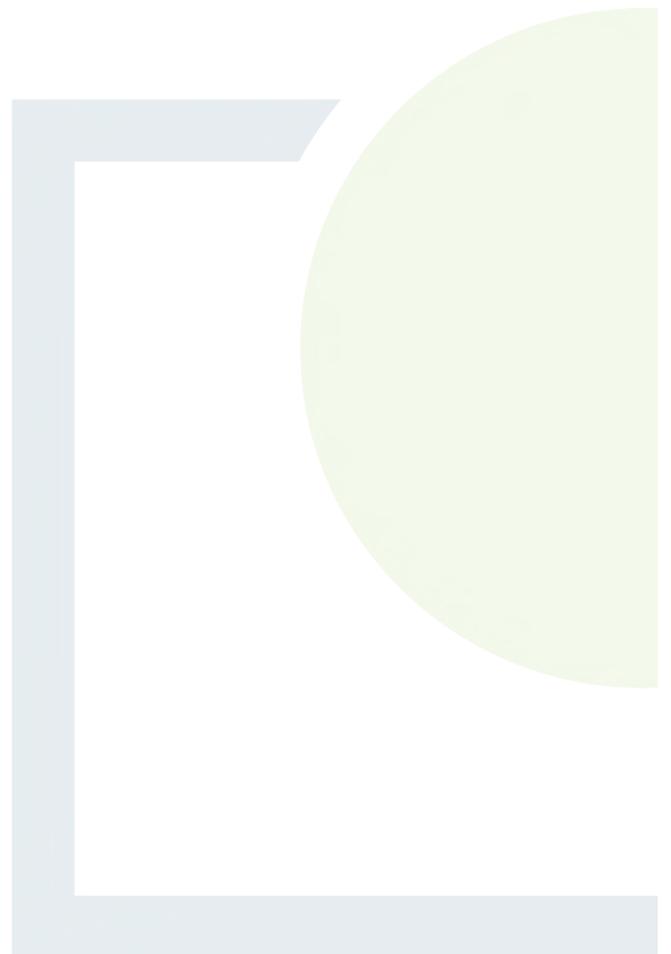




CONSULTANTS IN ENGINEERING,  
ENVIRONMENTAL SCIENCE  
& PLANNING

# APPENDIX 5

CHMP Report





Coom Green Energy Park Ltd.

Coom Green Energy Park

# Conservation and Habitat Management Plan

March 2022

This report considers the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

**INIS Environmental  
Consultants Ltd.**

Suite 16,  
Shannon Commercial  
Properties,  
Information Age Park,  
Ennis,  
County Clare  
Ireland.

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The findings outlined within this report and the data we have provided are to our knowledge true, and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Professional Conduct. Where pertinent CIEEM Guidelines used in the preparation of this report include the *Guidelines for Ecological Report Writing* (CIEEM, 2017a), *Guidelines for Preliminary Ecological Appraisals* (CIEEM, 2017b) and *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018). CIEEM Guidelines include model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment. Also, where pertinent, evaluations presented herein take cognisance of recommended Guidance from the EPA such as *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2017), and in respect of European Sites, *Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2018).

Due cognisance has been given at all times to the provisions of all relevant Irish and EU legislation, including the *Wildlife Acts 1976-2021*, the *European Union (Natural Habitats) (Amendment) Regulations*, the *European Communities (Birds and Natural Habitats) Regulations 2011-21*, EU Regulation 1143/2014 on Invasive Alien Species, the EU Birds Directive 2009/147/EC and Habitats Directive 92/43/EEC.

Version	Date		Name	Signature
1	09/10/2020	<b>Report prepared by:</b>	Joao Martins BE (Hons) MSc MEnvSc	
1	29/10/2020	<b>Report checked by:</b>	Roger Macnaughton MSc, MCIEEM	
1	17/11/2020	<b>Report signed off by:</b>	Howard Williams Cenv, MCIEEM Cbiol MRSB MIFM	
2	30/11/2020	<b>Report signed off by:</b>	Roger Macnaughton MSc, MCIEEM	
3	01/12/2020	<b>Report signed off by:</b>	Roger Macnaughton MSc, MCIEEM	
4	21/01/2022	<b>Report signed off by:</b>	Dr. Alex Copland BSc PhD MEnvSc	
<b>Title</b>		Coom Green Energy Park, Conservation and Habitat Management Plan		

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## Contents

1.	Introduction .....	1
1.1	Background to this Revision .....	1
1.2	Statement of Authority .....	1
2.	Site Description .....	2
3.	Plan scope and objectives .....	3
3.1	Scope of Plan .....	3
3.2	Hen Harrier .....	3
3.3	Main Objectives .....	4
3.4	Habitat Requirements .....	5
3.4.1	Hen Harrier Habitat Selection and Preference .....	5
4.	Enhancement Habitat Calculations .....	7
4.1	Basis for Hen Harrier habitat management calculations .....	7
4.2	Proposed Areas to be Managed under CHMP .....	7
5.	Irish Conservation Management Best Practice .....	12
5.1	NPWS Management area prescriptions .....	12
5.1.1	Grazing .....	12
5.1.2	Scrub and Hedgerow (Hedgerow habitats are additional to the managed areas as per this CHMP)	12
5.1.4	Other .....	13
6.	Habitat management prescriptions .....	14
6.1	Introduction .....	14
6.2	Management Prescriptions for Specific Habitats .....	15
6.2.1	Hedgerows, Earth Banks and Scrub .....	15
6.2.2	Wet Grassland .....	16
6.2.3.	Improved Agricultural Grassland .....	18
6.3	Management Prescriptions Common to All Habitats .....	19
6.3.1	Hen Harrier Nest Sites .....	19
6.3.2	Supplementary Feeding .....	19
6.3.3	Burning .....	20
6.3.4	Use of Herbicides .....	20
6.3.5	Use of Poisons or Stupefying Baits .....	20
6.3.6	Fence Marking .....	20
6.3.7	Shooting .....	20

- 7. Plan Implementation..... 21
  - 7.1 Timing..... 21
  - 7.2 Consent ..... 21
  - 7.3 Procedures ..... 21
  - 7.4 Responsibility ..... 21
- 8. Monitoring ..... 22
  - 8.1 Habitats ..... 22
  - 8.2 Additional Bird Surveying..... 22
  - 8.3 Auditing ..... 22
  - 8.4 Review ..... 22
- 9. Conclusion ..... 23
- References..... 24
- APPENDIX A: Habitat Maps for 250m Buffer of Turbine Locations ..... 26
- APPENDIX B: Habitat Calculations..... 49
- APPENDIX C: Site Conditions and Description of Management Areas ..... 64

# 1. INTRODUCTION

Coom Green Energy Park Ltd. (CGEP) are applying for a 22-turbine wind farm and associated infrastructure at Bottlehill, County Cork. This Conservation and Habitat Management Plan (CHMP), proposed for the lifetime of the project, has been prepared by INIS Environmental Consultants Ltd. (INIS) on behalf of Coom Green Energy Park Ltd. The plan is compiled in the context of the Hen Harrier and their ecological requirements in the wider context of the proposed windfarm development and wider landscape. The document draws largely on the National Parks and Wildlife Service Farm Plan Scheme, Terms and Conditions documents (Anon, 2010, 2017, 2020) but also applies successful wind farm management prescriptions that were more recently applied at Hen Harrier breeding areas (some within Hen Harrier SPAs) by INIS for similar renewable energy developments (see Section 3 for details).

## 1.1 Background to this Revision

This present CHMP has been ameliorated in line with further information requests from An Bord Pleanála dated 28 September 2021 and all pertinent comments from the National Parks and Wildlife Service.

This CHMP proposes six parcels of habitat to be managed for Hen Harrier for the lifetime of the proposed CGEP development. This CHMP has been very substantially revised, with only one Management Area in this CHMP having been retained from the previous CHMP (dated December 2020). All managed habitats proposed within this document are currently sub-optimal for Hen Harrier foraging. This document seeks to provide confirmation on management prescriptions to provide optimal foraging habitats that goes beyond the 148.8 ha of habitat calculated as potentially lost to foraging Hen Harriers within the vicinity of the proposed CGEP, and provides a total of 160.75 ha of optimal, managed habitats for foraging Hen Harrier. This represents a Biodiversity Net Gain for Hen Harrier of 11.95ha, that will be managed for the lifetime of the proposed CGEP project.

## 1.2 Statement of Authority

**Mr Joao Martins BE MSc MEnvSc** wrote the original CHMP. He is an Ecologist with over 8 years' experience in freshwater ecology (primarily research-based, in Germany, Portugal and Ireland) and an additional 5 years of experience in the environmental consultancy sector. He specialises in carrying out field surveys and delivering Ecological Impact Assessments (EclA), Screenings for Appropriate Assessment (AA), Natura Impact Statements (NIS) and Biodiversity chapters for Environmental Impact Assessment Reports (EIAR) for a broad range of developments potentially affecting terrestrial and freshwater habitats and designated species. Joao has also been involved in specific field surveys, as of Invasive Alien Plant Species, Bat Activity and Small Stream Risk Score (SSRS), amongst others.

**Mr. Roger Macnaughton MSc MCIEEM** reviewed the original CHMP. He is a qualified and experienced environmental consultant specialising in ecology. He has over eighteen year's professional experience in the environmental consultancy sector and an additional seven years of primarily research-based experience in freshwater and marine ecology. He specialises in the delivery of Ecological Impact Assessment (EclA) and Appropriate Assessment (AA) for a broad range of projects potentially affecting; terrestrial, freshwater and marine ecology.

**Mr Howard Williams MCIEEM BSc CEnv MCIEEM CBiol MRSB MIFM** reviewed and signed off this CHMP. He is Lead Ecologist with Inis and has more than 20 years' experience as a professional ecologist.

Following his degree, he worked as a biologist for the ESB for three years (1997-2000). Mr Williams has completed in excess of 500 separate ecology assessments in Ireland and the UK since 2000. Mr Williams is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). He is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Chartered Biologist (CBiol) with the Society of Biology. He is also a full member of the Institute of Fisheries Management. Mr Williams is principal ecologist with INIS Environmental Consultants Ltd. and currently project manager on all INIS projects in the Republic of Ireland and the UK.

**Dr Alex Copland BSc PhD MIEEnvSc** revised this CHMP. He is Technical Director with INIS and has over 25 years of bird survey experience. He is proficient in experimental design and data analysis and has worked on bird populations in Ireland for over 20 years. He has managed several large-scale, multi-disciplinary ecology projects, including research and conservation work for species of conservation concern, the design and delivery of practical conservation actions, education and interpretation on the environment and the development of co-ordinated, strategic plans for birds and biodiversity in Ireland.

He has written numerous scientific papers, developed and contributed to evidence-based position papers, visions and strategies on birds and habitats in Ireland. He has supervised the successful completion of research theses for several post-graduate students, including doctoral candidates. He lectures to both undergraduate and post-graduate students at UCD, as well as being a collaborative researcher with both UCD and UCC. He sits on the Editorial Panel of the scientific journal, *Irish Birds*.

## **2. SITE DESCRIPTION**

The proposed CGEP is located in north County Cork. The receiving environment for the proposed wind turbine locations is situated on the southern aspect of the Nagle Mountains range. In addition, there is a previously consented municipal landfill in close proximity within the townland of Bottlehill. The landfill was constructed but is not currently in operation.

Terrestrial habitats within the CGEP study area are dominated by mature commercial coniferous forestry plantations. There are also areas of improved agricultural grassland, with smaller areas of broadleaved woodland, heathlands, hedgerows, wet grassland, private roads and public roads.

The greater part of the study area consists of commercial forestry plantation, particularly in the vicinity of the proposed windfarm. The grid connection will be located primarily within the public road which passes through lands characterised by a predominance of agricultural grassland and coniferous forestry plantation, as well as other habitat types associated with the public road, e.g. roadside hedgerows, treelines, earth banks, dwellings, farm buildings and associated gardens, amenity grassland, hedges and lawns. The site is located within the Munster Blackwater and River Bride catchments.

### **3. PLAN SCOPE AND OBJECTIVES**

#### **3.1 Scope of Plan**

This CHMP has been prepared by INIS for the benefit of wildlife, but specifically Hen Harrier. INIS has previously been involved in the preparation of such CHMPs for sites in counties Clare, Cork, Leitrim, Monaghan, Tipperary, Kerry and Limerick.

It is important to note that in the case of these CHMPs, at the time when they were devised, they were accepted by the statutory authorities, consent was given for each wind farm, the wind farms were constructed and INIS is now monitoring Hen Harrier breeding and foraging success on these sites. Successful examples of Inis management prescriptions/plans that were developed for wind farms proximal to CGEP include (list not exhaustive):

- Ballyhouras Wind Farm, County Cork
- Knockawarriga Wind Farm, County Limerick
- Knockacummer Wind Farm, County Cork

Hen Harrier breeding on these sites has continued but, critically, Hen Harriers have been recorded foraging in the habitats created and managed under the various CHMPs.

The rationale of the CHMP is based on available publications (Anon, 2010, 2017, 2020) which have been developed through research on Hen Harrier in Ireland, and recording what designed and managed habitats for Hen Harrier have been seen to be readily accepted/used by Hen Harrier at various locations throughout Ireland. The Hen Harrier is afforded protection under Annex I of the EU Birds Directive and is known to occupy the environs of the CGEP site. The other species which will benefit from this CHMP will include Sparrowhawk, Kestrel, Barn Owl, Irish Hare and a range of other small mammal and bird species which form prey items for Hen Harrier. Forestry plans and the future forestry management regime developed by Coillte for the area have also been considered closely when formulating the scope of this plan.

#### **3.2 Hen Harrier**

The Hen Harrier is an Annex 1 species on the EU Birds Directive and is currently Amber listed in Ireland (Gilbert *et al.*, 2021). It is a bird of open country that utilizes almost any open terrain that contains enough small mammals or birds for hunting purposes (Watson, 1977).

Thompson (1849) describes the Hen Harrier as being 'pretty generally distributed over the island' and although no specific mention is made of North Cork, he does quote other sources which say it is 'occasionally met with' in East Cork and 'common' in Kerry. By 1893, Usher (1893) describes the Hen Harrier as being 'resident and common' fifty years earlier but decreasing to the point where 'it seems now to have almost disappeared'. Ussher & Warren (1900) state that it is 'frequently seen on the mountains south of the Mallow and Killarney line', but 'a straggler to other parts of the county'. By the 1950's the Hen Harrier was considered to be 'nowadays a rare straggler' to Ireland (Kennedy *et al.*, 1954) and sufficiently rare to merit publications of individual sightings. Subsequent to this, it became known that the Hen Harrier had continued to breed in the Slieve Bloom Mountains, in Co. Laois, and on the Waterford/Tipperary border (O'Flynn, 1983; Watson, 1977). In the early 1950's a recovery is believed

to have begun (O’Flynn, 1983) and Sharrock (1976) suggested that the population had risen to 200-300 pairs by 1972.

However, by the late 1970’s early 1980’s the population is again believed to have declined and O’Flynn (1983) says that ‘since 1978’ in many areas, including the Nagles, he has been ‘unable to find any evidence of breeding’. From 1980 onwards however, Hen Harriers were once again breeding in the Ballyhouras (C. Saich & P. Smiddy pers. comm., cited in Nagle, 2006), although numbers as low as only 12-15 pairs were estimated in Cork in the mid-1980’s (Hutchinson, 1989).

In recent years a number of national Hen Harrier surveys have taken place. The first National Survey took place in 1998-2000 and identified 102-129 breeding pairs nationally (Norriss *et al.*, 2002). The second National Survey took place in 2005 and identified 132-153 breeding pairs (Barton *et al.*, 2006). The third National Survey, only just published, was undertaken in 2010 and estimated 128-172 breeding pairs, although this survey had more than double the survey effort from 2005 (Ruddock *et al.*, 2012).

Considerable Hen Harrier survey work has been carried out both at the site (2016 - 2020) of the proposed CGEP development (including VP surveys to identify flight lines as well as dedicated nest surveys to monitor the size and success of the nesting population) and in the surrounding area. This includes work done during the national surveys of 1998-2000, 2005, 2010, 2015 (Norriss *et al.*, 2002; Barton *et al.*, 2006; Ruddock *et al.*, 2012; Ruddock *et al.*, 2016), work done by the 2007-2012 Planforbio Hen Harrier project and specific surveys carried out at the proposed wind farm study area (2016 – present). **Table 3.1** below summarizes the results for the Nagles in the most recent National Hen Harrier Surveys.

**Table 3.1:** Summary of Results of Recent Hen Harrier Surveys in the Nagles Mountains.

Year of Survey	Number of Possible Breeding pairs	Number of Confirmed breeding pairs	Total Estimated Pairs
1998-2000	3-5	Not available	Not available
2005	0	9	9
2010	4	7	7-11
2015	5	Not available	Not available

### 3.3 Main Objectives

The main objective of this CHMP is to provide a net gain of habitat value for Hen Harrier for the lifetime of the proposed CGEP. This will be achieved by improving the habitats, within viable foraging distances, on six managed areas in a way that ensures these areas are optimal for foraging Hen Harrier thus increasing the value of lands as foraging habitat for the species while also protecting historical nesting sites.

This CHMP makes provision for habitat enhancement through management. It is recognised that anything that benefits potential prey species is of benefit to the Hen Harrier. Habitat enhancement will be achieved by diversifying the range and extent of habitats on six managed areas with a particular focus

on habitats (e.g. improved agricultural grassland, wet grassland, hedgerows and scrub or transitional woodland) that support prey species and thus facilitate foraging Hen Harriers.

### 3.4 Habitat Requirements

#### 3.4.1 Hen Harrier Habitat Selection and Preference

Hen Harriers are primarily birds of open countryside, with requirements for extensive areas of suitable land over which to forage. Requirements for nesting, however, are small-scale and can be met in a variety of habitats (e.g. bog/heath, pre-thicket plantations, scrub). As available evidence suggests that foraging habitat, rather than nesting habitat, limits the size of the population, this plan is focused on the continuous provision, for the lifetime of CGEP, of foraging habitat for the local Hen Harrier population (though these resultant managed areas will generally not preclude nesting). Until relatively recently there had been little study of Hen Harrier habitat preference in Ireland. Unplanted blanket bog and heath had been traditionally recognised as prime Hen Harrier habitat. The value for foraging of young conifer plantations on bog became apparent after the extensive afforestation programmes during the 1960s and 1970s (Biosphere Environmental Services, 2010). As recently as the early 2000s, the value of restock for foraging was unclear though it was recognised as important habitat for nesting (Norriss *et al.*, 2002). Madders (2000) studying Hen Harrier foraging preferences and success rates in western Scotland found that Hen Harriers foraged preferentially over young coniferous forests, and selected heathland and grassland habitats ahead of closed canopy woodland.

In the 2012 National Survey (Ruddock *et al.*, 2012), the most frequent habitat category recorded was heather moorland although afforested habitats were recorded more frequently (49.4%) than open habitats (44.8%). Hunting was recorded most frequently in heather moorland (34%) and foraging was observed less frequently in afforested (42.5%) than in open habitats (53.4%). The 2015 National Survey (Ruddock *et al.*, 2016) showed similar preferences for foraging habitat selection, with heather moorland the most frequent category (30%) followed by second rotation forest (19.7%). On the basis of the 2012 and 2015 surveys, and Madders (2000) work, the creation of areas of Hen Harrier foraging habitats will provide a suitable habitat enhancement component for CGEP for the lifetime of the project.

