With the implementation of the decommissioning phase drainage measures as outlined in Chapter 9: Hydrology and Hydrogeology, the residual effects will be negative, imperceptible, indirect, short-term, temporary, likely effects on downstream water quality.

Further details on the site hydrology are provided in Chapter 9: Hydrology and Hydrogeology of this EIAR.

4.4 Substation and Grid Connection

The Taurbeg Wind Farm is connected to the existing Glenlara 110kV Substation. A 38kV underground cable runs between the onsite substation and a mast at the south of the site. A 38kV overhead line runs from the mast to the existing Glenlara 110kV Substation. The overhead line does not form part of the current planning application and was subject to a separate planning application (Pl. Reg. Ref: N/2001/6549) but has been assessed cumulatively with the rest of the wind farm infrastructure, as part of the EIAR.

The existing substation compound measures approximately 1,428m^2. There are no changes to the existing substation, control building or grid connection proposed as part of the Proposed Lifetime Extension.

4.5 Proposed Offsetting Lands

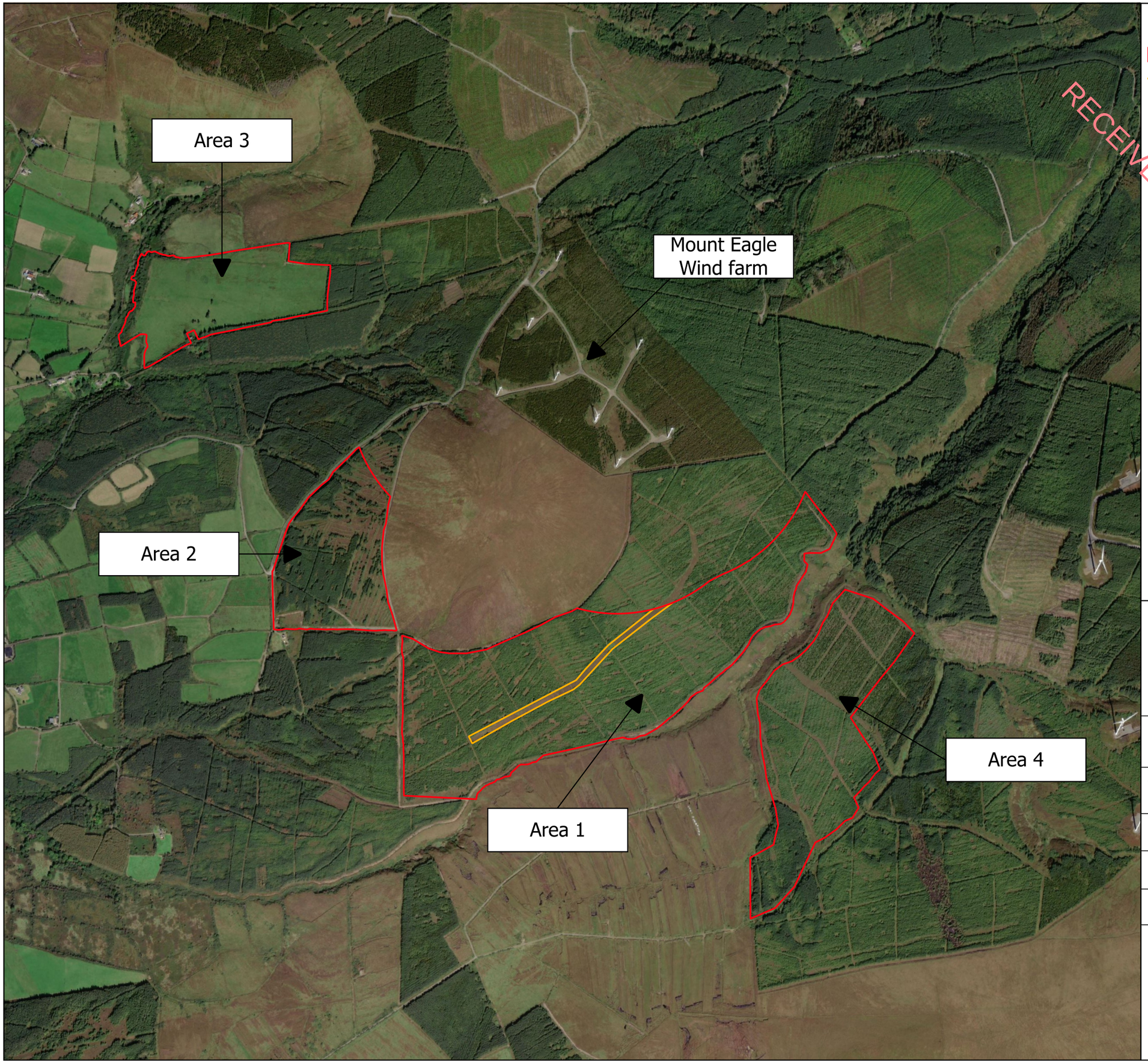
The Proposed Project includes management of lands required for the offsetting of potential effects of the continued operation of the existing Taurbeg Wind Farm on hen harrier. The Proposed Offsetting lands are located in Knockatee and Coom, Co. Kerry, approximately 11.5km east from the Taurbeg Wind Farm site. Offsetting measures include permanent removal of commercial forestry in Area 1, 2 and 4 and restoration of farmland to good quality hen harrier habitat in Area 3.

