

**PROPOSED WIND FARM
AT GORTYRAHILLY, CO. CORK**

HABITAT ENHANCEMENT PLAN

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Prepared for

GORTYRAHILLY WIND DAC

by

BIOSPHERE ENVIRONMENTAL SERVICES

29 La Touche Park, Greystones, Co. Wicklow

Tel: 01-2875249 / 087-2309906; E-mail: maddenbio20@gmail.com



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1.0 INTRODUCTION

As part of the planning application for the proposed Gortyrahilly Wind Farm, a Habitat Enhancement Plan has been prepared to mitigate for the ecological effect of habitat loss as a result of the proposed project. In particular, it is estimated that the wind farm project will result in the loss of 28 ha of wet heath habitat (though this varies in quality).

The Plan is focused on the restoration of blanket bog and heath in a sector of the site where afforestation has taken place (see Figure 1).

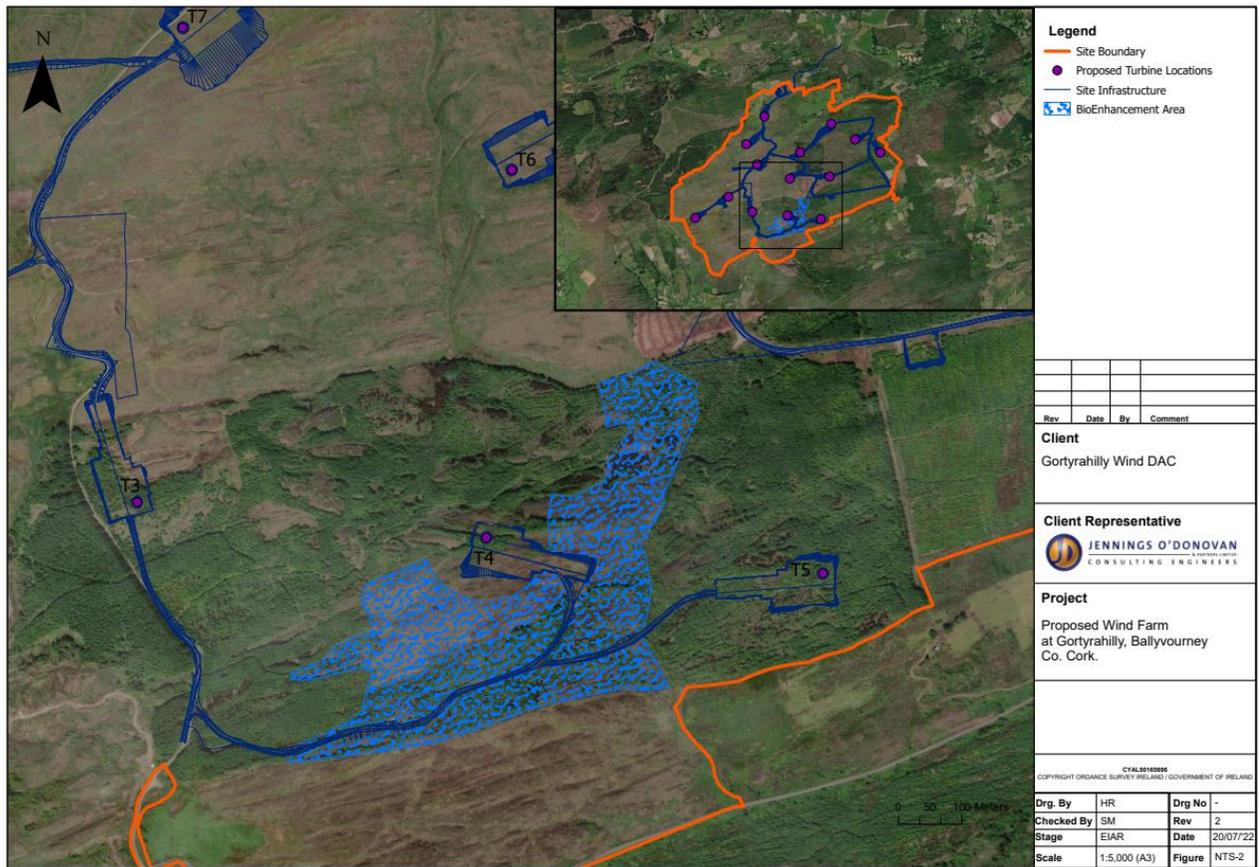


Figure 1. Area for Plan (shown as Bio-Enhancement Area)

1.1 Plan Objectives

Objectives - primary

- To enhance existing area of blanket bog (Annex I habitat)
- To enhance and extend areas of wet heath, dry heath and siliceous rock (all Annex I habitats)

Objectives - secondary

- To enhance existing habitats for peatland associated species such as Red Grouse (Red-listed), Meadow Pipit (Red-listed) and the Irish Hare.
- To create an open corridor for wildlife through established forest connecting bog/heath to north and south.
- To create an area free of development for translocation of the Kerry Slug from areas on the development footprint to this enhancement area.