Habitat selection for foraging by Hen Harriers has been investigated in various studies funded by NPWS. Although the preference order of positively selected habitats varied in different study areas and years, five habitats (heath/bog HB, hill farmland RG, new plantation NF, and the later stages of 2<sup>nd</sup> rotation pre-thicket plantation 2<sup>nd</sup> F 3 & 4) were consistently preferred by both sexes, whilst three (intensive grassland G, mature plantation F, and recently cleared plantation 2<sup>nd</sup> F1 & 2) were consistently avoided (habitat abbreviations are given in **Table 3.2**). Individual females showed quite variable habitat usage, reflecting the often-restricted choices within small foraging ranges close to the nest. For males, the average rank order of habitat selected across sites and years, from most to least preferred, was NF>2<sup>nd</sup>F3>H/B>2<sup>nd</sup>F4, followed by F>2<sup>nd</sup>F1&2>G.

In the 2015 National Survey (Ruddock *et al.*, 2016) the majority of confirmed nests/territories were located in afforested habitats (65.7%), primarily in second rotation crops (59.3%), compared to open moorland (heather) habitats (25.9%). Foraging activity by nesting Hen Harriers, however, continued to indicate a preference for open moorland habitats on a national scale.

Within the Nagles Mountains, the proportion of second rotation forest has increased dramatically since the late 1990s and early 2000s. Suitable habitat generally exists from about 3 to 10 years after planting, out of a typical 30-40-year cycle. Observations within the Nagles Mountains (and the Ballyhouras to the north of this site) have shown that optimum habitat conditions occur where there is a mosaic of vegetation types. While the size of the units is important, each vegetation type should preferably be more than merely a few hectares.

**Table 3.2:** *Recommended classification of habitat types for hen harrier assessments*

Habitat Code		Description
NF	NF 2	New forestry plantation, trees 20-30 cm high
	NF 3	New forestry plantation, trees c.1 m in height
	NF 4	New forestry plantation, trees > 2m in height, patchy thickets
2 <sup>nd</sup> F	2 <sup>nd</sup> F 1 & 2	2 <sup>nd</sup> rotation forestry plantation, trees 20-30 cm high
	2 <sup>nd</sup> F 3	2 <sup>nd</sup> rotation forestry plantation, trees c. 1m in height
	2 <sup>nd</sup> F 4	2 <sup>nd</sup> rotation forestry plantation trees >2m high
F		Post thicket plantation
G		Grazing
RG		Rough Grazing & rushy pasture
H/B		Heath / Bog
DE		Deciduous woodland & scrub
GO		Gorse

## 4. ENHANCEMENT HABITAT CALCULATIONS

### 4.1 Basis for Hen Harrier habitat management calculations

To calculate the exact extent of habitat from which Hen Harrier will theoretically be excluded from operational turbines, a radius of 250m has been mapped around each proposed turbine location (**Figure 4.1**). The rationale behind the selected distance relates to the recorded displacement of foraging and flight behaviour close to wind turbines as reported in the literature (100m for foraging and 250m for flight - Madders & Whitfield, 2006; Pearce-Higgins *et al.*, 2009; Whitfield & Madders, 2006).

A 250m radius around a turbine equates to an area of 19.6 ha. For the purposes of the following calculations, the extent of each suitable habitat type for Hen Harrier, within this 250m radius of each turbine, has been quantified using Geographic Information Systems (GIS) and then expressed as a percentage (%) of these 19.6 ha (**Table 4.1**). Habitats excluded from this percentage (i.e. considered unsuitable for Hen Harrier) are GA1 *Improved Agricultural Grassland* and BL3 *Buildings and artificial surfaces*. A detailed habitat map for the 250m radius around each turbine can be viewed in **Appendix A** and a detailed calculation per turbine can be found in **Appendix B**.

All habitats are listed in the text using the Fossitt classification (Fossitt, 2000). Any overlap occurring for the 250m radius Hen Harrier exclusion areas has been ignored within the calculations, allowing for the allocation of more habitats within the CHMP, which represents an added conservationist benefit

### 4.2 Proposed Areas to be Managed under CHMP

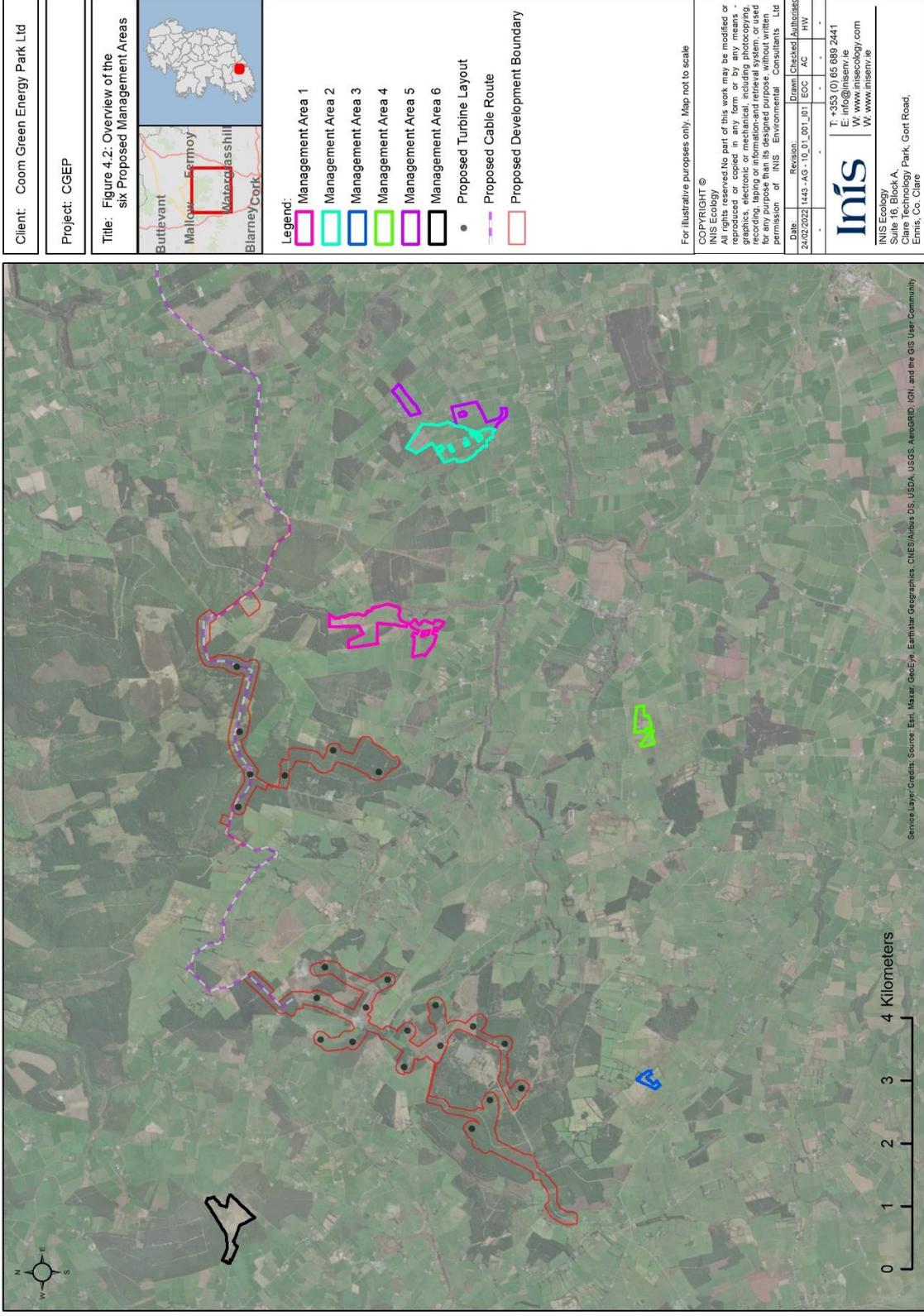
As described in **Section 4.1**, it is estimated that the construction and operation of the proposed CGEP would represent a total of 148.8ha of potential suitable habitats displacement for Hen Harrier. To achieve an ecological net gain (CIEEM, 2016), this CHMP proposes the management of six areas, in the vicinity of the proposed CGEP where landowner consent has been achieved, which would amount to a total area of 177.52ha (**Figure 4.2**). Of this total area, 90.55% (160.75ha) are the creation of new habitats favoured by Hen Harrier for foraging, which would represent a total net gain of 11.95ha (**Table 4.2** and **Appendix C**).

The development of the proposed CGEP would then provide significant net gain of managed foraging areas for Hen Harrier for the lifetime of the proposed wind farm, i.e. approximately 12ha of additional lands on the six management areas. All of the management areas have been specially chosen to provide viable foraging opportunity proximal to historical and recent Hen Harrier nesting areas as this has been proven to be of benefit to breeding Hen Harrier (all managed area are within 5km of recent (within the past 10 years) Hen Harrier nest locations).



**Table 4.1:** Direct habitat loss required for all turbines within CGEP.

<b>Turbine ID</b>	<b>Direct habitat loss (ha/annum) requiring habitat enhancement measures</b>	<b>Percentage of 250m radius buffer requiring habitat enhancement measures (%)</b>
T2	5.8	29.7%
T3	7.2	36.9%
T4	4.3	22.1%
T5	9.1	46.6%
T6	5.5	27.9%
T7	12.1	61.7%
T8	3.1	15.6%
T9	11.1	56.6%
T10	0.8	4.3%
T11	2.9	14.6%
T12	4.8	24.5%
T13	16.4	83.5%
T14	6.6	33.6%
T15	8.7	44.4%
T16	7.8	39.9%
T17	9.4	47.8%
T18	2.4	12.1%
T19	1.4	7.0%
T20	5.7	29.1%
T21	3.6	18.5%
T22	17.8	90.8%
T23	2.3	12.0%
<b>Total</b>	<b>148.8 ha</b>	



**Figure 4.2:** Overview of the six proposed Management Areas.

**Table 4.2:** Details for the six proposed management areas.

Management Area	Habitat	Area (ha)	Total Area (ha)	Nearest Turbine	
				Number	Distance (km)
Management Area 1	GA1 Improved Agricultural Grassland	1.71	3.86	T3	1.83
	GS4 West Grassland	1.88			
	WS1 Scrub	0.27			
Management Area 2	GA1 Improved Agricultural Grassland	37.00	53.30	T23	1.59
	GS4 West Grassland	1.86			
	GA1/GS4 Grassland mosaic	3.31			
	GS4/WS1 Grassland-scrub mosaic	1.96			
	WN Semi-natural Woodland	0.23			
	WN/WS Woodland-scrub mosaic	4.22			
	WD4 Conifer Plantation	0.49			
PB Bog (remnant)	4.23				
Management Area 3	GA1 Improved Agricultural Grassland	33.68	49.97	T23	4.39
	WS1 Scrub	1.03			
	WN Semi-natural Woodland	5.16			
	WN/WS Woodland-scrub mosaic	1.85			
	WS5 Recently-felled Woodland	8.25			
Management Area 4	GA1 Improved Agricultural Grassland	4.75	10.33	T23	4.85
	GS4 West Grassland	2.19			
	WS1 Scrub	2.80			
	HH/PB Heath-Peatland mosaic	0.59			
Management Area 5	GA1 Improved Agricultural Grassland	27.52	29.58	T11	0.51
	WS1 Scrub	2.06			
Management Area 6	GA1 Improved Agricultural Grassland	29.98	28.01	T11	2.82
	WS1 Scrub	0.50			
<b>Total Agreement Area</b>			<b>177.52</b>		
<b>Total Hen Harrier Habitats (excludes woodland and bog/heath habitats)</b>			<b>160.75</b>		

## 5. IRISH CONSERVATION MANAGEMENT BEST PRACTICE

### 5.1 NPWS Management area prescriptions

The National Parks and Wildlife Service (NPWS) has operated a management area prescription scheme for pro-active habitat management for Hen Harriers within the Special Protection Areas (SPAs) designated specifically for Hen Harrier (Anon, 2010, 2020). The scheme's objectives are as follows:

- To protect key species and habitats through the delivery of site-specific conservation objectives at farm level;
- To engage with the farming community in the development of farming techniques which benefit key habitats and species;
- To provide a mechanism that allows the NPWS to assist farmers with the enhancement and protection of key wildlife habitats and species.

Although the proposed CGEP development is not within an SPA, the same management prescriptions applied by the NPWS for Hen Harrier Management in SPAs will be adhered to at six specified management areas through this CHMP. The management measures required for Hen Harrier will vary according to the habitats present, but the prescribed measures, in accordance with the NPWS scheme (Anon, 2010, 2020), are described in the following Sections. All measures will be monitored by a Hen Harrier ecologist for the lifetime of the proposed CGEP project.

#### 5.1.1 Grazing

Management of areas of rough grassland with extensive or mixed grazing by cattle will now be managed to ensure these habitats become optimal for foraging Hen Harrier. Light grazing, rather than cutting or topping, is to be introduced to areas with no stock. The recognised guideline stocking level on rough grazing is 0.6 LU/ha, whereas a low stocking intensity will be introduced on bog and heath.

#### 5.1.2 Scrub and Hedgerow (*Hedgerow habitats are additional to the managed areas as per this CHMP*)

Existing areas of scrub and hedgerow will be retained. Small areas of established scrub and other hedge-banks can be trimmed but must not be removed, burnt or killed. In open areas, or areas where the extent of scrub/hedgerow is limited, habitat will either be created, or some scrub expansion will be allowed. Hedges will be planted where possible, e.g. along open banks or inside existing wire fences. If a hedgerow requires cutting it will be cut to an "A" shape, i.e. wider at the base than at the top. Cutting in this case will not come closer than 1m from the base of the hedge, and a buffer zone of 1.5m on each side of the hedge must be left uncut, within which fertilisers will not be applied. In addition, herbicides and pesticides will not be used within 5m of an existing hedgerow, with the exception being the spot treatment of difficult invasive weeds (e.g. Japanese Knotweed *Fallopia japonica*). Hedge cuttings will be piled into heaps and left to decay naturally. In all cases, cutting of hedgerows will not be carried out during the breeding season (i.e. 1 March to 31 August). Large continuous blocks (greater than one hectare) of established Bramble, Gorse or other scrub will be opened up (outside the March-August bird breeding season). At least 50% of such areas covered by scrub will be retained in lines or scattered patches, rather than in a single block.

### 5.1.3 Rushes

Rough wet grassland will be managed in the optimal condition for Hen Harrier. Existing rush fields will be managed by rotational cutting to ensure optimal habitats for foraging Hen Harrier. The frequency of cutting of rushes will vary, as the soil type, drainage, slope, grazing regime, machinery used, etc. will all affect the speed of re-colonisation. However, in most cases, upland rough grassland is likely to revert to rush relatively quickly. It is critical that the rush is not topped/cut too frequently. Annual cutting of the rushes will be conducted to ensure they do not become too excessive. Rushes will generally occupy no less than 30% of the field and no more than 70%. The distribution of rush will depend on the local drainage patterns. It is important that the rush is allowed to form tussocks, as this provides a habitat for Hen Harrier prey. In most situations, a regime of cutting every second year will be required. Reseeding of rough grassland fields will be allowed, or may be required, where this is shown to be necessary and part of an existing management regime. The broadcast spraying of rushes will not be permitted but spot treatments or wipe-on treatments will be allowed where the rushes become too dominant.

### 5.1.4 Other

Spraying or broadcast application of herbicide will not be permitted. Spot application and wipe-on treatments will be allowed to eradicate docks, thistles, Ragwort and similar noxious weeds. Rhododendron and conifers may be removed by cutting and spot application. Bracken control may be by rolling, cutting and/or by controlled cattle trampling in early summer. In exceptional circumstances, control of bracken by herbicides may be permitted. The principal aim of the plan is to provide areas of optimum foraging habitat for Hen Harriers during the lifetime of the project, providing enhanced prey item production in managed foraging areas and in doing so provide a net gain to the local Hen Harrier population.

The rationale of this CHMP is based on results from operational Hen Harrier management plans that have proven to be successful for breeding Hen Harrier (See Section 3.1 for examples), from available research on Hen Harrier in Ireland and also on the results of Hen Harrier surveys carried out on the site of the proposed CGEP and its environs. The management area prescriptions have been chosen proximal to historical nest sites (within 3km) to reflect the results of successful Hen Harrier management plans.

## 6. HABITAT MANAGEMENT PRESCRIPTIONS

### 6.1 Introduction

The provision of the proposed prescriptions for effective habitat management for Hen Harrier must be integral to every Hen Harrier Management Plan. In addition, the provision of prescriptions proximal to Hen Harrier nests is of extreme importance as parent birds staying close to the nest will be able to achieve increased surveillance of the nest and this could lead to a decrease in predation, which is now becoming a recognised significant risk to eggs and fledglings. Hen Harrier individuals using wind farm areas and adjoining lands have to forage over a larger area than most harriers to provide to their broods which, as it has been reported, leads to a constrained Hen Harrier Lifetime Reproductive Success (LRS) from the availability of prey (Irwin *et al.*, 2012). This management plan provides managed foraging habitats proximal (i.e. within 3km) to known nest sites, allowing harriers the ability to increase their foraging success close to their nest sites, thus increasing the chance of breeding success rates.

The conservation habitat management prescriptions for Hen Harrier within this document are based on the prescriptions that are specified in the NPWS management area prescription scheme for Hen Harrier SPAs (Anon, 2010, 2017, 2020), even though the site of the proposed development is not part of, or adjacent to a SPA.

The prescriptions are concerned mainly with enhancing low-level extensive grazing in agricultural grasslands, in a condition that is neither too under-grazed (leading to scrubbing up of the grassland) nor too heavily grazed, with the creation of scrub areas and edge habitats (i.e. bushy hedgerows). The intention is to ensure that grazing continues, and that appropriate management of grassland and scrub creates a favourable habitat mosaic for Hen Harrier. The proposed prescriptions for effective habitat management for Hen Harrier are also planned to benefit a wide range of other species including Merlin.

Managing the land for Hen Harrier fits the concept of focal species modelling. In managing habitats to benefit Hen Harrier, a range of other beneficial outcomes can be achieved. Successful management for Hen Harrier should also benefit other species, as small passerines (prey species of Hen Harrier), other raptors, Irish Hare and a range of small mammal species. The development of habitats such as blanket bog, upland heath, rivers and streams, hedgerows and trees will also benefit.

The ability of the management prescriptions to deliver the enhancement, as designed within management plans, is imperative, especially in cases such as the CGEP site (i.e. outside SPAs), where Hen Harrier pairs need the protection and stable environments afforded to pairs within SPAs to remain successful. This proposed CHMP is formulated in the context of the available information on foraging behaviour and Hen Harrier preference. The ecologist, who will supervise the implementation of the CHMP will have experience of Hen Harrier ecology and habitat management and will work in close association with landowners.

The prescriptions for specific habitat types are outlined in Section 6.2, followed by generic prescriptions for all habitat types in Section 6.3.

## 6.2 Management Prescriptions for Specific Habitats

The habitats that are the subject of specific management prescriptions are outlined below:

- Hedgerows, Earth Banks and Scrub;
- Wet Grassland;
- Improved Agricultural Grassland; and

The habitats that are the subject of specific management prescriptions are shown in **Appendix C**.

### 6.2.1 Hedgerows, Earth Banks and Scrub

Some blocks of scrub, large enough to map on a macro-scale, were recorded at some of the proposed management areas, although there were also small clumps of scrubby growth within other habitats at some of the management areas (on the micro-scale). Hedgerows and earth banks do not contribute to the overall area of land where optimal management for foraging Hen Harrier will be undertaken, nor do areas of native woodland (although all are important for the prey species that Hen Harrier forage for). A total of 14.91ha (9.3% of the managed area) comprises scrub and transitional woodland habitats.