Landcover in Areas 1, 2 and 4 is mature coniferous forestry and Area 3 is agricultural pastural land. All areas are accessible via local roads and existing private access tracks. See Figure 4-8 below.

A habitat loss calculation was undertaken with reference to the suitability of the habitats surrounding existing turbine locations and the likely distance turbines will be avoided by hen harrier. In this habitat loss calculation, it was assumed that there would be total avoidance of a buffer zone within a 250m

radius of the existing wind turbines (in line with the result of Pearce-Higgins *et al.*, 2009). Based on this approach and having calculated the amount of foraging habitat available on an annual basis (taking into account standard forestry management practices for forested areas), the estimated quantum of habitat from which hen harrier will be displaced is **122.43 hectares**. Further detail on the habitat loss calculation is provided in Section 2 of Appendix 7-7.

The Proposed Offsetting Lands fulfil the requirement to maintain the overall coherence of the Natura 2000 network. The two key elements that have been addressed are the proportionality and ecological functionality of the Proposed Offsetting Lands. The justification for the choice of the Proposed Offsetting Lands are provided in Section 2.1.2 of Appendix 7-7, with 123.2 ha of lands being identified for restoration for the benefit of hen harrier.



Map Legend

- Proposed Offsetting Measures
- Predator Proof Fence

Drawing Title
Proposed Offsetting Lands

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
231030	Figure 4-8
Scale	Date
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4.5.1 Forestry Removal and Restoration

The Proposed Offsetting Measures will be achieved by deforestation of approximately 105.5Ha of plantation forestry across the area to create new viable hen harrier habitat, and the works will consist of:

- Permanent removal of trees of approximately 10 HA (Area 2 only);
- Deforestation and stacking of felled material in windrows at 50m intervals of approximately 95.5 HA;

Deforestation ensures the provision of high-quality replacement peatland habitat to offset the loss of predominantly sub-optimal commercial forestry. Commercial forestry is associated with lower breeding success, is only of limited value to hen harrier while young and is of little to no ecological value once its canopy closes at c.12 years old.

Replanting of forestry will not occur within the Proposed Offsetting lands.

Where possible, existing drains will not be disturbed during deforestation works, with silt fences being installed at the outfalls of existing drains downstream of deforestation areas to prevent entry of sediment to watercourses. Drains and silt traps will be maintained throughout all deforestation works, ensuring that they are clear of sediment build-up and are not severely eroded. See Section 9.5.2.1 of Chapter 9 for further detail on drainage during deforestation works, including drain inspection and maintenance.