1.2 Plan Ownership

A co-ordinating group will be established to oversee the implementation of the Plan for the lifetime of the project. This will comprise relevant stakeholders (such as wind farm owner / operator). An independent ecologist with experience in peatland ecosystems and habitat management will report to the group on the progress of the Plan in achieving the objectives.

2.0 PLAN DETAILS

2.1 Plan area location

The location of the plan area is within Coillte Forest Compartment number 34070N centred at approximated Irish Transverse Mercator (ITM) grid coordinates 516,181.9 571,888.9 (see Figure 1).

The estimated total area for the Plan is 9.5 ha. Turbine T4 and part of the associated road leading to T4 and T5 are contiguous with the Plan area.

The following sub-compartments make up the plan area (see Table 1).

Table 1. Land Use types for the Forest Sub-compartments within the Plan area.

<u>Sub-compartment number</u>	<u>Land Use</u>
2	Conifer High Forest
4	Bare Lands
5	Bare Lands
9	Undeveloped
10	Undeveloped

2.2 Description of existing Plan area

The following are the principal habitat types (after Fossitt 2000) present within the plan area.

Conifer plantation (WD4)

The forested areas were planted in 1992 with a mix of Sitka spruce and lodgepole pine. Tree growth since 1992 has been limited in certain parts of the plan area and as a result some of the peatland vegetation is still present (see Plate 1) in these areas. However, where tree growth with closed canopy occurs, there is sparse bog vegetation remaining.

Present ecological value: Low



Plate 1. View of poorly grown conifers – note presence of bog vegetation, including Sphagnum moss in places (as shown in bottom left of photo). June 2021.

Wet heath (HH3), dry heath (HH1) and exposed siliceous rock (ER1) mosaic

Much of the central part of the Plan area is undulating and comprises a mosaic of mostly heath habitats (see Plate 2). There is a scatter of conifers which appear to be self-seeded. There are good growths of heather (*Calluna vulgaris*) throughout much of area. Wet grassland GS4 dominated by rushes is present in places. Some recent turbary has taken place which indicates the presence of pockets of blanket bog.

Equivalent EU Annex 1 Habitats

- Northern Atlantic wet heaths with *Erica tetralix* (4010).
- European dry heaths (4030).
- Siliceous rocky slopes with chasmophytic vegetation (8220).

Present ecological value: Moderate



Plate 2. View of unplanted area dominated by heath vegetation. June 2021.

Lowland blanket bog (PB3)

Two distinct areas of high bog occur in the western part of the Plan area. Peat depth in these areas of bog appears to be in excess of 1 m. The scarcity of heather (*Calluna vulgaris*) indicates that burning has occurred in the past (see Plate 3). Drains occur along some of the margins of the bog (see Plate 4).

Bog species such as purple moor-grass (*Molinia caerulea*), common bog-cotton (*Eriophorum angustifolium*), hare's tail bog-cotton (*Eriophorum vaginatum*) and bog asphodel (*Narthecium ossifragum*) are the principal species. Bog mosses (*Sphagnum* spp.) occur in places, as well as the moss *Racomitrium lanuginosum*.

Equivalent EU Annex 1 Habitat – Blanket bog (7130)

Present ecological value: Moderate



Plate 3. View of area of uncut blanket bog in western sector of Plan area. This was probably burnt in the past as shown by relatively uniform vegetation. June 2021.



Plate 4. View of edge of bog – Plan will involve removal of self-seeded conifers and, where required, blocking of drains. June 2021.

2.3 Management Prescriptions

The following management prescriptions outline the work that will be required for implementation of the Plan and will be in effect for the lifetime of the project.

In addition, the following activities will be prohibited throughout the area of the Plan:

- Peat cutting (unless turbary rights exist)
- Insertion of new drains
- Grazing

2.3.1 Prescription no. 1. Removal of planted trees

Areas where plantations are poorly grown that still have ground cover of bog vegetation will be cleared in a manner (see below) to minimise disturbance to the surface peat and vegetation. Such areas can be defined roughly as ‘areas where a person can walk with relative ease through the plantings’. These will be identified in a site inspection prior to the commencement of the clearance operations by an ecologist and forester.