Woody scrub (e.g. Gorse, Willow, Alder, Birch, etc.) is one of the most beneficial habitats for Hen Harrier, as it provides prey (e.g. passerines, small mammals) and hunting habitat for them. Scrub and hedgerow clearance are amongst the reported factors for the loss of viable Hen Harrier habitat in Ireland (e.g. O'Flynn, 1983; Ruddock *et al.*, 2016; Wilson *et al.*, 2009). In general, existing areas of scrub and hedgerow will be retained. Small areas of established gorse or willow scrub can be trimmed to prevent further encroachment onto grassland or access paths, but they must not be removed, burnt or killed. The overarching principle in the management of scrub and hedgerow will be to increase the surface area as increased surface area equates to increased prey item supporting habitats, which leads to increased foraging ability for Hen Harrier.

#### 6.2.1.1 Habitat management prescriptions for scrub and hedgerows

- Existing areas of scrub and hedgerows will be increased through management;
- In open areas or where extent of scrub and hedgerows is limited create new areas of habitat;
- Where there is evidence of scrub or hedgerow removal, these habitats will be reinstated as part of individual management area prescriptions; and
- Any scrub areas must be fenced to prevent grazing or browsing by livestock.

#### 6.2.1.2 Habitats for Specific Management

- The only means of preventing further encroachment of established areas of gorse or willow scrub onto grassland or access paths and tracks will be trimming. This action can be repeated annually if necessary;
- Any removal, burning or herbicide use on areas of established scrub will be prevented;
- If it is deemed necessary for road safety reasons, roadside hedgerows will be cut outside of the bird nesting season (i.e. the period from March 1<sup>st</sup> to the 31<sup>st</sup> of August);
- If deemed necessary for the protection of overhead electricity lines, cut hedgerows outside of the bird nesting season (1 March – 31 August), if possible;

- Hedgerow maintenance will be permitted to prevent hedge overgrowth. In such cases, hedgerow trees will be left uncut and the remainder of the hedgerow cut into an “A” shape, i.e. wider at the base (at least 2m wide at the base) than at the top (hedgerows will be cut to be 2.5m high, with the exception of mature hedgerow trees which will be allowed to grow);
- Encroachment of scrub onto grassland can be controlled by cutting on annual basis if required. Cutting in this case will not come closer than 1.5 metres to the base of the hedge;
- Herbicides and pesticides will not be used, except where spot treatment is required to treat invasive species (e.g. Rhododendron); and
- Hedge cuttings will be piled into heaps and left to decay naturally.

Habitats on the site will be reassessed prior to commencement of the proposed development and, should any blocks of scrub greater than one hectare in area be present, these will be broken up by cutting rides through or cutting smaller blocks out of the large block of scrub. Sufficient rides will be cut into the large block to ensure that the remaining blocks of scrub do not exceed one hectare in area. Work on cutting out rides will commence in Year One; at least 80% of the required works will be completed before the end of Year Three; and 100% before the end of Year Four.

Since bushy hedgerows are good potential foraging sites for Hen Harrier, hedge cutting will be restricted to the minimum necessary and bushy hedges with tall shrubs will be encouraged (as opposed to heavily managed hedge lines). Any hedge cutting that does take place will be limited to the period from September to February, inclusive, except where cutting is required for Health and Safety requirements (e.g. where vegetation is a risk of coming into contact with electricity cables or along public roads). Prescriptions for scrub management at the management areas is concerned mainly with prevention of scrub encroachment onto wet heath and wet grassland since (as described above) there are no large areas of scrub within the site.

## *6.2.2 Wet Grassland*

Wet grassland occupies 41.18ha of the proposed management areas, or 25.6% of the total proposed areas to be managed for Hen Harrier. The objective of the habitat management prescriptions for wet grassland is to ensure the habitat, wherever it is found, is managed in as rank a condition as possible while not overgrown with dead grasses or rushes. To achieve this, management prescriptions will focus on three principal points: grazing management; rush management and nutrient management.

### 6.2.2.1 Grazing Management

Grazing of areas of wet grassland by cattle or horses/ponies or by mixed grazing is preferred. For similar plans in other areas, grazing by sheep is often allowed to continue where this has been the traditional practice and this approach will be followed here.

For all areas of wet grassland that are currently grazed, this will remain the practice during the lifetime of the proposed development. For any non-grazed wet grassland habitats, grazing will be introduced following the management requirements below. Guideline target stocking levels for rough grazing are specified below, but there is no formal upper limit to planned stocking density. In cases where the land is wet, consideration will be given to concentrating grazing pressure in the summer months.

Habitat management prescriptions for managing grazing on wet grassland are:

- Introduce light grazing, rather than cutting or topping, to areas with no stock;
- The target stocking level on rough grazing is a minimum of 0.6 LU/ hectare;
- In cases where the land is wet, concentrate grazing during the summer months;
- Stocking levels will be specified in the individual management area prescriptions to be prepared for each contributing landowner.

#### 6.2.2.2 Rush Management

The objective in managing rushes is to ensure rough grassland is in the optimal condition for Hen Harrier at all times. Optimal condition constitutes as dense a covering of rushes as feasible, but not to the point where rushes are falling over or matting the ground. Rush cover in the 30–70% range is ideal. While appropriate grazing pressure is preferred, in most cases managing rush cover will require active management. In the majority of cases, rush management will be achieved by cutting every second year. However, there will be considerable variation from site to site and alternative cutting regimes may be more appropriate in certain cases (**Table 6.2**).

**Table 6.2:** *Rush Management Regimes (adapted from Anon, 2010).*

Code	Habitat Condition	Management Regimes
I	Habitats where rush cover of 30-70% is considered unlikely to be achievable, irrespective of management and perhaps in some cases undesirable, e.g. shallow limestone soils.	No cutting required.
II	Swards where reversion of Improved Grassland is planned or where Rush cover is less than 10%.	Allow further rush development in the early years of the management area prescription. One or two cycles of cutting commencing in year three may be appropriate to allow further rush development in the early years of the plan.
III	Swards where rush cover is 10-30% or where rushes have been topped in the past year.	One or two cycles of cutting commencing in year three may be appropriate.
IV	Swards where the rush cover is already in the 30-70% range.	In these cases, cutting/topping in years one, three and five of the management area prescription could maintain the sward in the desired state.
V	Swards where rush cover is dominant (>70%) and where weed-licking with a suitable herbicide in year one, followed by cutting/topping in years three and five could be considered.	Weed licking with a suitable herbicide may provide the opportunity for the creation of a suitable sward within two or three years. However, the use of herbicides must always be subject to consideration of possible effects on watercourses. No herbicide use is permitted within 5m of a watercourse or existing hedgerow without the consent of the NPWS.

Habitat management prescriptions for managing rushes on wet grassland are:

- In general, rushes will be cut on a two-year cycle unless there are specific reasons for a longer cycle (e.g. weak rush growth);
- In most cases, active rush management will commence in year one of the plan and will only be delayed until year two or three where improved grassland is in reversion, where rush growth is very weak or where the rushes were cut or treated with herbicide in the year prior;
- The use of an herbicide applied using a weed lick is permitted but not encouraged. This will only be considered in cases where rush growth is very dense and cutting is impractical;
- No herbicide use is permitted within five metres of a watercourse;
- If access difficulties prevent the active management of rushes, alternatives such as grazing will be employed.

The planned rush management will be reviewed on an annual basis to determine if it is having the desired effect. If it is found during an annual inspection that rush recovery has been stronger or weaker than had been originally anticipated, the management area prescription will be changed to adjust the cutting sequence for future years.

#### 6.2.2.3 Nutrient Management

The nutrient management of areas of wet grassland consists of the avoidance of the application of chemical or organic fertilizer on the managed lands. If fertilisers have been applied to the land holding previously, then these traditional application can be continued provided that the resultant sward retains the desired characteristics for Hen Harrier to forage (e.g. is tussocky, rushy, etc.).

#### *6.2.3. Improved Agricultural Grassland*

Improved Agricultural Grassland occupies 104.66 ha of the proposed six management areas, or 65.1% of the total area being optimised for Hen Harrier foraging. NPWS guidelines for management area prescriptions in Hen Harrier SPAs allow normal agricultural practice on improved agricultural grassland to continue (Anon, 2010, 2017, 2020). The NPWS management area prescriptions also permit wet grassland to be improved, provided it accounts for no more than 20% of the designated area on the farm. Although the proposed CGEP is not located within any SPA boundary, such improvement will not be encouraged on the proposed CGEP site under this Conservation and Habitat Management Plan.

To ensure lands are managed for Hen Harrier for the lifetime of the wind farm, landowners will be required to allow improved grassland to revert to a more natural state. In such cases, a reversion program will be required, which will involve:

- Analysis of soil samples so that a baseline record of soil phosphorus and potassium exists;
- Cease applying chemical and organic fertilizers;
- No application of lime; and
- Habitat enhancement works.

#### 6.2.3.1 General Issues Relating to Grassland Management

Broadcast herbicide spraying of rushes is not permitted but spot treatments or wipe-on treatments are allowed. Herbicides applied using a weed lick can be applied where necessary, particularly in situations where rush growth is very dense or where cutting is impractical due to steep slopes. Applications will

not be at a rate which will denude fields completely of rushes. Under normal circumstances, chemical treatment of rushes will only be permitted once in a five-year plan. Wipe on treatments will only be applied in either Year one or Year two of the management area prescriptions.

The following prescriptions will also apply to general grassland management:

- Introduce traditional grazing patterns;
- Control Bracken, if necessary, by weed licking, spot spraying, cutting, rolling or controlled trampling with stock. Mechanical control or trampling is most effective in May/early June. Mechanical control will need to be repeated several times to have a beneficial impact;
- Cut species rich meadows after July 15th, preferably later;
- Mowing within 3m of any hedgerow to be left until August 1<sup>st</sup>;
- No plough, cultivation, drainage or otherwise reclaim of land will be undertaken;
- Conifers will not be planted;
- Trees will not be planted unless such action is provided for in the plan;
- Lime will not be applied;
- Fertilisers will not be applied above the stipulated levels;
- Slopes greater than 25 degrees will not be fertilized;
- The recommended stocking limits will not be exceeded;
- Supplementary feed stock will not be provided on the grassland except where this has been traditionally practiced; and
- There will be no dumping of waste material.

### **6.3 Management Prescriptions Common to All Habitats**

#### *6.3.1 Hen Harrier Nest Sites*

If Hen Harrier nesting is suspected within the managed lands, the landowner will notify the NPWS at the earliest possible opportunity. Furthermore, landowners will refrain from publicising the exact location of any nest site. After contacting the NPWS, they will avoid approaching the nest during the period 1 March – 31 July and grazing will not be permitted within 50 metres of the nest site during the same period. Where it is discovered that Hen Harriers are nesting on the farm after a management area prescription has been prepared, the management area prescription will be amended as required.

Use of machinery (e.g. for firebreak cutting) and turbary practices will be avoided in the immediate vicinity of any Hen Harrier nesting sites from April to July, inclusive. Forestry planting and felling in these areas will also be avoided during this period.

#### *6.3.2 Supplementary Feeding*

Supplementary feeding of livestock will continue, provided excessive poaching is avoided. Sacrificial paddocks will not be permitted at any time. Supplementary feeding of round bales or from fixed feeding points is not permitted within 30 metres of a watercourse. On land sloping towards a watercourse, a greater distance of 50m will be required.

### 6.3.3 *Burning*

The burning of vegetation or other materials within the managed area of the CHMP is not permitted at any time.

### 6.3.4 *Use of Herbicides*

Spraying or broadcast application of herbicide is not permitted. Spot application and wipe-on treatments are permitted to eradicate docks, thistles, ragwort and similar noxious weeds. Rhododendron and conifers will be removed by cutting and herbicide treatment. Bracken will be controlled by rolling, cutting and/ or by controlled cattle/equine trampling in early summer. In exceptional circumstances, control of bracken by herbicides may be permitted. The use of herbicides is not permitted within five metres of a watercourse or existing hedgerows; the only exception is spot treatment for the control of difficult invasive species such as Japanese Knotweed or Rhododendron.

### 6.3.5 *Use of Poisons or Stupefying Baits*

The use of poisons or stupefying baits is not permitted. Hen Harriers and other birds of prey can fall victim to secondary and direct poisoning.

### 6.3.6 *Fence Marking*

Hen Harriers can fly into thin wires. 'Any new fencing/boundary markers will make use of hedge planting instead of wire fencing alone.

### 6.3.7 *Shooting*

Shooting (except for the legal control of vermin) will not be allowed on the management areas.

## **7. PLAN IMPLEMENTATION**

### **7.1 Timing**

This CHMP will be implemented to run concurrently with the commencement of construction of the proposed CGEP development. As per the additional bird surveying requirements outlined in **Section 8.1.2** below, which will commence in advance of the CGEP construction works commencing, preparation for the implementation of this conservation and habitat enhancement plan will also have to commence in advance of the physical works for the CGEP on the ground.

### **7.2 Consent**

The proposed CGEP enhancement measures detailed will be implemented at the six land parcels, within 5 km of the proposed CGEP. The landowners of all these landholdings will retain ownership of their lands throughout the lifetime of the enhancement measures. As part of the proposed project, a lease or co-operation agreement sets out the terms and conditions of the management of the landholdings for the benefit of Hen Harrier for the lifetime of the windfarm and this will facilitate the implementation of the prescriptions set out in this and CHMP.

### **7.3 Procedures**

The prescriptions for each of the individual management areas will be chosen from the various recommended management options and practices outlined in **Section 5** of this report, and also from proven Hen Harrier habitat prescriptions that Inis ecologists have recorded over the past 15 years. These prescriptions will be based on a review of current land management and land management will be based on the most appropriate management options for each land use type so to maximise value for Hen Harrier for the lifetime of the wind farm.

### **7.4 Responsibility**

Coom Green Energy Park Ltd (CGEP) and the planning permission applicant, will ultimately be responsible for the implementation of this Conservation and Habitat Management Plan. In the event of favourable consideration of the planning application, and should An Bord Pleanála deem it appropriate, it is expected that a condition requiring the implementation of this Conservation and Habitat Management Plan will be attached to the grant of planning permission. The responsibility for the implementation of the plan will lie solely with the developer and its agents. A Hen Harrier ecologist will be engaged by CGEP to oversee the implementation of this Conservation and Habitat Management Plan on the small scale (i.e. with respect to the application of measures in particular parts of the site, on a landholding by landholding or field by field basis). The implementation is also likely to require the input of agricultural advisors with regard to appropriate stocking levels.

Inis Environmental Consultants Ltd. has extensive experience monitoring Hen Harrier in a wide range of habitat types in Ireland. This experience confers a high degree of confidence that the habitats produced with the implementation of the present Conservation and Habitat Management Plan will signify an important net gain/ enhancement in managed viable foraging habitats proximal to known Hen Harrier nesting territories for the lifetime of this wind energy project.

## **8. MONITORING**

A CHMP requires monitoring to determine if the objectives of the plan are being achieved and to determine whether any modifications to the plan are required to enable the achievement of the objectives. The principal objective of this CHMP is to provide enhanced foraging habitat for Hen Harrier due to a calculated loss as a result of the CGEP project. Regular reporting on the results of management strategies will be required to show that the prescriptions are being managed properly and on a constant basis for the benefit of Hen Harriers.

### **8.1 Habitats**

Areas of Hen Harrier foraging habitat (i.e. wet grassland, hedgerows, scrubby earth banks and wet heath) will be accurately mapped and will be monitored annually, for the lifetime of the proposed CGEP, to guarantee that the areas associated with the Conservation and Habitat Management Plan have not reduced in area and that the grazing regime that is in place is improving (for Hen Harrier) the current state of these habitats (i.e. neither poaching nor overgrowth of open areas is occurring). As well as mapping, this monitoring will be recorded by means of fixed-point photography.

### **8.2 Additional Bird Surveying**

Annual bird monitoring will take place throughout the construction period and operational phase of the proposed CGEP development to monitor nesting activity and confirm usage of the six enhancement areas by Hen Harrier, throughout the breeding season.

### **8.3 Auditing**

Audits will be required to ensure the effectiveness of the Conservation and Habitat Management Plan. They are essential to ensure adequate plan quality, compliance and control. Audits will be based on a field inspection and the assessment of the management area prescriptions.

Ten percent of the management area prescriptions will be selected each year for auditing. The audit will assess:

- Objectives of the individual management area prescription;
- Implementation of the plan; and
- Adherence to requirements of the management area prescription.

### **8.4 Review**

Individual management area prescriptions will be reviewed every five years, as is the case with NPWS Hen Harrier management area prescriptions.

## 9. CONCLUSION

The development of the proposed CGEP provides habitat enhancement measures at alternative lands due to loss of potential foraging habitat within 250metres radius of each turbine, which totals an area of approximately 148.8ha. All managed habitats proposed within this document are currently sub-optimal for Hen Harrier foraging. This CHMP aims to manage these habitats to ensure they constitute optimal foraging habitats for Hen Harrier for the lifetime of the wind farm.

The management prescriptions applied will benefit Hen Harrier in both the short and long term, and will ensure the supply of a substantial area of suitable foraging habitat for the local Hen Harrier population, over and above that potentially lost as a result of the proposed CGEP development.

The overall aim of the management plan is to provide a net gain of foraging habitat for Hen Harrier for the lifetime of the proposed CGEP. The management prescriptions proposed are likely to enhance the existing biodiversity of the site for prey items and wildlife in general, which is an extremely important component of a successful Conservation and Habitat Management Plan. The Plan will also promote a mosaic of vegetation types, which are optimal foraging habitat, and are likely to improve foraging success rates and, consequently, breeding success rates for the local Hen Harrier population, which is the ultimate target of the Conservation and Habitat Management Plan.

It is concluded that the proposed Conservation and Habitat Management Plan will provide full and effective additional habitat for Hen Harrier, as part of the proposed development of the CGEP.