No further works such as drain blocking and re-wetting of peatland using peat dams or similar techniques are proposed. No forestry access tracks will be constructed. All Forest Service Archaeological, Environmental and Water Quality guidelines will be adhered to.

4.5.1.1 Deforestation Methodology

The deforestation methodology has been informed through consultation with a forestry contracting company. For the purposes of the forestry works, the Proposed Offsetting lands have been divided into four areas (Area 1- Area 4), as shown in Figure 4-8.

4.5.1.1.1 *Areas 1 and 4*

Given the age and quality of the forestry crops within Areas 1 and 4, it is proposed to stack felled material onsite within both of these areas. The methodology for this approach is as follows:

- The areas will be divided up in to windrows about 50m apart., as illustrated in Figure 4-9.
- A tracked excavator machine with shears/ harvester head (Machine 1) will cut the trees, and following this, the harvesting operator will swing around and drop the entire tree as far as needed (typically up to 12m from where it was cut)
- From here, the cut tree will be picked up by a second tracked excavator machine (Machine 2) with a dyke/rock bucket or grab.
- The tracked excavator machine will swing around again (c. 12m away) resulting in a windrow being located c. 24 meters from where furthest away trees were cut.
- The process would then be replicated from the other side so that a windrow (c. 2-3 m wide) comprising approximately 50m of crop is created.
- The tracked excavator machine will, using its attachment, compress the material so as to keep the windrows tight and as narrow as possible.

The existing good quality heath within firebreaks and along access tracks will be preserved by cordoning them off as ‘no go’ zones for machinery by a suitably qualified ECoW. No vehicle movements will take place within the existing large central firebreak of Area 1. This area contains

upland blanket bogs and wet heath habitat and will be retained as part of Proposed Offsetting Measures. Vehicle movements will be restricted within the small north-south existing firebreaks.