Trees in these identified areas will be cleared either by (i) chainsaw, or (ii) mulching in-situ using a rotating mulching head cutter attached to a low ground pressure tractor. Stumps will be left in-situ so as to minimise ground disturbance. However, the trees should be cut as close to the ground as possible in order to discourage resprouting of cut stumps.

Trees felled manually by chainsaw can be left in-situ and allowed to rot so as to minimise ground disturbance.

In areas where canopy closure has occurred (as identified by ecologist and forester), felling will be by mechanised means, though the use of a low ground pressure excavator will minimise disturbance to the surface.

Tree removal within the Plan area will take place outside of the bird nesting season (1 March – 31 August inclusive).

2.3.2 Prescription no. 2. Removal of self-seeded trees

Any self-seeded conifer trees on and/or along margins of the two areas of blanket bog in western sector of Plan area and also in unplanted heath areas elsewhere will be removed by chainsaw or pulling of seedlings. As these are mostly small specimens, the felled tree will be carried off the site for disposal

2.3.3 Prescription no. 3. Drain Blocking

After tree clearance, an inspection will be made to assess if the forest drains require blocking. Emphasis will be on drains with flowing water. Blocking will be by dam construction using a suitable medium, such as a peat plug (see Plate 5) or plastic sheet piling (see Mackin et al. 2017).



Plate 5. Example of use of a ‘peat plug’ in drain blocking – the plugs are placed at intervals along the drain and are highly effective in stemming water loss from the bog.

2.4 Monitoring

A programme for monitoring to ensure that the objectives of the Plan are being achieved is an essential component of the Plan.

2.4.1 Monitoring of heath and bog vegetation

After tree clearance has taken place, a series of permanent quadrats will be set up for monitoring of vegetation. These will be large (at least 5m x 5m) to take into account the scale of the Plan area.

Monitoring will take place in Years 1, 2, 3 & 5 of Plan implementation, with Year 1 being the base year at the time the works are carried out. After Year 5, a review of the progress will be conducted in light of the Plan objectives, and a programme will be developed for the next 5-Year period of the Plan (and so on for the lifetime of the project).

Permanent quadrats to monitor vegetation will also be established on the two areas of high bog in the western sector of site (using same programme as above). This will track improvements in quality of bog after drains are blocked and trees removed.

2.4.2 Monitoring for tree regrowth and drains

The Plan area will be walked to check for conifer regrowth from cut stumps, and for small trees that may have been missed during the main clearance operation or further self-seeded plants. Seedlings can be plucked in situ, while larger plants can be marked for later (end of season) removal.

Checks will also be made on drains which had been blocked. Any further drains which may need to be blocked will be identified (for action to be taken in due course)

As with the quadrat monitoring, this monitoring will take place in Years 1, 2, 3 & 5 of Plan implementation.

2.4.3 Monitoring for birds

A transect will be established through the Plan area to survey for breeding birds. This will be walked on 3 occasions between April and July following standard survey methods.

As with the other aspects of monitoring, bird monitoring will take place in Years 1, 2, 3 & 5 of Plan implementation.

2.5 Time Period for Plan Implementation

Year 1 of the Plan will include all physical measures required, namely tree clearing and drain blocking, i.e., Prescriptions 1 to 3.

Monitoring quadrats and transects will be set up when the above physical works are complete.

Year 1 should coincide with the completion of wind farm construction works.

Year 2 and subsequent years

Tasks such as further removal of missed or regenerating trees, as well as further work on blocking of drains (if required), will take place in Year 2 and onwards for the life time of the wind farm project.

3.0 OVERVIEW

The Habitat Enhancement Plan for the Gortyrähilly Wind Farm project will restore and enhance an area of bog and heath type habitats (Annex I listed) that has been degraded by afforestation. This will provide mitigation for the loss of heath habitats on site as a result of wind farm construction.

It is anticipated that various important species of flora and fauna will utilise the area as the habitats develop and/or improve in quality.

Also, a corridor will be opened to connect bog and heath habitats to the north and south of the now planted area.

The objectives for the Plan are achievable, as similar work has been carried out successfully at other wind farm sites throughout Ireland, e.g., Castlepook Wind Farm in Co. Cork where an afforested plot of 8 ha has been restored to heath with considerable success.

The Plan will be underwritten by a detailed monitoring programme, which will allow for modifications to ensure that the objectives are being achieved.

4.0 REFERENCE

Mackin, F., Barr, A., Rath, P., Eakin, M., Ryan, J., Jeffrey, R. & Fernandez Valverde, F. (2017) *Best practice in raised bog restoration in Ireland*. Irish Wildlife Manuals, No. 99. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.