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## **APPENDIX A: HABITAT MAPS FOR 250M BUFFER OF TURBINE LOCATIONS**



Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 2



**Legend:**

Habitats within 250m of Turbine 2

- ED2: Spoil and bare ground
- WD4: Conifer plantation
- WS1: Scrub
- Proposed Turbine Layout
- Turbines 250m Buffer
- Proposed Development Boundary

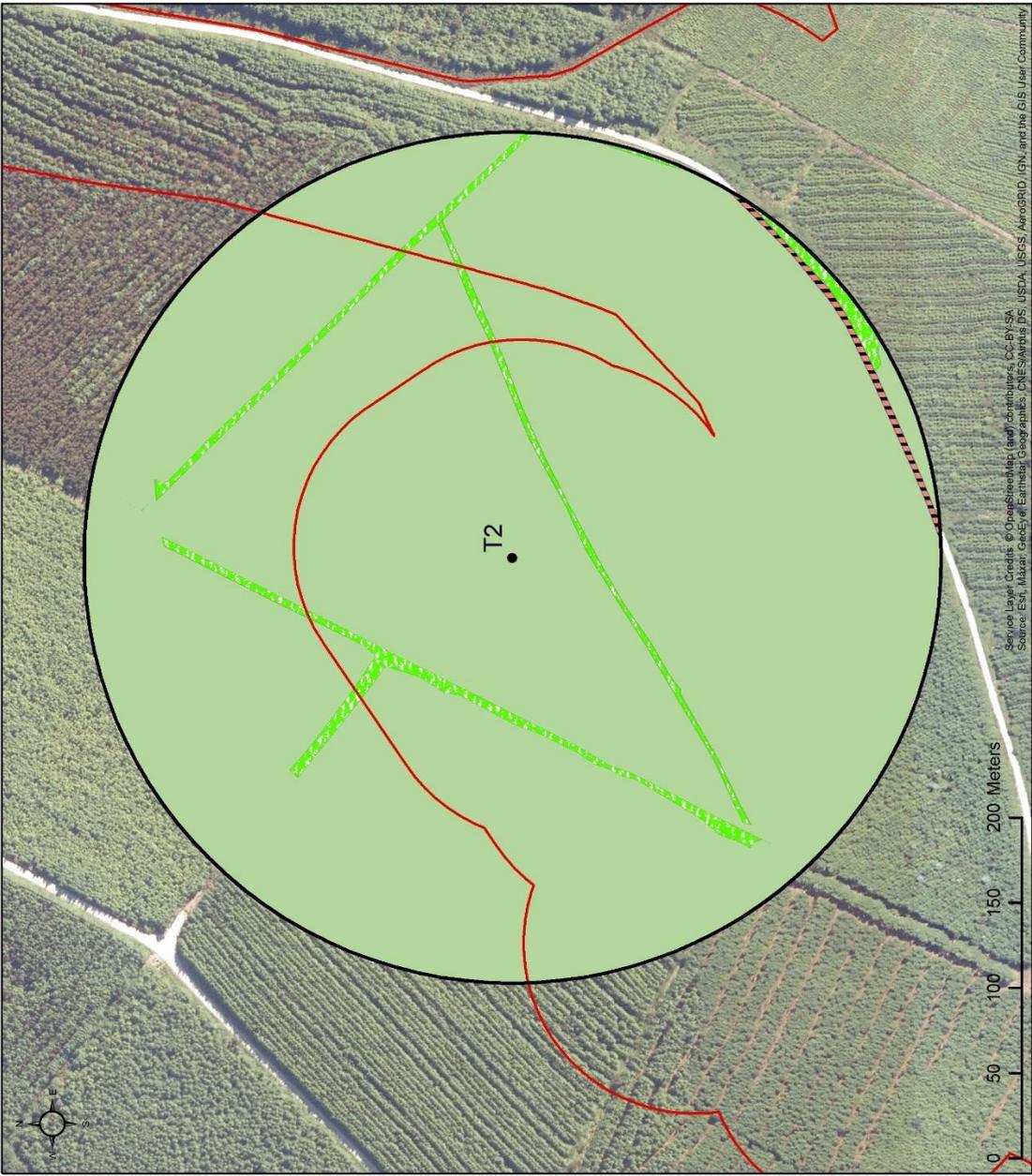
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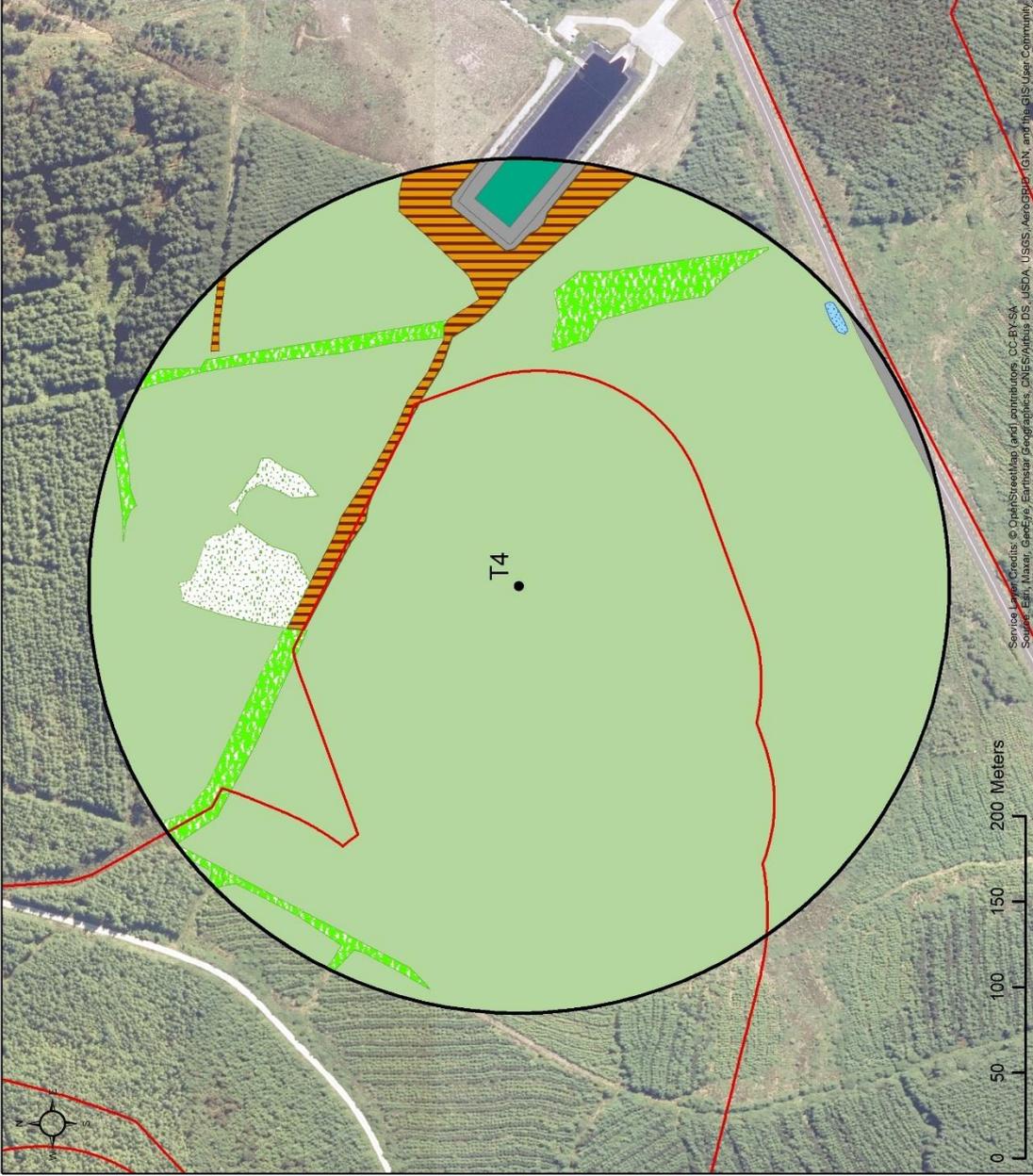
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Ennis, Co. Clare

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W: www.inisev.com



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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 4



- Legend:**
- Habitats within 250m of Turbine 4**
- BL3: Buildings and artificial surfaces
  - FL8: Other artificial lakes and ponds
  - FS1: Reed and large sedge swamps
  - GS4/HH1: Wet grassland/Dry siliceous heath mosaic
  - WD4: Conifer plantation
  - WS1: Scrub
  - WS5: Recently-felled woodland
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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 Ennis, Co. Clare

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 5



**Legend:**

**Habitats within 250m of Turbine 5**

- ED3: Recolonising bare ground
- HH3: Wet heath
- WD4: Conifer plantation
- WS1: Scrub

- Proposed Turbine Layout
- Turbines 250m Buffer
- Proposed Development Boundary

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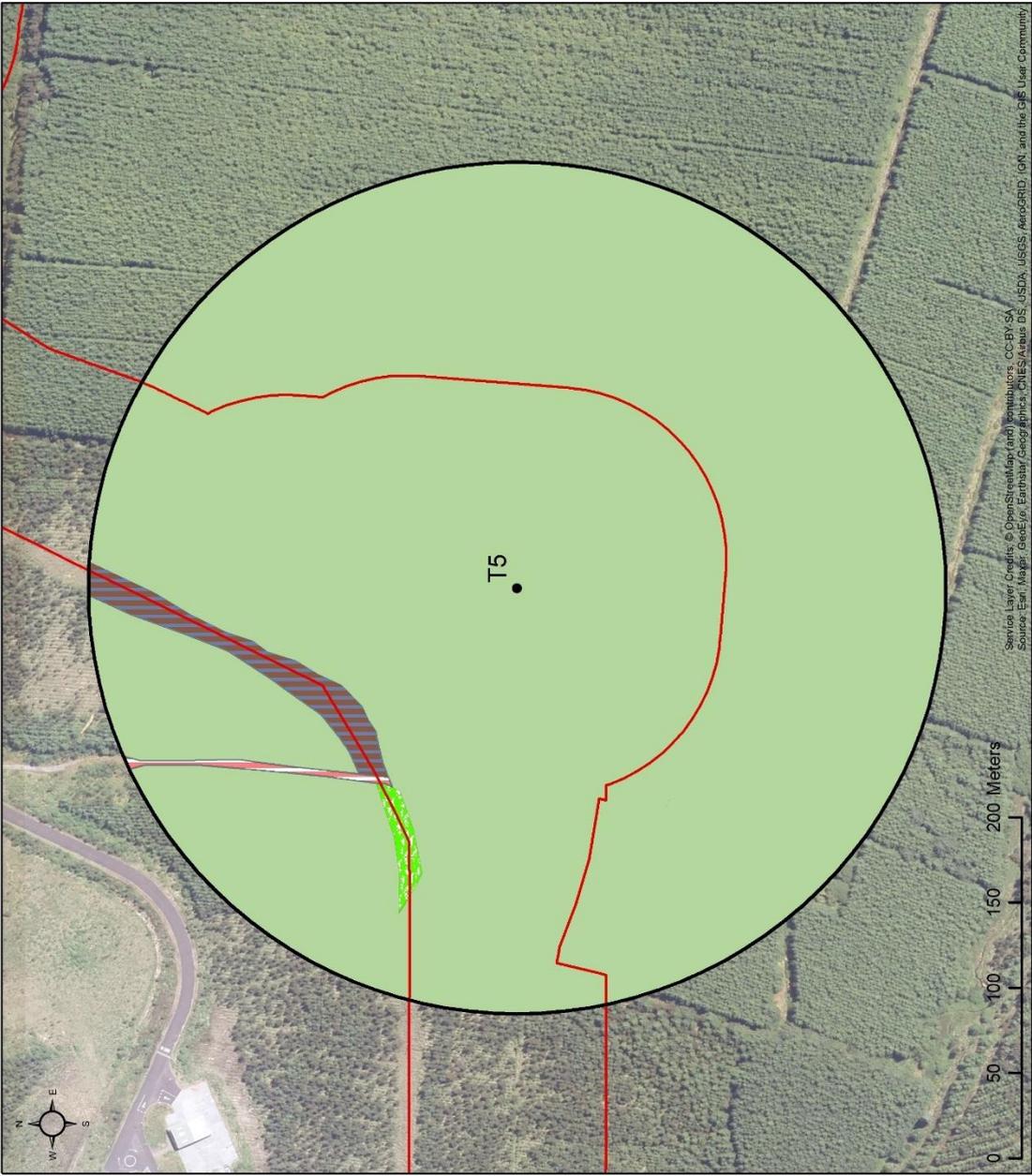
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Ennis, Co. Clare

T: +353 (0) 65 689 2441  
E: info@inisev.ie  
W: www.inisev.com  
W: www.inisev.ie



Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 6



**Legend:**  
Habitats within 250m of Turbine 6

- BL3: Buildings and artificial surfaces
- ED2: Spoil and bare ground
- HH3: Wet heath
- WD4: Conifer plantation
- WS1: Scrub

Proposed Turbine Layout

- Turbines 250m Buffer
- Proposed Development Boundary

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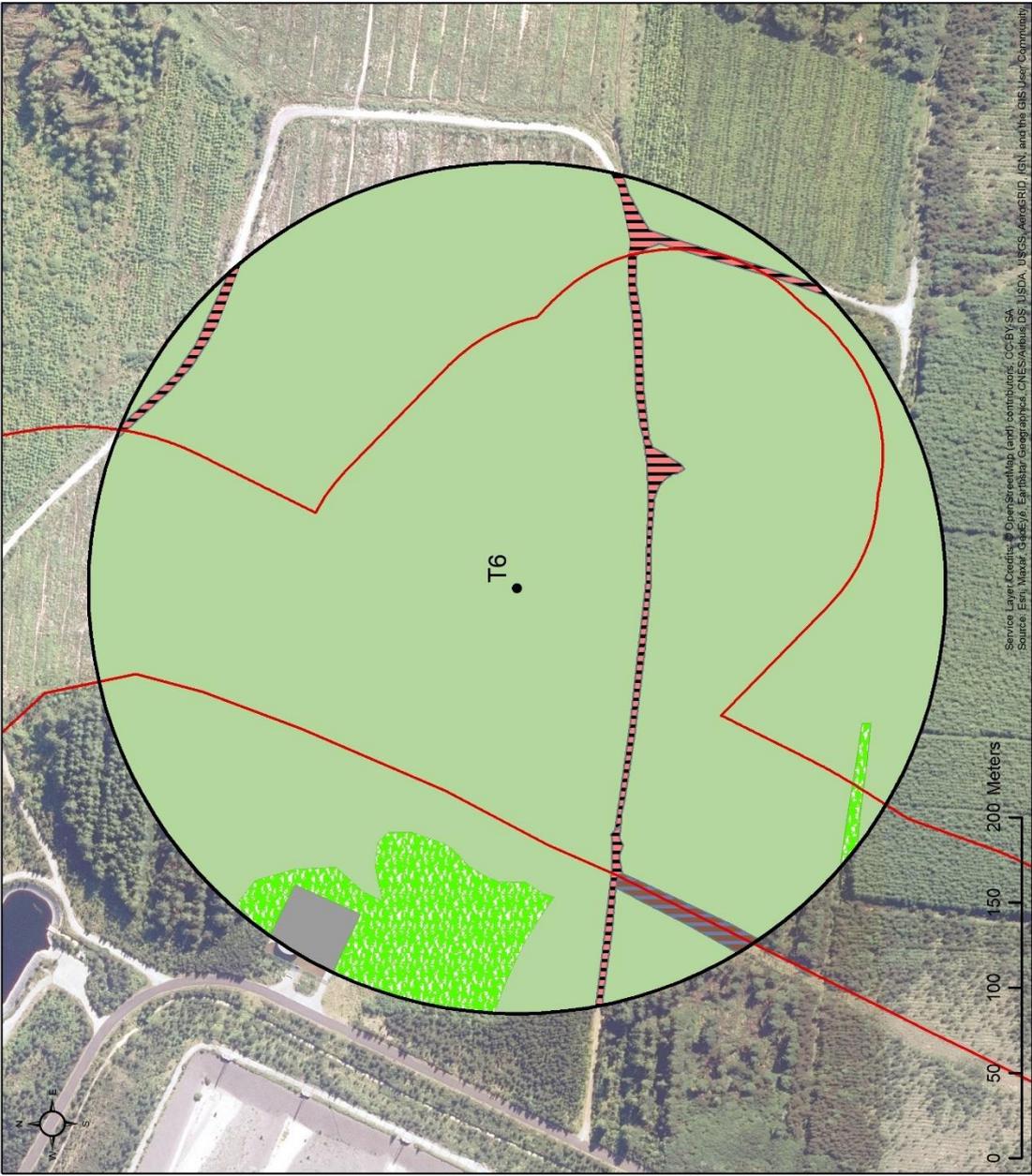
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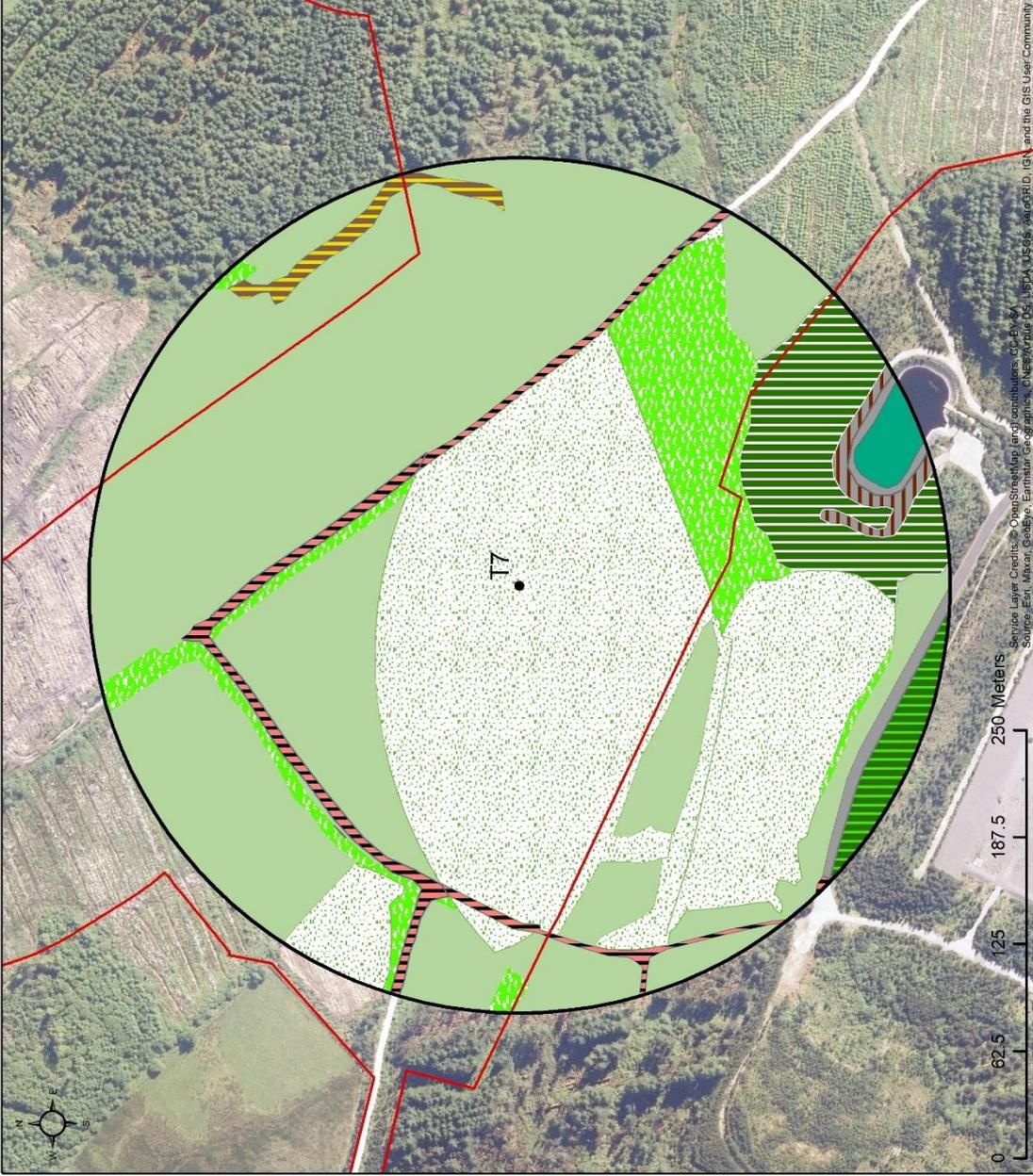
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 7



- Legend:**
- Habitats within 250m of Turbine 7**
- BL2: Earth Banks
  - BL3: Buildings and artificial surfaces
  - ED2: Spoil and bare ground
  - FL8: Other artificial lakes and ponds
  - HD1: Dense Bracken
  - WD4: Conifer plantation
  - WD4/WS1: Conifer plantation/Scrub mosaic
  - WS1: Scrub
  - WS1/WD4: Scrub/Conifer
  - WS5: Recently-felled woodland
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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 W: www.inisenv.com  
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 8