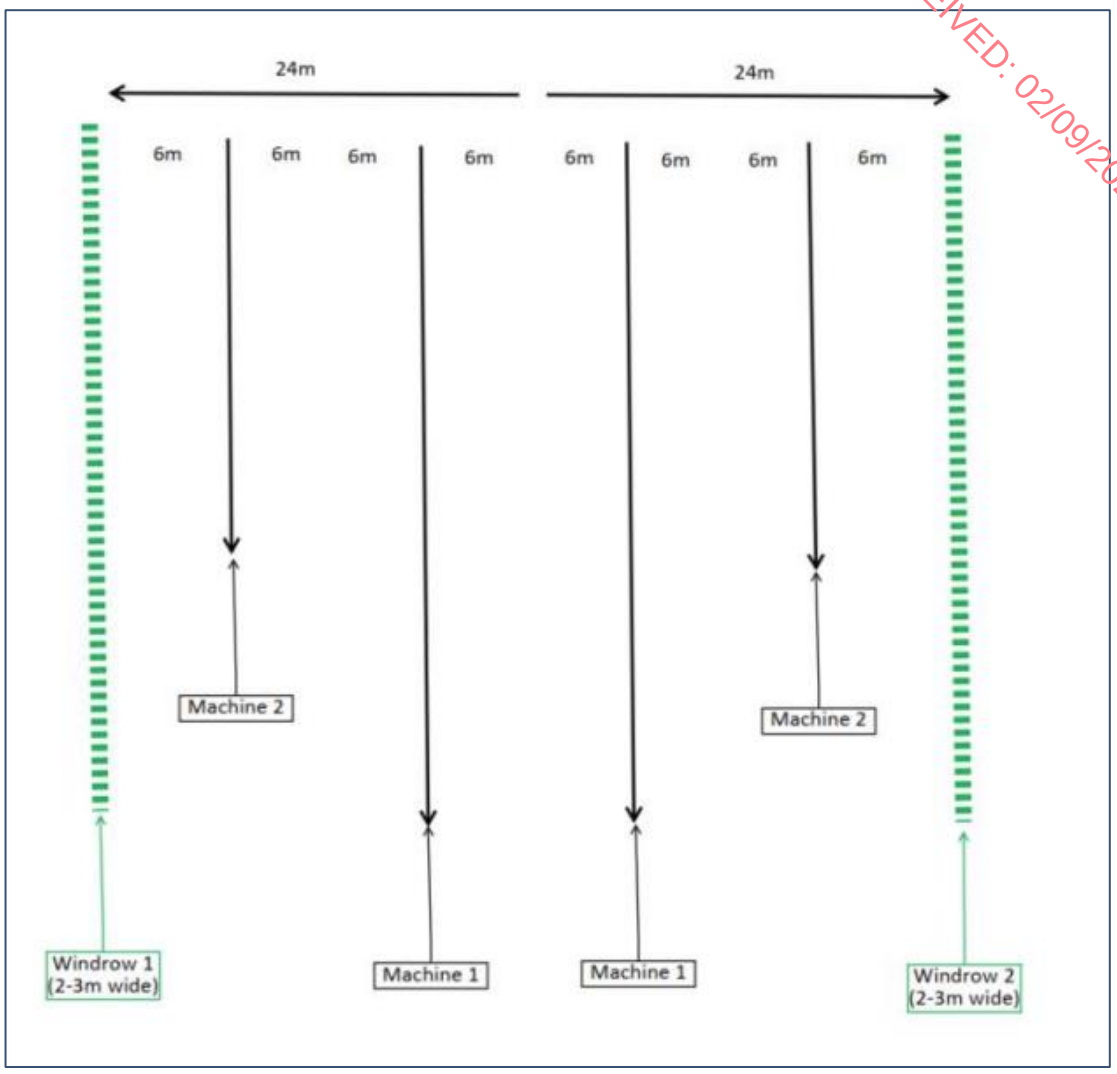

Figure 4-9 Windrows proposed at the Proposed Offsetting lands

4.5.1.1.2 Area 2

The forestry crop in Area 2 is considered to be higher quality and more productive. As such approximately 10 hectares of the forestry crop here will be harvested using the following methodology:

- The forestry crop will be cut using shears or a harvesting head on a tracked excavator.
- A forwarder will then draw all material (whole trees) to a temporary storage area near the existing entrance off the public road network (L10750).
- The forwarder will use temporary brash tracks to support the ground upon which it is travelling, bringing approximately 5 ton loads of entire trees to the storage area at a time.
- Brash will be replenished as required, should ground conditions disimprove in order to minimise the impact of machinery causing rutting.
- Felled forestry (estimated total volume c. 2,000 ton) will be left on site at the storage area for 4-6 months to dry out.
- Following this, a chipping machine will be brought on site, with the felled trees being chipped and blown into lorries for onward delivery to biomass plants.

Following deforestation in Areas 1, 2 and 4, these areas will be allowed to revert back to dry heath habitat. This will be done through planting of scrub within Areas 1 and 4 in order to create a diversity

of vegetation structures to provide cover and resources for hen harrier prey species. Scrub patches will be planted using a mix of bare-root saplings and 2-3 year old potted trees to provide some structural diversity and to maximise establishment success. Areas for planting will measure approximately 0.2ha in size and not exceed 10% of the total area of Areas 1, 2, or 4. The scrub will be distributed throughout the deforested areas. Patches of existing native scrub remaining following deforestation will be targeted through planting.

A Peat Stability Risk Assessment (Appendix 8-1) has been undertaken to identify any potential for peat instability which may be triggered by deforestation works. The peat stability risk assessment findings showed that the Proposed Offsetting lands have an acceptable margin of safety and low risk of peat failure and is suitable for the Proposed Offsetting.

4.5.2 Restoration of Farmland

Area 3 of the Proposed Offsetting lands consists of pastural agricultural land. The farmland is predominantly wet grassland with frequent stands of rushes (Juncus spp.), gorse and scrub. The restoration of the farmland to good quality hen harrier foraging habitat will be achieved by diversifying the range and extent of habitats within the Proposed Offsetting Lands with a particular focus on habitats that support prey species. Restoration measures have been selected based on guidance from the Hen Harrier Project[3].

The following restoration measures will be implemented in Area 3:

- Planting and restoring of hedgerow
- Rotational grazing scheme
- Linear wildlife crop sowing
- Cease on fertiliser application
- Predator Fencing

It is proposed that a suitably qualified environmental scientist or ornithologist/ecologist will be engaged by the Applicant to oversee the implementation of the Proposed Offsetting Measures and to guide the landowner on the various measures proposed.

4.5.3 Monitoring

Ongoing monitoring of the Proposed Offsetting lands is proposed to assess the effectiveness of the measures proposed and to contribute to advances in habitat management methods, which can be applied to future similar projects. Monitoring measures proposed at the Proposed Offsetting lands include:

- Breeding raptor surveys
- Passerine point counts
- Habitat mapping
- Habitat scoring
- Vegetation sampling

The Applicant will be responsible for the implementation of the Proposed Offsetting Measures. Annual audits will be required to ensure the effectiveness of the Proposed Offsetting Measures. They are essential to ensure adequate plan quality, compliance, and control. Audits will be based on a field inspection and the assessment of the farm plans.

[3] *Hen Harrier Project:* http://www.henharrierproject.ie/about.html

4.6 Extended Operational Stage

4.6.1 Operational

The Proposed Lifetime Extension is expected to have a lifespan of 10 years, commencing from the date of expiration of the existing Taurbeg Wind Farm permission in 2026.

During the extended operational period, on a day-to-day basis the wind turbines will operate automatically, responding by means of anemometry equipment and control systems to changes in wind speed and direction.

The monitoring of the turbine output, performance, wind speeds and responses to any key alarms will continue to be monitored. All operational works on-site will be carried out in strict adherence with the Applicant's Health and Safety Policies and Procedures.

4.6.2 Maintenance

Each turbine will continue to be subject to a routine maintenance programme involving monthly checks and intermittent changing of consumables, including oil changes. In addition, there will be a requirement for unscheduled maintenance, which could vary between resetting alarms to major component changes requiring a crane. Typically, maintenance traffic will consist of four-wheel drive vehicles or vans. The wind farm manager will continue to attend the site regularly to perform inspections and oversee maintenance works.

The maintenance contractor for Taurbeg Wind Farm will be responsible for ensuring each turbine is well maintained. Each turbine is subject to a yearly maintenance schedule which includes, yearly master maintenance and visual blade inspections. In addition, there will be a requirement for unscheduled maintenance, which could vary between resetting alarms to major component changes. The use of a crane on site may be required but this is only for major component repairs/change. All site roads and public roads are suitable for this access if required and no modifications are required. Typically, maintenance traffic will consist of four-wheel drive LGVs. The wind farm manager will continue to attend the site regularly to perform inspections and oversee maintenance works.

The onsite substation and site tracks will also require periodic maintenance. The existing Taurbeg 38kV Substation will continue to be operational 24 hours per day, 7 days a week throughout the year. Substations can be operated remotely and manually. Supervisory operational and monitoring activities will be carried out remotely using a SCADA system, with the aid of computers connected via a telephone modem link.

The following maintenance procedures will also be adhered:

- Periodic service and maintenance works which include some vehicle movement.
- For operational and inspection purposes, substation access is required.
- Servicing of the substation equipment will be carried out in accordance with the manufacturer's specifications, which would be expected to entail the following:
    - Yearly service – one day visit
    - 4-year master maintenance – two day visit

Occasional technical problems may require maintenance visits by technical staff. During the service visits, some waste (lubricating and cooling oils, packaging from spare parts or equipment, unused paint, etc.) will arise. This will be recorded and removed from the Wind Farm Site and reused, recycled or disposed of in accordance with the relevant legislation in an authorised facility.