**Legend:**

**Habitats within 250m of Turbine 8**

- GA1: Improved agricultural grassland
- GS4: Wet grassland
- WD1: (Mixed) broadleaf woodland
- WD4: Conifer plantation
- WS1: Scrub
- WS5: Recently-felled woodland

- Proposed Turbine Layout
- Turbines 250m Buffer
- Proposed Development Boundary

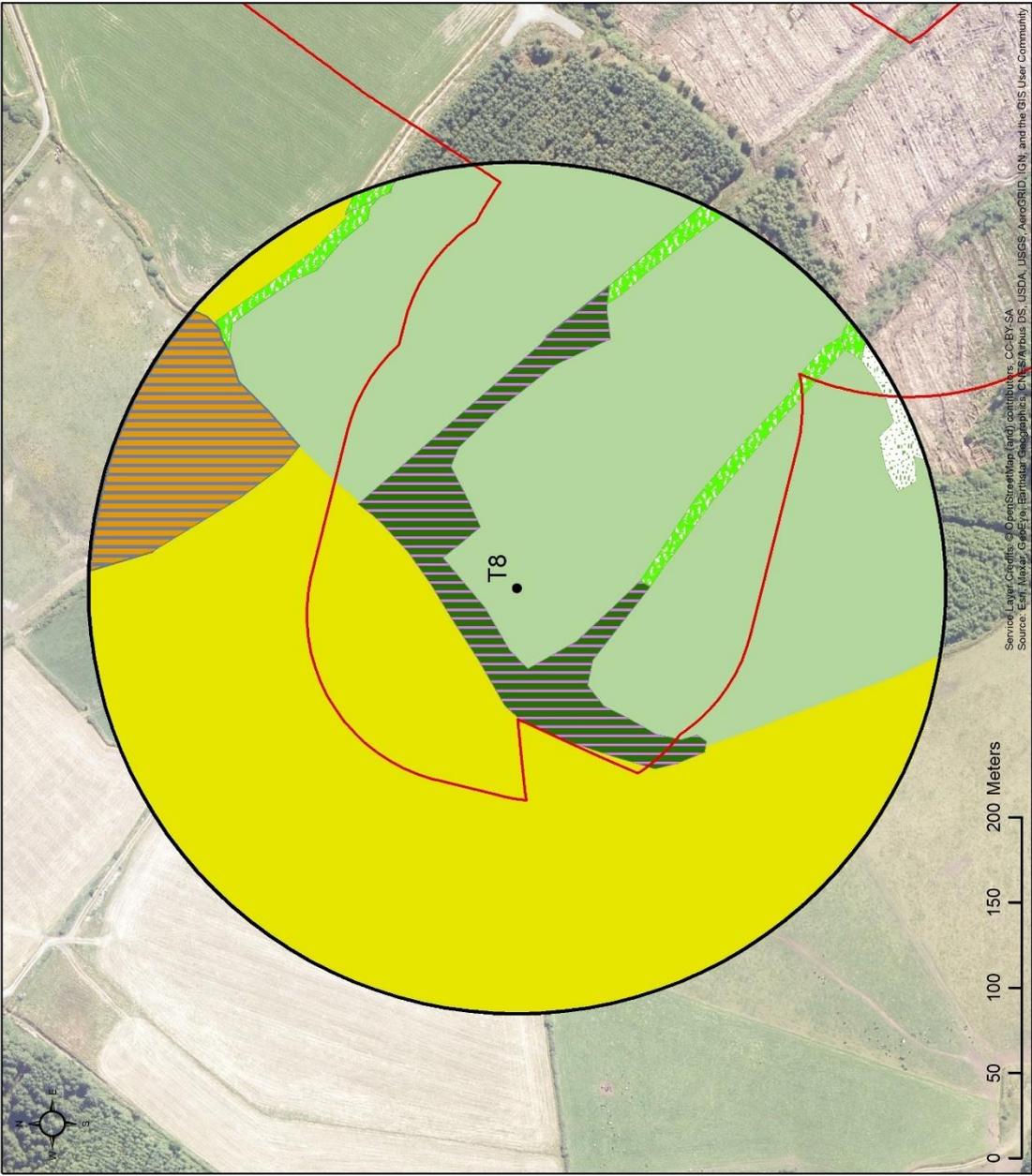
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 9



**Legend:**

**Habitats within 250m of Turbine 9**

- BL3: Buildings and artificial surfaces
- ED2: Spoil and bare ground
- GA1: Improved agricultural grassland
- GS4: Wet grassland
- WD4: Conifer plantation
- WS1: Scrub
- WS5: Recently-felled woodland

• Proposed Turbine Layout

○ Turbines 250m Buffer

□ Proposed Development Boundary

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E: info@inisec.com  
W: www.inisec.com

INIS Ecology  
Suite 11, Shannon Commercial Properties,  
1000 The Agh Park, Gort Road,  
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 10



**Legend:**

Habitats within 250m of Turbine 10

- ED2: Spoil and bare ground
- GA1: Improved agricultural grassland
- WD4: Conifer plantation
- WS1: Scrub

Proposed Turbine Layout

- Turbines 250m Buffer
- Proposed Development Boundary

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 E. info@inisenv.ie  
 W. www.inisecology.com  
 W. www.inisenv.ie



Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 11



- Legend:**
- Habitats within 250m of Turbine 11
- ED2: Spoil and bare ground
  - GA1: Improved agricultural grassland
  - GS4: Wet grassland
  - GS4/HH3: Wet Grassland/Wet Heath
  - WD4: Conifer plantation
  - WS1/HH3: Scrub/Wet Heath
- Proposed Turbine Layout
- Turbines 250m Buffer
  - Proposed Development Boundary

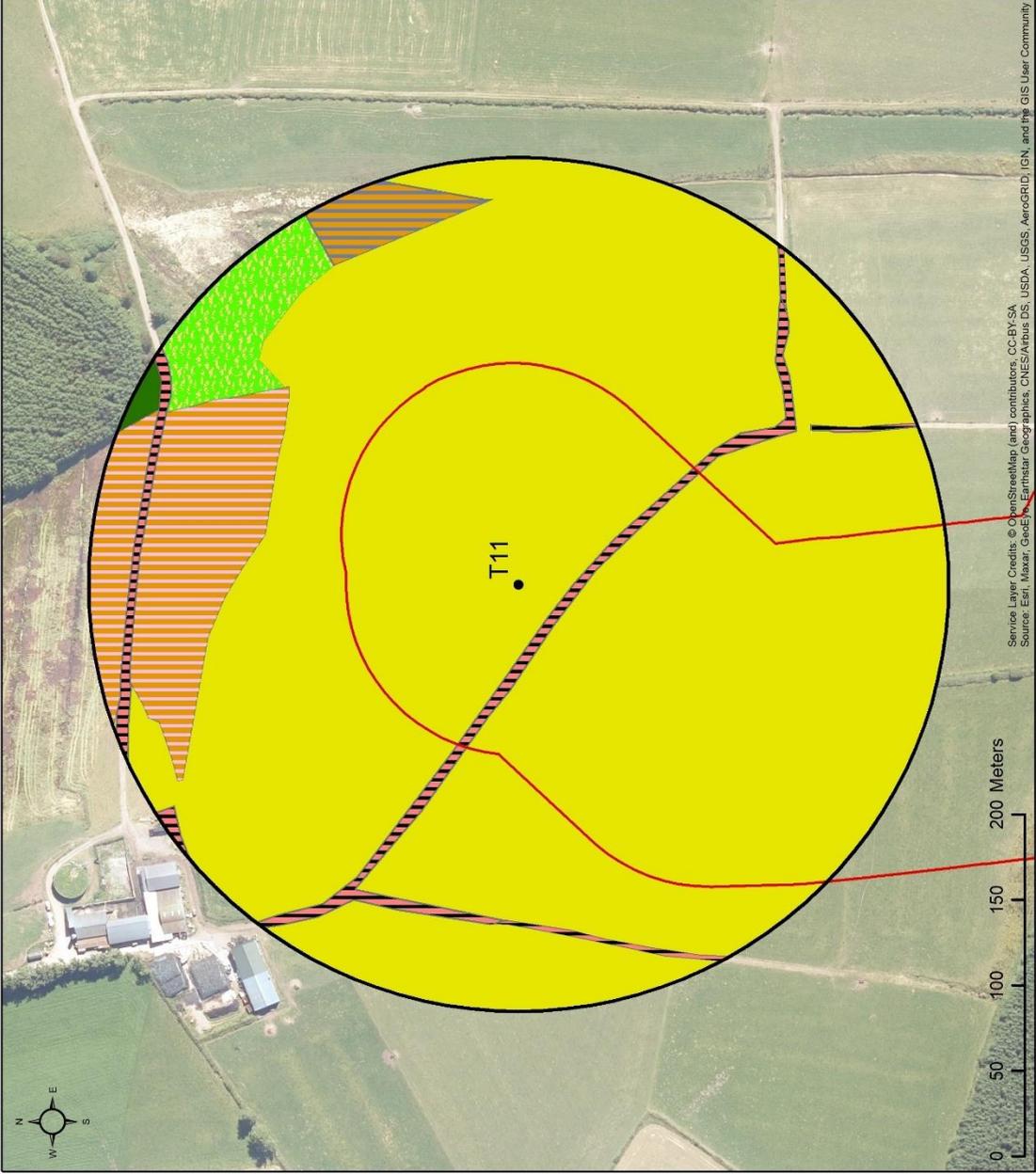
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 12

**Legend:**

**Habitats within 250m of Turbine**

- ED2: Spoil and bare ground
- GA1: Improved agricultural grassland
- GS4: Wet grassland
- HH3/WS1: Wet heath/Scrub mosaic
- WD4: Conifer plantation

- Proposed Turbine Layout
- Turbines 250m Buffer
- Proposed Development Boundary

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 13



- Legend:
- Habitats within 250m of Turbine 13
- ED2: Spoil and bare ground
  - GS4: Wet grassland
  - WD4: Conifer plantation
  - WSS: Recently-felled woodland
- Proposed Turbine Layout
- Turbines 250m Buffer
  - Proposed Development Boundary

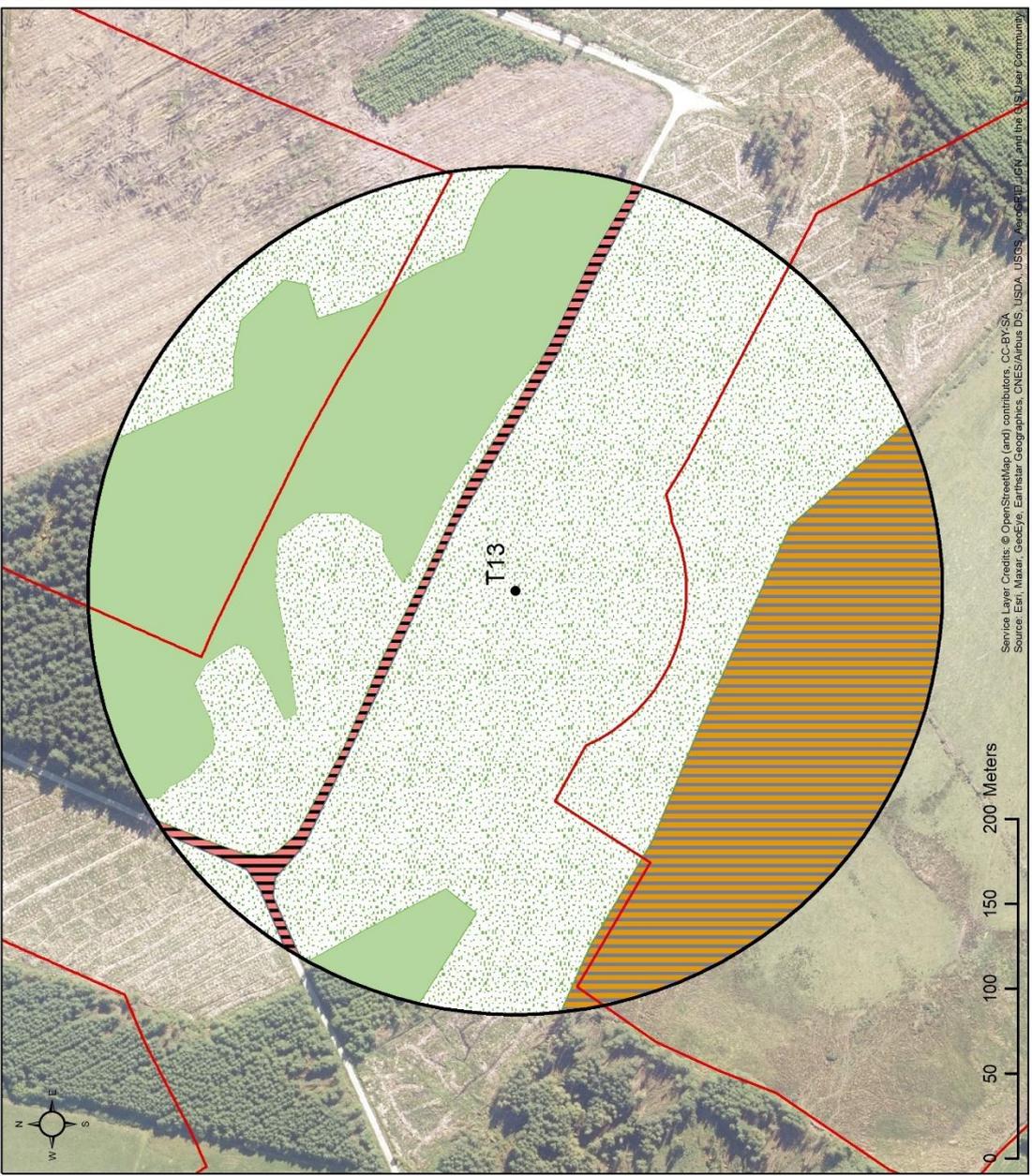
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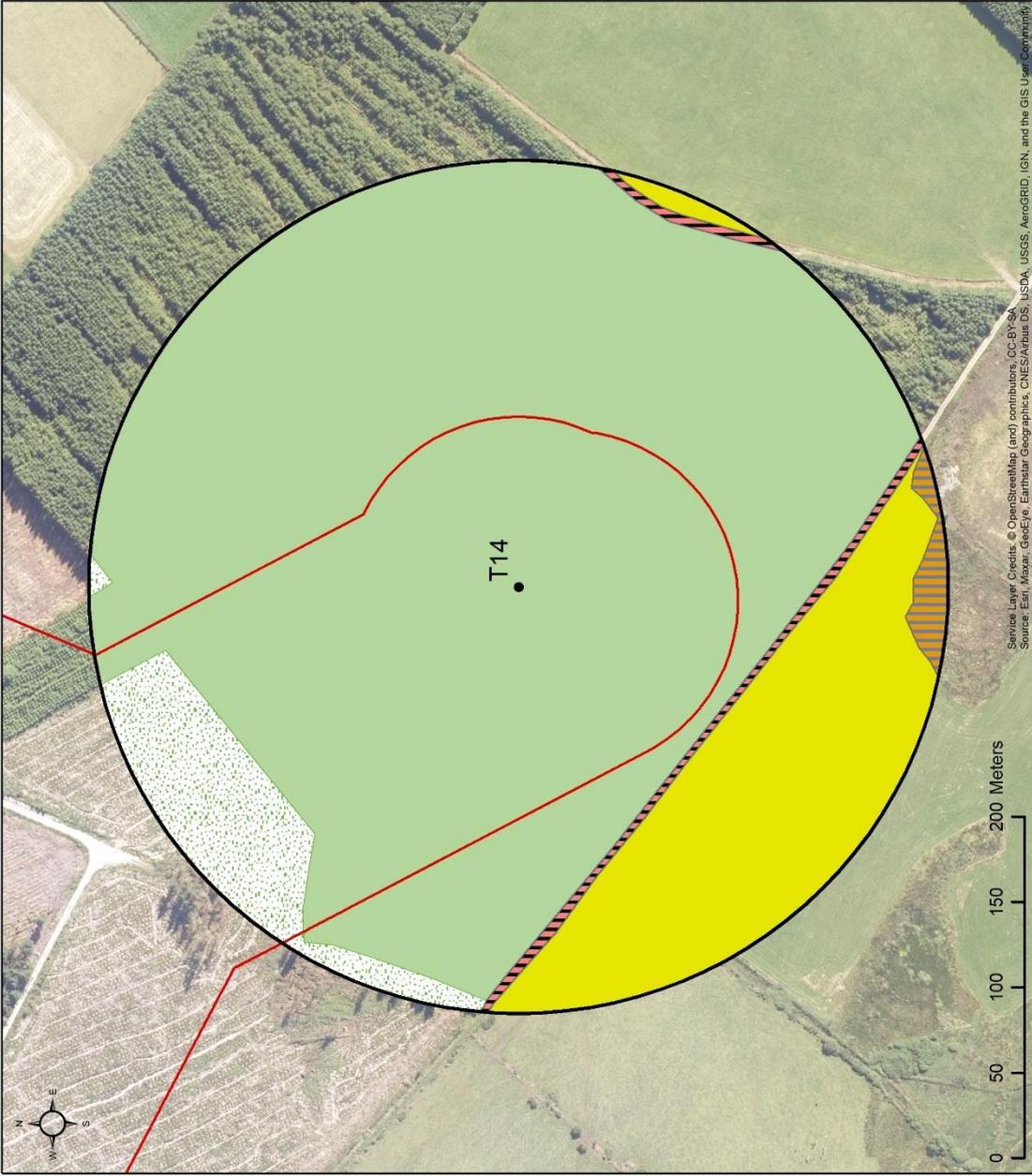
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W: www.inisecology.com  
V: www.inisenv.ie

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Information Age Park, Gort Road,  
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 14



- Legend:**
- Habitats within 250m of Turbine 14
- ED2: Spoil and bare ground
  - GA1: Improved agricultural grassland
  - GS4: Wet grassland
  - WD4: Conifer plantation
  - WS5: Recently-felled woodland
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 15



**Legend:**

Habitats within 250m of Turbine 15

- ED2: Spoil and bare ground
- ED3: Recolonising bare ground
- GAI: Improved agricultural grassland
- WD4: Conifer plantation
- W5S: Recently-felled woodland