It is estimated that 1-2 daily visits will be made to the Site for authorised persons and vehicles to undertake minor routine maintenance and inspection, if and when required. Although the level of activity required for the maintenance of the both the existing Taurbeg Wind Farm and existing Taurbeg 38kV Substation infrastructure is minimal.

An Operation and Environmental Management Plan (OEMP) has been prepared for the Proposed Project and is included as Appendix 4-2 of this EIAR.

4.6.3 Monitoring

Section 5 of the OEMP sets out a programme of monitoring required for the Proposed Lifetime Extension. The OEMP should be consulted for detailed information on the monitoring requirements during the extended operational phase, however a brief summary of the key information is provided below:

4.7 Decommissioning Stage

Decommissioning of the existing Taurbeg Wind Farm is required to be carried out 20 years from the date of commissioning of the wind farm, under the parent planning permission. The Proposed Lifetime Extension would extend the operation of the existing wind farm for a further ten years, thereby postponing decommissioning until 2036.

Condition 7 of the original permission states:

> "*The structures shall be removed at the expiration of a period of 20 years beginning on the date of commissioning of the development.*"

A Decommissioning Plan is presented in Appendix 4-3 of this EIAR and outlined below.

Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. All above-ground turbine components will be separated and removed off-site for reuse or recycling. The on-site substation will remain in place as it will become a permanent part of the national electricity network.

The Applicant has made a commitment not to send turbine blades to a landfill.

It is proposed to leave turbine foundations in place underground and to cover them with earth and reseed as appropriate. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant environment nuisances such as noise, dust and/or vibration.

It is proposed that site roadways will be left in situ, as appropriate, as these are in use by the participating landowners to access their lands and as existing walking trails. If it were to be confirmed that the roads were not required in the future for any other useful purpose, they could be removed where required, however, this is not envisaged at this time. It is proposed to leave underground cables in place where they are below a level likely to be impacted by typical agricultural works.

During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during the initial construction of the wind farm by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with local topsoil and reseeding with a local native mix to encourage vegetation growth and reduce run-off and sedimentation.

In November 2020, Wind Europe published the 'Decommissioning of Onshore Wind Turbines'[4] in which EU-wide industry guidelines were amalgamated and put forward. This document was submitted to the International Electrotechnical Commission TC88 for Wind Turbines, as a starting point towards the creation of an international standard for the decommissioning of onshore wind turbines. These guidelines present the main steps a decommissioning project should perform. This document outlines that the decommissioning plan is the key document for the decommissioning of a wind farm. A decommissioning plan of a wind farm must reflect national and, in some cases, regional or local legislation. The guidelines provided in this document provide key examples of decommissioning plans from several European countries, including Germany, France, Denmark and the Netherlands. Wind turbines are a valuable source of resources that can be reintroduced into the circular economy. The aim should be for use over a long period of time. However, at some point, wind turbines need to be decommissioned as they reach the end of their operational life. The 'Decommissioning of Onshore Wind Turbines' report therefore presents a number of scenarios in which wind turbines can be decommissioned in a safe and more sensitive manner than has been put forward in the past.

As noted in the Scottish Natural Heritage (SNH) report *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms*[5] (SNH, 2013) reinstatement proposals for a wind farm are typically made far in advance, so within the proposed 10-year extension of operation of the site, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore *"best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm"*.

The final Decommissioning Plan will therefore be agreed with the Local Authority at least three months prior to decommissioning of the existing Taurbeg Wind Farm.

[4] *Wind Europe Decommissioning of Onshore Wind Turbines. Available at: https://windeurope.org/intelligence-platform/product/decommissioning-of-onshore-wind-turbines/*
[5] *Scottish Natural Heritage Commissioned Report No. 591 Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms. Available at: https://www.nature.scot/sites/default/files/2017-07/Publication%202013%20-%20SNH%20Commissioned%20Report%20591%20-%20Research%20and%20guidance%20on%20restoration%20and%20decommissioning%20of%20onshore%20wind%20farms.pdf*