Proposed Turbine Layout

- Turbines 250m Buffer
- Proposed Development Boundary

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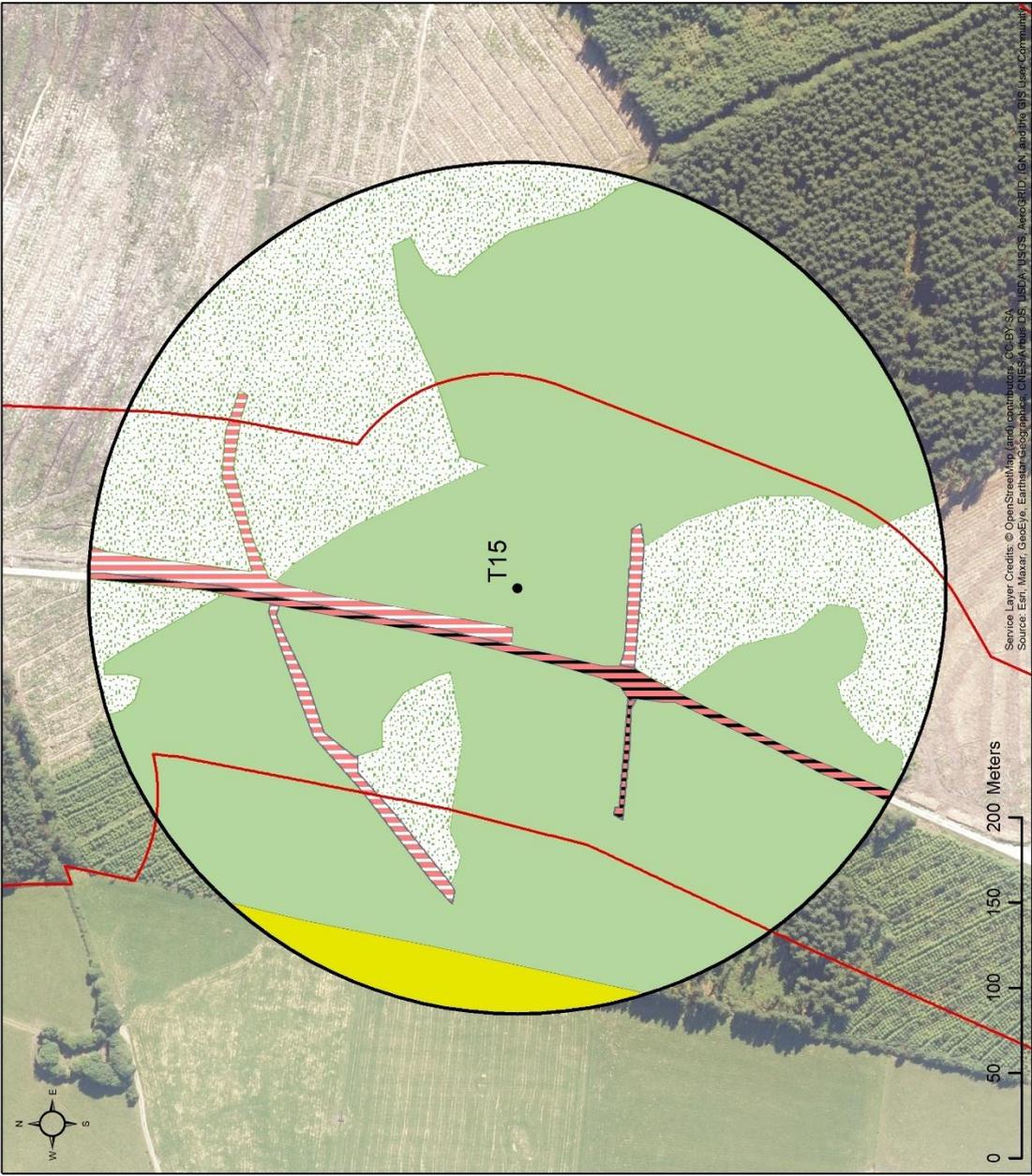
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E: info@inisenv.ie  
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 16



- Legend:**
- Habitats within 250m of Turbine 16
- GA1: Improved agricultural grassland
  - WD4: Conifer plantation
  - WSS: Recently-felled woodland
- Proposed Turbine Layout
- ▭ Turbines 250m Buffer
- ▭ Proposed Development Boundary

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 17



- Legend:**
- Habitats within 250m of Turbine 17
- ED2: Spoil and bare ground
  - GS4/HH3: Wet grassland/wet heath mosaic
  - WD1: (Mixed) broadleaf woodland
  - WD4: Conifer plantation
  - WS1: Scrub
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 18



- Legend:**
- Habitats within 250m of Turbine
- ED2: Spoil and bare
  - ED3: Recolonising bare
  - WD4: Conifer
  - Proposed Turbine
  - Turbines 250m Buffer
  - Proposed Development

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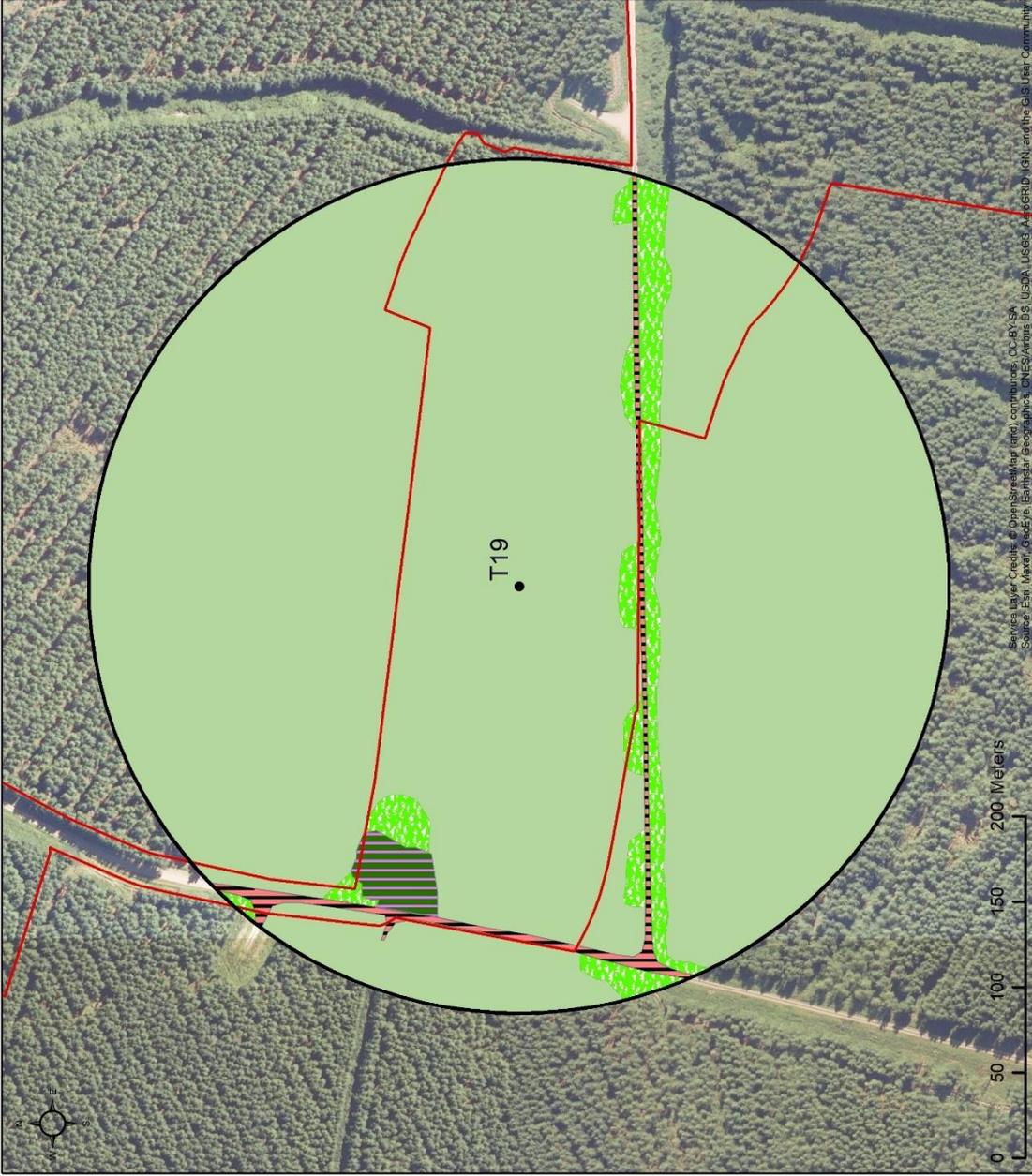
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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 19



Legend:

- Habitats within 250m of Turbine 19
- ED2: Spoil and bare ground
  - WD1: (Mixed) broadleaf woodland
  - WD4: Conifer plantation
  - WS1: Scrub
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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E: info@inisenv.ie  
W: www.inisenv.ie

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Client: Coom Green Energy Park Ltd.

Project: CGEP

Title: Habitats within 250m of Turbine 22



**Legend:**

Habitats within 250m of Turbine 22

- ED2: Spoil and bare ground
- ED3: Recolonising bare ground
- GA1: Improved agricultural grassland
- WD4: Conifer plantation
- WS1: Scrub
- WS5: Recently-felled woodland

- Proposed Turbine Layout
- Turbines 250m Buffer
- Proposed Development Boundary

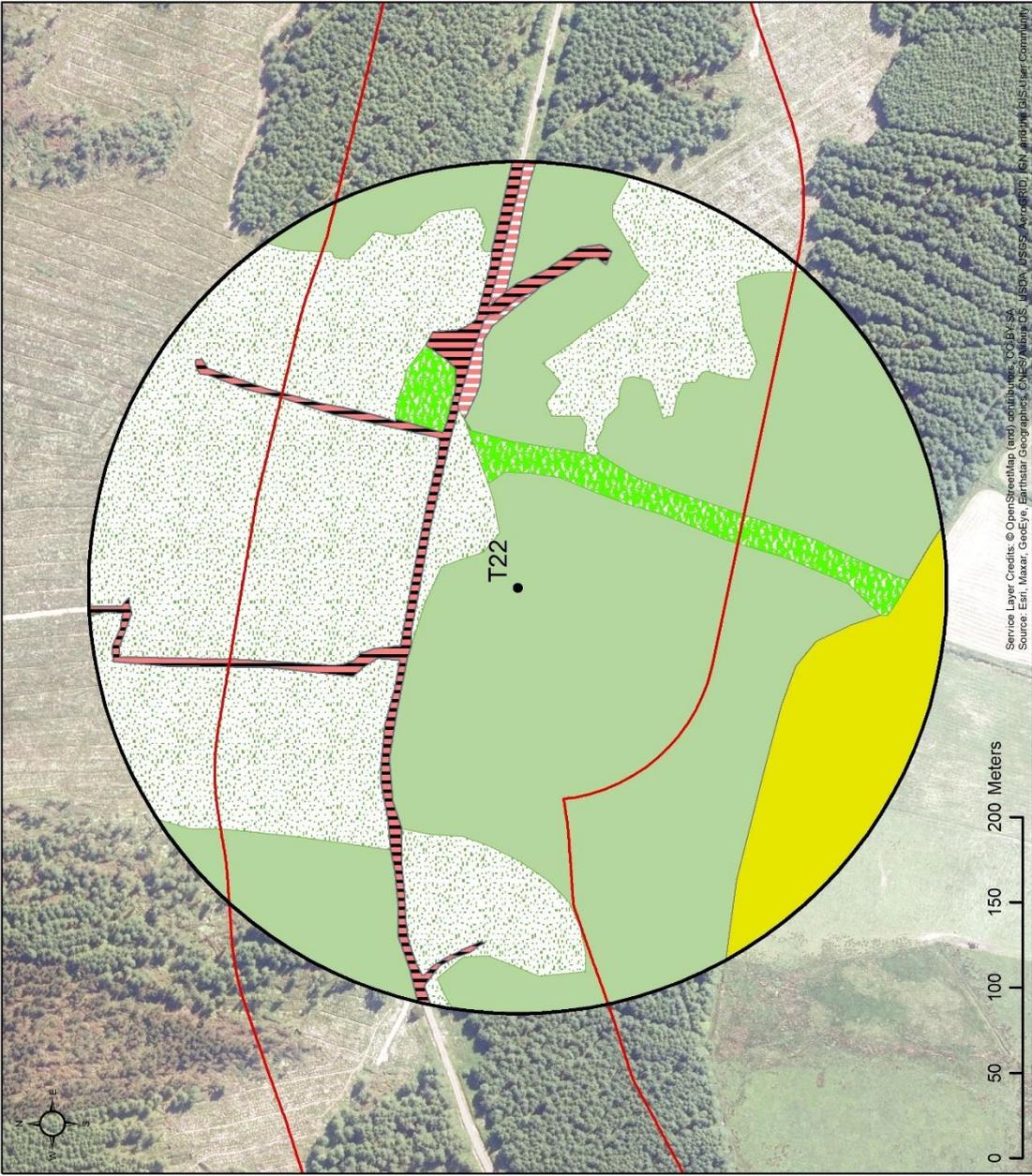
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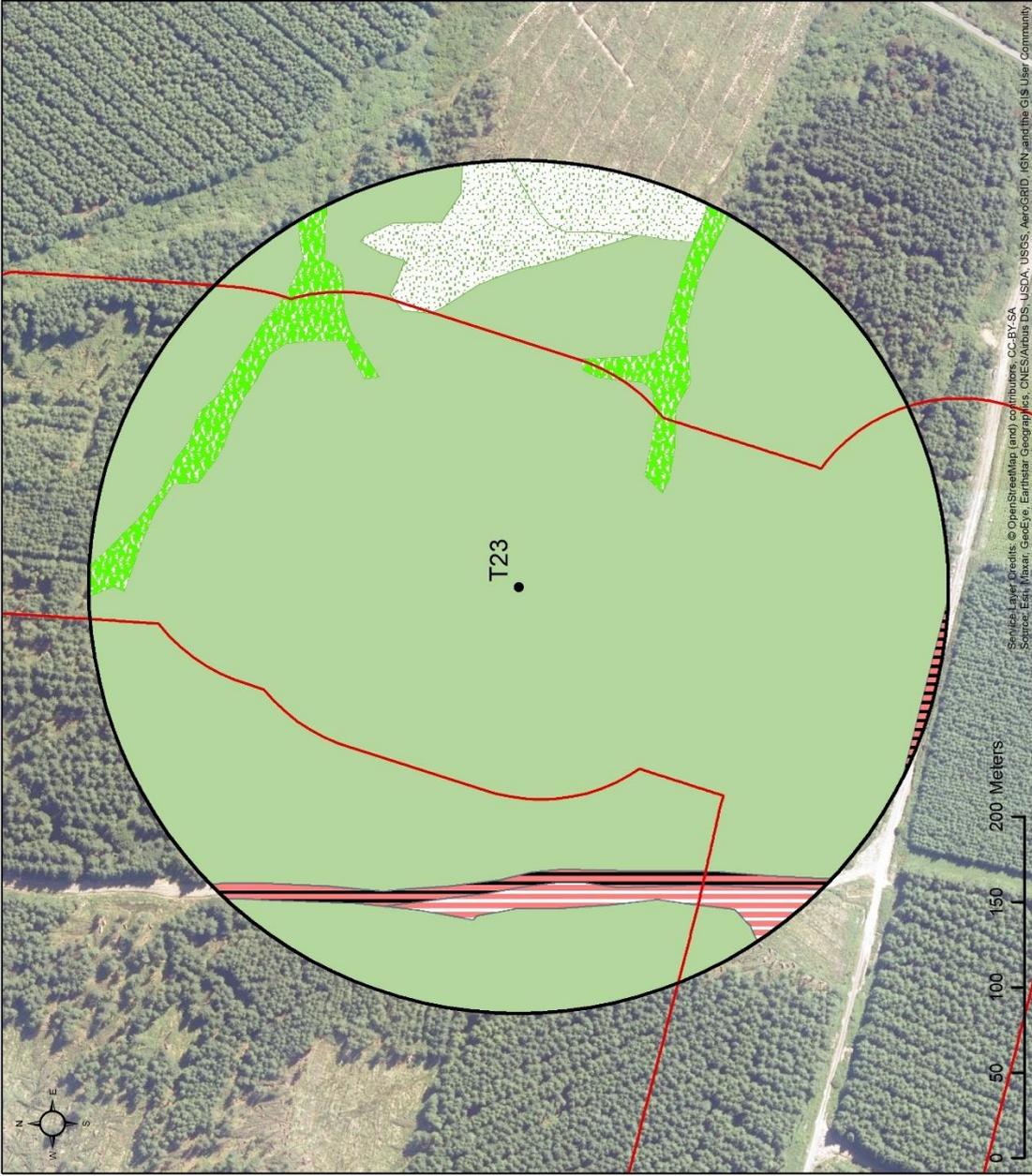
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Date	Revision	Drawn	Checked	Authorised
01/10/2020	1185-AG-10_034_01	POC	AC	HW

**INIS**  
 INIS Ecology  
 Suite 11, Shannon Commercial Properties,  
 Innamoigh Park, Gort Road,  
 Ennis, Co. Clare

T. +353 (0) 65 689 2441  
 E. info@inisenv.ie  
 W. www.inisecology.com  
 W. www.inisenv.ie





Client: Coom Green Energy Park Ltd.

Project: CGEP

Title:  
Habitats within 250m of Turbine 23



- Legend:**
- Habitats within 250m of Turbine 23
- ED2: Spoil and bare ground
  - ED3: Recolonising bare ground
  - WD4: Conifer plantation
  - WS1: Scrub
  - WS5: Recently-felled woodland
  - Proposed Turbine Layout
  - Turbines 250m Buffer
  - Proposed Development Boundary

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**Inis**  
INIS Ecology  
T: +353 (0) 65 689 2441  
E: info@inisenv.ie  
W: www.inisecology.com  
www.inisenv.ie

INIS Ecology  
Suite 11, Shannon Commercial Properties,  
Information Age Park, Gort Road,  
Ennis, Co. Clare

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## APPENDIX B: HABITAT CALCULATIONS

### Turbine 2

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T2	WD4	17-18	2002	2045	1.05	5	0.18
T2	WD4	25-26	1994	2040	0.08	10	0.03
T2	WD4	25-26	1994	2027	0.00	10	0.00
T2	WD4	22-23	1997	2041	0.13	9	0.04
T2	WD4	21-22	1998	2046	1.63	4	0.22
T2	WD4	25-26	1994	2027	0.25	10	0.08
T2	WD4	25-26	1994	2040	0.00	10	0.00
T2	ED2	-			0.09		0.09
T2	WS1	-			0.12		0.12
T2	WD4	22-23	1997	2027	0.21	10	0.07
T2	WD4	22-23	1997	2041	0.87	9	0.26
T2	WD4	25-26	1994	2040	4.25	10	1.42
T2	WD4	25-26	1994	2040	2.48	10	0.83
T2	WD4	17-18	2002	2045	0.55	5	0.09
T2	WS1	-			0.24		0.24
T2	WD4	25-26	1994	2040	4.22	10	1.41
T2	WD4	12-13	2007	2025	0.06	10	0.02
T2	WS1	-			0.00		0.00
T2	WS1	-			0.08		0.08
T2	WS1	-			0.00		0.00
T2	WS1	-			0.12		0.12
T2	WD4	21-22	1998	2046	1.74	4	0.23
T2	WS1	-			0.01		0.01
T2	WS1	-			0.00		0.00
T2	WS1	-			0.00		0.00
T2	WD4	22-23	1997	2027	0.04	10	0.01
T2	WD4	21-22	1998	2046	0.20	4	0.03
T2	WD4	25-26	1994	2027	0.01	10	0.00
T2	WD4	25-26	1994	2040	0.04	10	0.01
T2	WD4	25-26	1994	2027	0.02	10	0.01
T2	WD4	17-18	2002	2046	0.14	4	0.02
T2	WD4	25-26	1994	2027	0.02	10	0.01
T2	WD4	22-23	1997	2060	0.00	0	0.00
T2	WD4	22-23	1997	2045	0.06	5	0.01
T2	WD4	22-23	1997	2060	0.18	0	0.00
T2	WD4	22-23	1997	2027	0.44	10	0.15

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T2	WD4	17-18	2002	2045	0.16	5	0.03
T2	WD4	25-26	1994	2045	0.11	5	0.02
T2	WD4	25-26	1994	2046	0.02	4	0.00
T2	WD4	25-26	1994	2045	0.00	5	0.00

### Turbine 3

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T3	ED2	-			0.03		0.03
T3	WD4	-			0.13	0	0.00
T3	WD4	56-57	1963		0.08	0	0.00
T3	WS1	-			0.04		0.04
T3	WD4	56-57	1963		0.00	0	0.00
T3	WD4	56-57	1963		0.00	0	0.00
T3	WD4	7-8	2012	2023	1.68	12	0.67
T3	WD4	31-32	1988	2044	0.46	6	0.09
T3	WS1	-			0.04		0.04
T3	ED2	-			0.29		0.29
T3	WS1	-			0.99		0.99
T3	ED3	-			0.02		0.02
T3	WD4	7-8	2012	2023	1.27	12	0.51
T3	WD4	-			0.03	0	0.00
T3	WS1	-			0.96		0.96
T3	WS1	-			0.04		0.04
T3	WD4	56-57	1963		0.95	0	0.00
T3	ED2	-			0.01		0.01
T3	ED3	-			0.04		0.04
T3	WD4	7-8	2012	2023	1.50	12	0.60
T3	WS5	-			0.39		0.39
T3	WD4	15-16	2004	2047	0.18	3	0.02
T3	WD4	11-12	2008	2054	0.40	0	0.00
T3	WD4	9-10	2010	2045	0.01	5	0.00
T3	HH3/WS1	-			0.37		0.37
T3	WS1	-			0.06		0.06
T3	WS1	-			0.01		0.01
T3	WD4	7-8	2012	2023	1.05	12	0.42
T3	WS5	-			0.60		0.60
T3	WD4	56-57	1963		2.17	0	0.00

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T3	WD4	56-57	1963		0.64	0	0.00
T3	WS5	-			0.19		0.19
T3	WD4	9-10	2010	2045	2.21	5	0.37
T3	WS5	-			0.04		0.04
T3	ED3	-			0.04		0.04
T3	WD4	56-57	1963		0.00	0	0.00
T3	WD4	9-10	2010	2045	0.41	5	0.07
T3	WD4	56-57	1963		0.74	0	0.00
T3	WD4	7-8	2012	2047	1.25	5	0.21
T3	WD4	31-32	1988	2028	0.30	10	0.10

## Turbine 4

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T4	BL3	-			0.06		0
T4	WD4	12-13	2007	2025	0.01	10	0.00
T4	WD4	9-10	2010	2045	10.11	5	1.68
T4	WD4	31-32	1988	2044	0.00	6	0.00
T4	WS1	-			0.21		0.21
T4	WD4	22-23	1997		0.97	0	0.00
T4	FS1	-			0.01		0.01
T4	WS1	-			0.00		0.00
T4	WD4	9-10	2010	2025	0.12	10	0.04
T4	WD4	12-13	2007	2025	0.12	10	0.04
T4	WD4	22-23	1997	2041	0.01	9	0.00
T4	WD4	12-13	2007	2025	0.08	10	0.03
T4	WS1	-			0.07		0.07
T4	WS1	-			0.02		0.02
T4	BL3	-			0.06		0
T4	FL8	-			0.11		0.11
T4	BL3	-			0.09		0
T4	WD4	31-32	1988	2044	0.48	6	0.10
T4	WD4	9-10	2010	2045	2.17	5	0.36
T4	WS1	-			0.29		0.29
T4	WD4	23-24	1996	2040	0.17	10	0.06
T4	WD4	23-24	1996	2040	0.60	10	0.20
T4	GS4/HH1	-			0.60		0.60
T4	WD4	22-23	1997		0.10	0	0.00

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T4	WD4	31-32	1988		0.95	0	0.00
T4	WD4	23-24	1996		1.04	0	0.00
T4	WS5	-			0.30		0.30
T4	WD4	22-23	1997		0.35	0	0.00
T4	WD4	22-23	1997		0.09	0	0.00
T4	WS5	-			0.06		0.06
T4	WD4	22-23	1997		0.23	0	0.00
T4	WS1	-			0.06		0.06
T4	WS1	-			0.11		0.11
T4	WD4	31-32	1988	2044	0.00	6	0.00
T4	WD4	22-23	1997		0.00	0	0.00
T4	WD4	22-23	1997		0.00	0	0.00

## Turbine 5

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T5	WD4	26-27	1993		0.11	0	0.00
T5	WD4	32-33	1987	2031	5.17	10	1.72
T5	WD4	18-19	2001		4.04	0	0.00
T5	WD4	32-33	1987	2031	1.01	10	0.34
T5	WS1	-			0.08		0.08
T5	WD4	26-27	1993		1.23	0	0.00
T5	WD4	26-27	1993	2043	0.23	7	0.05
T5	WD4	26-27	1993		0.88	0	0.00
T5	WD4	26-27	1993	2043	1.67	7	0.39
T5	HH3	-			0.34		0.34
T5	ED3	-			0.06		0.06
T5	WD4	26-27	1993	2043	1.78	7	0.42
T5	WD4	26-27	1993	2043	1.19	7	0.28
T5	WD4	18-19	2001		0.01	0	0.00
T5	WD4	18-19	2001		0.06	0	0.00
T5	WD4	26-27	1993	2054	0.82	0	0.00
T5	WD4	26-27	1993	2054	0.96	0	0.00
T5	BL3	-			0.15		0
T5	WD4	9-10	2010	2045	0.21	5	0.04
T5	WD4	8-9	2011	2045	0.00	6	0.00
T5	WD4	8-9	2011	2045	0.10	6	0.02
T5	WD4	9-10	2010	2045	0.00	5	0.00

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T5	WD4	46-47	1973	2020	0.00	10	0.00
T5	WD4	46-47	1973	2020	3.78	10	1.26
T5	WD4	32-33	1987	2031	0.63	10	0.21
T5	WD4	46-47	1973	2045	0.00	5	0.00
T5	WD4	2-3	2017	2051	6.42	7	1.50
T5	WS1	-			0.98		0.98
T5	ED2	-			0.31		0.31
T5	WD4	32-33	1987	2031	0.13	10	0.04
T5	WD4	46-47	1973	2045	1.13	5	0.19
T5	WD4	46-47	1973		0.38	0	0.00
T5	WD4	46-47	1973		0.28	0	0.00
T5	HH3	-			0.09		0.09
T5	ED2	-			0.04		0.04
T5	WS1	-			0.00		0.00
T5	WD4	46-47	1973		0.02	0	0.00
T5	WS1	-			0.05		0.05
T5	WD4	46-47	1973	2020	0.00	10	0.00
T5	WD4	46-47	1973	2020	0.00	10	0.00
T5	WD4	46-47	1973		1.77	0	0.00
T5	WD4	2-3	2017	2051	3.14	7	0.73

## Turbine 6

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T6	BL3	-			0.15		0
T6	WD4	9-10	2010	2045	0.21	5	0.04
T6	WD4	8-9	2011	2045	0.00	6	0.00
T6	WD4	8-9	2011	2045	0.10	6	0.02
T6	WD4	9-10	2010	2045	0.00	5	0.00
T6	WD4	46-47	1973	2020	0.00	10	0.00
T6	WD4	46-47	1973	2020	3.78	10	1.26
T6	WD4	32-33	1987	2031	0.63	10	0.21
T6	WD4	46-47	1973	2045	0.00	5	0.00
T6	WD4	2-3	2017	2051	6.42	7	1.50
T6	WS1	-			0.98		0.98
T6	ED2	-			0.31		0.31
T6	WD4	32-33	1987	2031	0.13	10	0.04
T6	WD4	46-47	1973	2045	1.13	5	0.19

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T6	WD4	46-47	1973		0.38	0	0.00
T6	WD4	46-47	1973		0.28	0	0.00
T6	HH3	-			0.09		0.09
T6	ED2	-			0.04		0.04
T6	WS1	-			0.00		0.00
T6	WD4	46-47	1973		0.02	0	0.00
T6	WS1	-			0.05		0.05
T6	WD4	46-47	1973	2020	0.00	10	0.00
T6	WD4	46-47	1973	2020	0.00	10	0.00
T6	WD4	46-47	1973		1.77	0	0.00
T6	WD4	2-3	2017	2051	3.14	7	0.73

## Turbine 7

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T7	WS1	-			0.07		0.07
T7	WS5	-			0.29		0.29
T7	WS1	-			0.10		0.10
T7	WS1	-			0.02		0.02
T7	HD1	-			0.16		0.16
T7	WS1	-			0.09		0.09
T7	WS1	-			0.00		0.00
T7	WD4	45-46	1974	2008	0.00	10	0.00
T7	WD4	47-48	1972		0.02	0	0.00
T7	WD4	45-46	1974	2008	0.26	10	0.09
T7	WD4	45-46	1974		0.00	0	0.00
T7	WS1	-			0.09		0.09
T7	WS1	-			0.00		0.00
T7	WD4	45-46	1974	2008	0.00	10	0.00
T7	WD4	45-46	1974	2008	0.02	10	0.01
T7	WD4	45-46	1974	2008	0.69	10	0.23
T7	WD4	45-46	1974	2051	0.00	0	0.00
T7	WS1	-			0.00		0.00
T7	WS1	-			0.04		0.04
T7	WS1	-			0.01		0.01
T7	WS1	-			0.00		0.00
T7	WD4	2-3	2017	2051	1.13	7	0.26
T7	WD4	45-46	1974	2008	2.64	10	0.88

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T7	WD4	21-22	1998		0.34	0	0.00
T7	WD4	18-19	2011	2049	0.00	2	0.00
T7	WD4	18-19	2011	2049	0.38	2	0.03
T7	WS5	-			0.01		0.01
T7	WS1	-			0.00		0.00
T7	WD4	18-19	2011	2049	0.02	2	0.00
T7	WS1	-			0.00		0.00
T7	ED2	-			0.01		0.01
T7	ED2	-			0.25		0.25
T7	BL3	-			0.12		0
T7	ED2	-			0.09		0.09
T7	ED2	-			0.08		0.08
T7	WD4/WS1	-			0.26		0.26
T7	WD4	45-46	1974		0.12	0	0.00
T7	WD4	45-46	1974		0.38	0	0.00
T7	WD4	18-19	2011	2049	0.30	2	0.02
T7	FL8	-			0.15		0.15
T7	BL3	-			0.06		0
T7	BL2	-			0.15		0.15
T7	WS1/WD4	-			1.08		1.08
T7	WD4	18-19	2011	2049	0.06	2	0.00
T7	WS1	-			0.48		0.48
T7	WS1	-			0.49		0.49
T7	WS5	-			1.46		1.46
T7	WS1	-			0.12		0.12
T7	WS5	-			4.58		4.58
T7	WS5	-			0.23		0.23
T7	WD4	45-46	1974		0.31	0	0.00
T7	WD4	45-46	1974		0.18	0	0.00
T7	WD4	47-48	1972		0.23	0	0.00
T7	WS5	-			0.05		0.05
T7	WD4	2-3	2017	2052	0.24	7	0.06
T7	WS1	-			0.03		0.03
T7	WS5	-			0.00		0.00
T7	WS5	-			0.00		0.00
T7	ED2	-			0.00		0.00
T7	WD4	45-46	1974	2100	0.43	0	0.00
T7	WD4	2-3	2017	2052	0.30	7	0.07
T7	WD4	45-46	1974	2045	0.42	5	0.07
T7	WD4	45-46	1974	2052	0.59	0	0.00

## Turbine 8

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T8	WD4	21-22	1998		1.23	0	0.00
T8	WD1	-			1.06		1.06
T8	WD4	21-22	1998		1.54	0	0.00
T8	WS1	-			0.10		0.10
T8	GA1	-			0.04		0
T8	WS5	-			0.12		0.12
T8	WS1	-			0.15		0.15
T8	WS1	-			0.02		0.02
T8	WD4	15-16	2004	2045	2.76	5	0.46
T8	WD4	44-45	1974	2045	1.45	5	0.24
T8	WS1	-			0.08		0.08
T8	WD4	44-45	1974	2100	0.49	0	0.00
T8	WD4	15-16	2004	2100	1.00	0	0.00
T8	GA1	-			2.84		0
T8	GA1	-			0.53		0
T8	GA1	-			0.73		0
T8	GA1	-			2.89		0
T8	GS4	-			0.82		0.82
T8	GA1	-			1.49		0
T8	WS1	-			0.02		0.02

## Turbine 9

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T9	ED2	-			0.27		0.27
T9	BL3	-			0.01		0
T9	ED2	-			0.16		0.16
T9	GA1	-			0.49		0
T9	WD4	31-32	1988		0.16	0	0.00
T9	WS1	-			0.15		0.15
T9	GA1	-			0.22		0
T9	GA1	-			0.81		0
T9	GS4	-			0.80		0.80
T9	GA1	-			1.58		0
T9	WS1	-			0.74		0.74
T9	WS1	-			0.32		0.32

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T9	WS1	-			0.15		0.15
T9	WS5	-			7.40		7.40
T9	WS5	-			0.17		0.17
T9	WD4	31-32	1988		1.01	0	0.00
T9	WS1	-			0.28		0.28
T9	WS1	-			0.16		0.16
T9	WS5	-			0.48		0.48
T9	WD4	21-22	1998		3.45	0	0.00
T9	GA1	-			0.81		0
T9	GA1	-			0.00		0
T9	GA1	-			0.00		0
T9	WD4	31-32	1988		0.00	0	0.00
T9	GA1	-			0.00		0
T9	GA1	-			0.00		0
T9	GS4	-			0.00		0.00
T9	WD4	21-22	1998		0.00	0	0.00
T9	GS4	-			0.00		0.00
T9	GA1	-			0.00		0
T9	GA1	-			0.00		0

## Turbine 10

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T10	WS1	-			0.66		0.66
T10	GA1	-			2.13		0
T10	WD4	31-32	1988		0.57	0	0.00
T10	WD4	23-24	1996		7.01	0	0.00
T10	GA1	-			0.07		0
T10	GA1	-			7.53		0
T10	GA1	-			1.29		0
T10	ED2	-			0.07		0.07
T10	GA1	-			0.03		0
T10	GA1	-			0.11		0
T10	GA1	-			0.06		0
T10	WS1	-			0.01		0.01
T10	WD4	23-24	1996		0.00	0	0.00
T10	WS1	-			0.10		0.10

## Turbine 11

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T11	GS4/HH3	-			0.37		0.37
T11	GS4/HH3	-			1.13		1.13
T11	WS1/HH3	-			0.55		0.55
T11	GA1	-			0.25		0
T11	GS4	-			0.26		0.26
T11	GA1	-			0.00		0
T11	GA1	-			0.13		0
T11	GA1	-			0.17		0
T11	GA1	-			3.50		0
T11	GA1	-			8.42		0
T11	ED2	-			0.14		0.14
T11	WD4	23-24	1996	2040	0.05	10	0.02
T11	ED2	-			0.32		0.32
T11	ED2	-			0.04		0.04
T11	GA1	-			0.77		0
T11	GA1	-			3.07		0
T11	ED2	-			0.02		0.02
T11	GA1	-			0.03		0
T11	ED2	-			0.01		0.01
T11	GA1	-			0.40		0

## Turbine 12

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T12	ED2	-			0.05		0.05
T12	GS4	-			0.16		0.16
T12	WD4	21-22	1997	2037	11.94	10	3.98
T12	GA1	-			6.87		0
T12	HH3/WS1	-			0.53		0.53
T12	ED2	-			0.08		0.08

## Turbine 13

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T13	GS4	-			3.40		3.40
T13	WD4	20-21	1999	2040	0.33	10	0.11
T13	WS5	-			8.27		8.27
T13	WS5	-			0.12		0.12
T13	ED2	-			0.36		0.36
T13	WS5	-			1.58		1.58
T13	WD4	46-47	1973	2023	4.56	10	1.52
T13	WS5	-			1.01		1.01

## Turbine 14

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T14	WD4	25-26	1994	2040	14.77	10	4.92
T14	WD4	10-11	2009	2040	0.15	10	0.05
T14	WS5	-			0.02		0.02
T14	WS5	-			1.19		1.19
T14	GS4	-			0.17		0.17
T14	GA1	-			3.03		0
T14	GA1	-			0.08		0
T14	ED2	-			0.06		0.06
T14	ED2	-			0.17		0.17

## Turbine 15

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T15	ED2	-			0.28		0.28
T15	WS5	-			1.66		1.66
T15	WD4	10-11	2009	2053	0.65	0	0.00
T15	ED3	-			0.32		0.32
T15	WD4	47-48	1972	2024	3.78	10	1.26
T15	WS5	-			3.54		3.54
T15	GA1	-			0.58		0
T15	WD4	10-11	2009	2053	2.20	0	0.00

Turbine	Fossitt Code	Forestry			Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year	Fell year			
T15	WS5	-			0.25		0.25
T15	WD4	10-11	2009	2053	0.69	0	0.00
T15	WD4	10-11	2009	2053	0.92	0	0.00
T15	WS5	-			0.43		0.43
T15	WD4	10-11	2009	2023	2.21	10	0.74
T15	WD4	10-11	2009	2053	0.75	0	0.00
T15	ED3	-			0.14		0.14
T15	WD4	10-11	2009	2053	1.16	0	0.00
T15	ED3	-			0.06		0.06
T15	ED2	-			0.02		0.02

## Turbine 16

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T16	WS5	-			1.98		1.98
T16	WD4	26-27	1993	2040	0.96	10	0.32
T16	WD4	26-27	1993	2040	0.08	10	0.03
T16	WD4	26-27	1993	2040	0.24	10	0.08
T16	GA1	-			0.11		0
T16	WD4	26-27	1993	2040	0.84	10	0.28
T16	WD4	47-48	1972	2024	1.20	10	0.40
T16	WD4	26-27	1993	2040	5.26	10	1.75
T16	WD4	26-27	1993	2040	8.70	10	2.90
T16	WD4	26-27	1993	2040	0.26	10	0.09

## Turbine 17

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T17	WS1	-			2.36		2.36
T17	ED2	-			0.10		0.10
T17	WD4	22-23	1997	2027	5.29	10	1.76
T17	WD1	62-63	1957	2053	0.87		0.87
T17	WD1	62-63	1957	2053	0.00		0.00
T17	WD4	22-23	1997	2027	1.26	10	0.42
T17	WD4	22-23	1997	2027	1.80	10	0.60

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T17	WD4	18-19	2000	2027	0.75	10	0.25
T17	WD4	22-23	1997	2027	3.37	10	1.12
T17	GS4/HH3	-			0.64		0.64
T17	WD4	22-23	1997	2039	2.10	10	0.70
T17	WD4	13-14	2006	2050	0.37	0	0.00
T17	ED2	-			0.07		0.07
T17	ED2	-			0.48		0.48

## Turbine 18

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T18	WD4	13-14	2006	2050	2.21	0	0.00
T18	WD4	16-17	2003	2050	11.90	0	0.00
T18	WD4	22-23	1997	2027	3.99	10	1.33
T18	WD4	22-23	1997	2027	0.71	10	0.24
T18	ED3	-			0.34		0.34
T18	ED2	-			0.14		0.14
T18	ED2	-			0.34		0.34

## Turbine 19

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T19	ED2	-			0.31		0.31
T19	WD1	-			0.18		0.18
T19	WS1	-			0.07		0.07
T19	WS1	-			0.48		0.48
T19	WS1	-			0.04		0.04
T19	WS1	-			0.04		0.04
T19	WS1	-			0.05		0.05
T19	WS1	-			0.03		0.03
T19	WS1	-			0.02		0.02
T19	WS1	-			0.09		0.09
T19	WS1	-			0.03		0.03
T19	WS1	-			0.02		0.02
T19	WD4	24-25	1995		0.77	0	0.00

Turbine	Fossitt Code	Forestry		Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
		age class (2020)	Plant year			
T19	WD4	26-27	1993	6.17	0	0.00
T19	WD4	24-25	1995	5.62	0	0.00
T19	WD4	28-29	1991	2.66	0	0.00
T19	WD4	24-25	1995	3.04	0	0.00

## Turbine 20

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T20	WD4	28-29	1991		6.83	0	0.00
T20	WD4	36-37	1983		1.33	0	0.00
T20	GS4	-			1.19		1.19
T20	WD4	35-36	1983		7.70	0	0.00
T20	WD4	35-36	1983		0.87	0	0.00
T20	WD4	35-36	1983		0.05	0	0.00
T20	GS4	-			0.96		0.96
T20	ED3	-			0.25		0.25
T20	ED2	-			0.46		0.46

## Turbine 21

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T21	GA1	-			2.37		0
T21	WS1	-			0.16		0.16
T21	WD4	11-12	2008	2055	1.35	0	0.00
T21	WD4	25-26	1994	2040	0.38	10	0.13
T21	WD4	25-26	1994	2045	9.15	5	1.53
T21	WD4	36-37	1983		6.21	0	0.00

## Turbine 22

Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T22	WD4	28-29	1991		0.37	0	0.00
T22	WD4	28-29	1991		0.88	0	0.00
T22	WD4	28-29	1991		1.92	0	0.00
T22	WD4	28-29	1991		5.32	0	0.00
T22	WS5	-			1.03		1.03
T22	GA1	-			1.42		0
T22	WD4	35-36	1983		0.80	0	0.00
T22	WS5	-			1.55		1.55
T22	WS5	-			0.68		0.68
T22	WS1	-			0.12		0.12
T22	WS5	-			4.15		4.15
T22	WS1	-			0.47		0.47
T22	ED3	-			0.05		0.05
T22	ED3	-			0.05		0.05
T22	WS5	-			0.25		0.25
T22	ED2	-			0.54		0.54

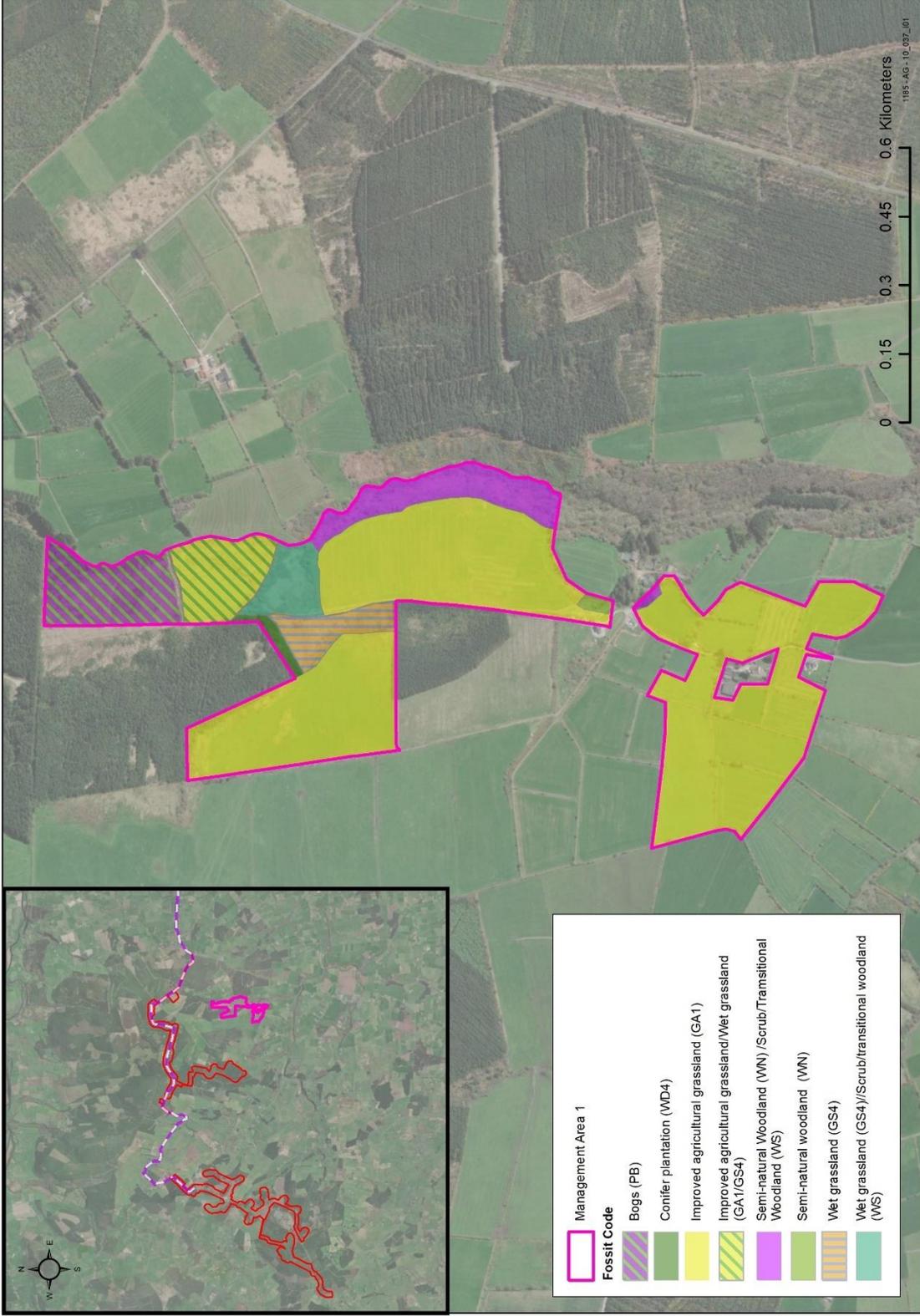
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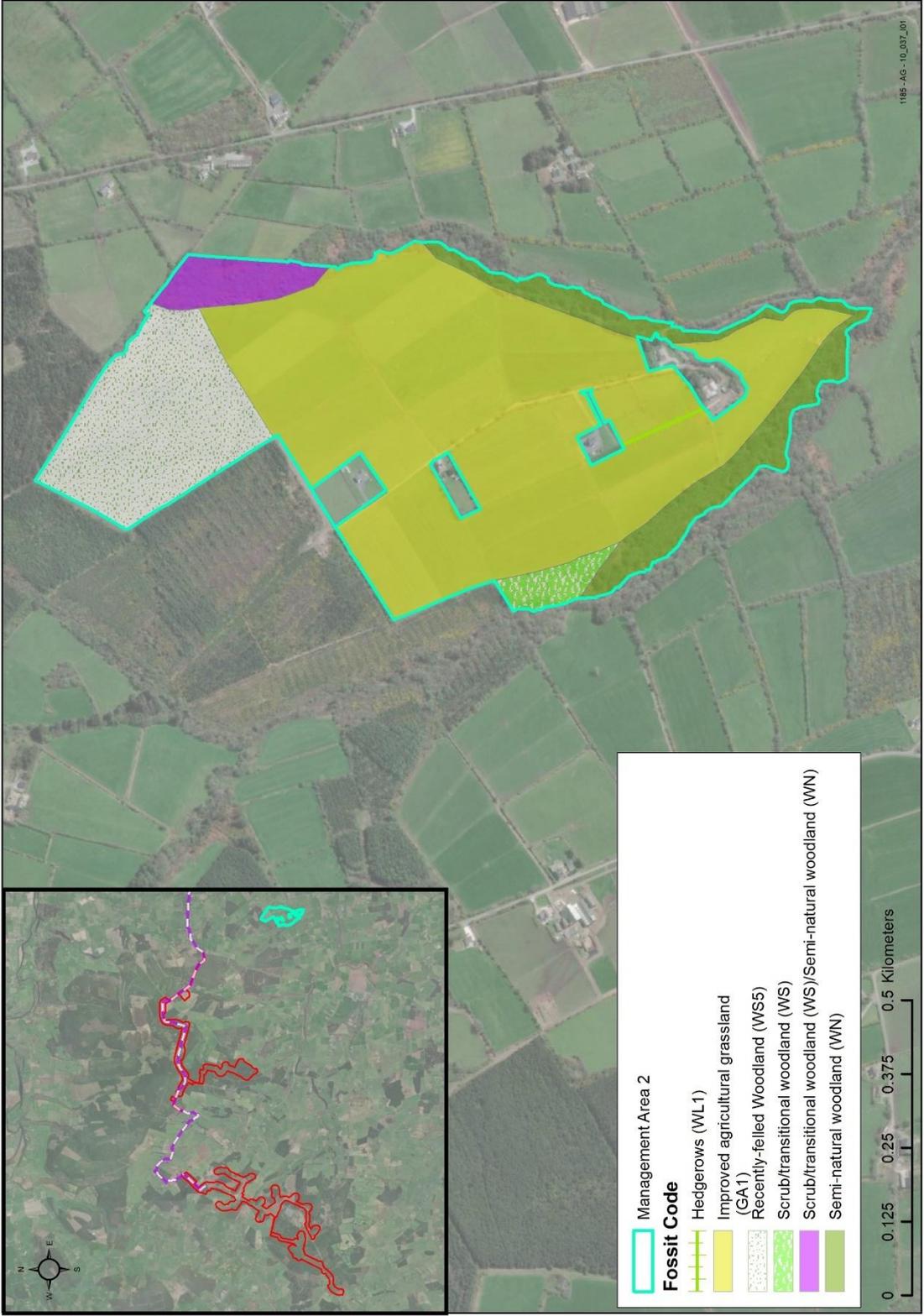
Turbine	Fossitt Code	Forestry age class (2020)	Plant year	Fell year	Area (ha)	Availability of Habitat (yrs)	Mitigation Habitat (ha/annum)
T23	WS1				0.29	0	0.29
T23	WS1				0.50	0	0.50
T23	WS5				0.36	0	0.36
T23	WD4	28-29	1991		0.88	0	0.00
T23	WD4	36-37	1983		0.50		0.00
T23	ED3				0.30		0.30
T23	ED2				0.04	0	0.04
T23	WD4	36-37	1983		15.16		0.00
T23	ED2				0.29		0.29
T23	WS5				0.57		0.57
T23	WD4	34-35	1985		0.74		0.00

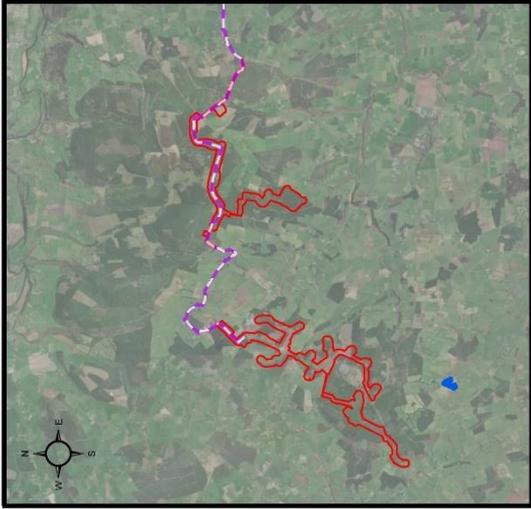
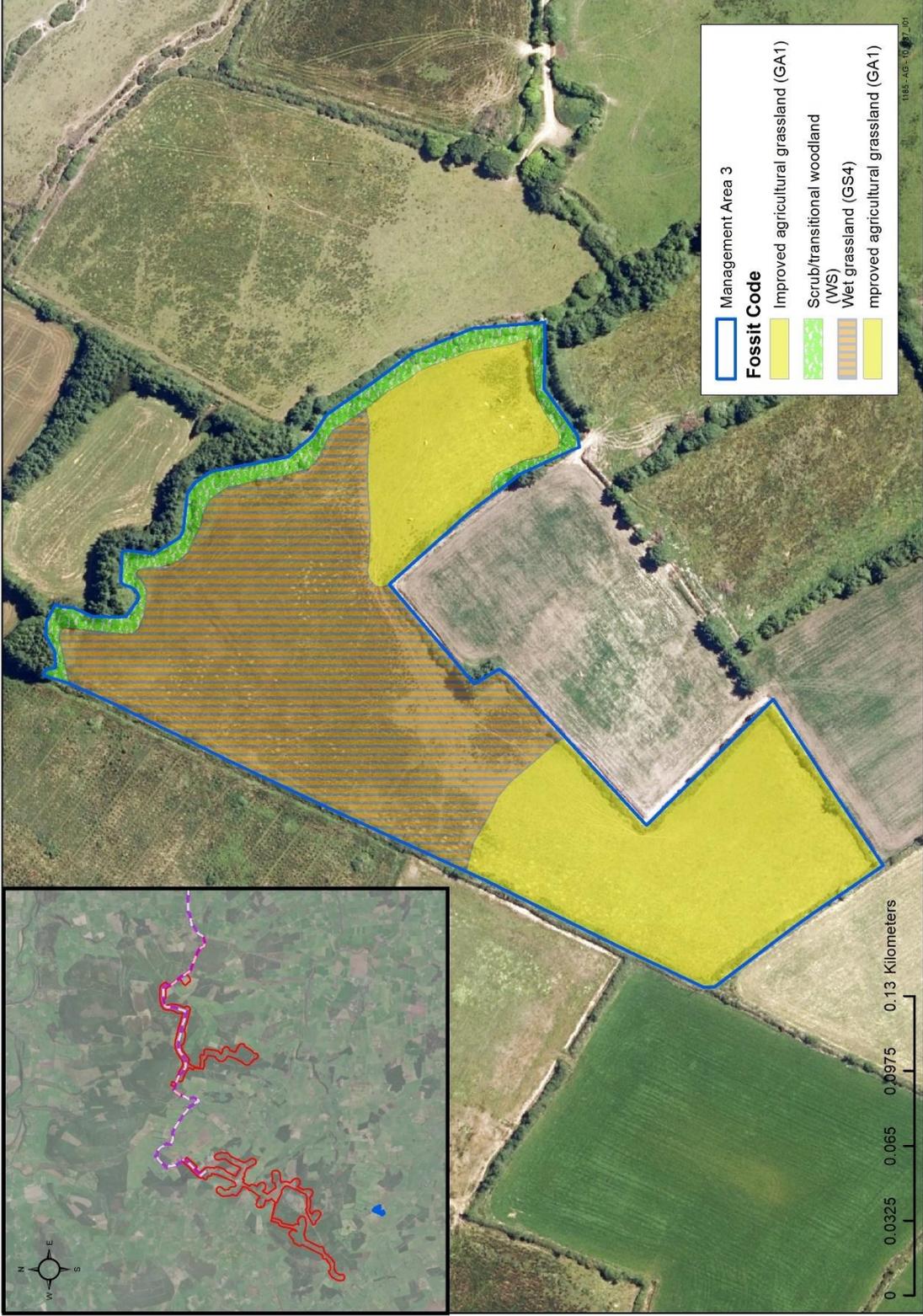


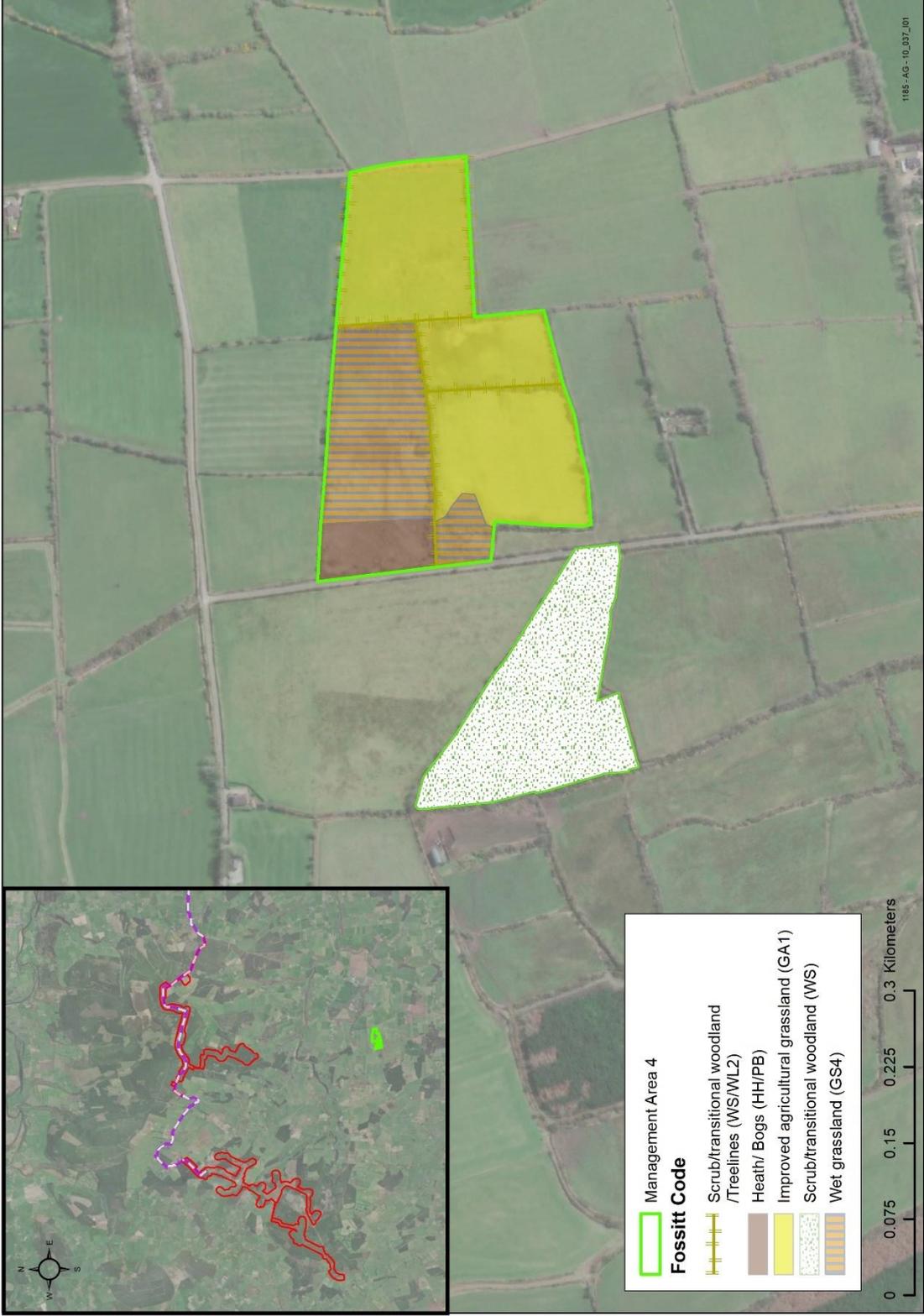
## **APPENDIX C: SITE CONDITIONS AND DESCRIPTION OF MANAGEMENT AREAS**









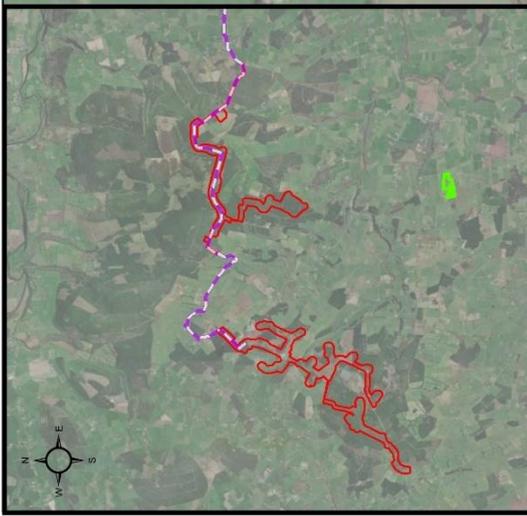


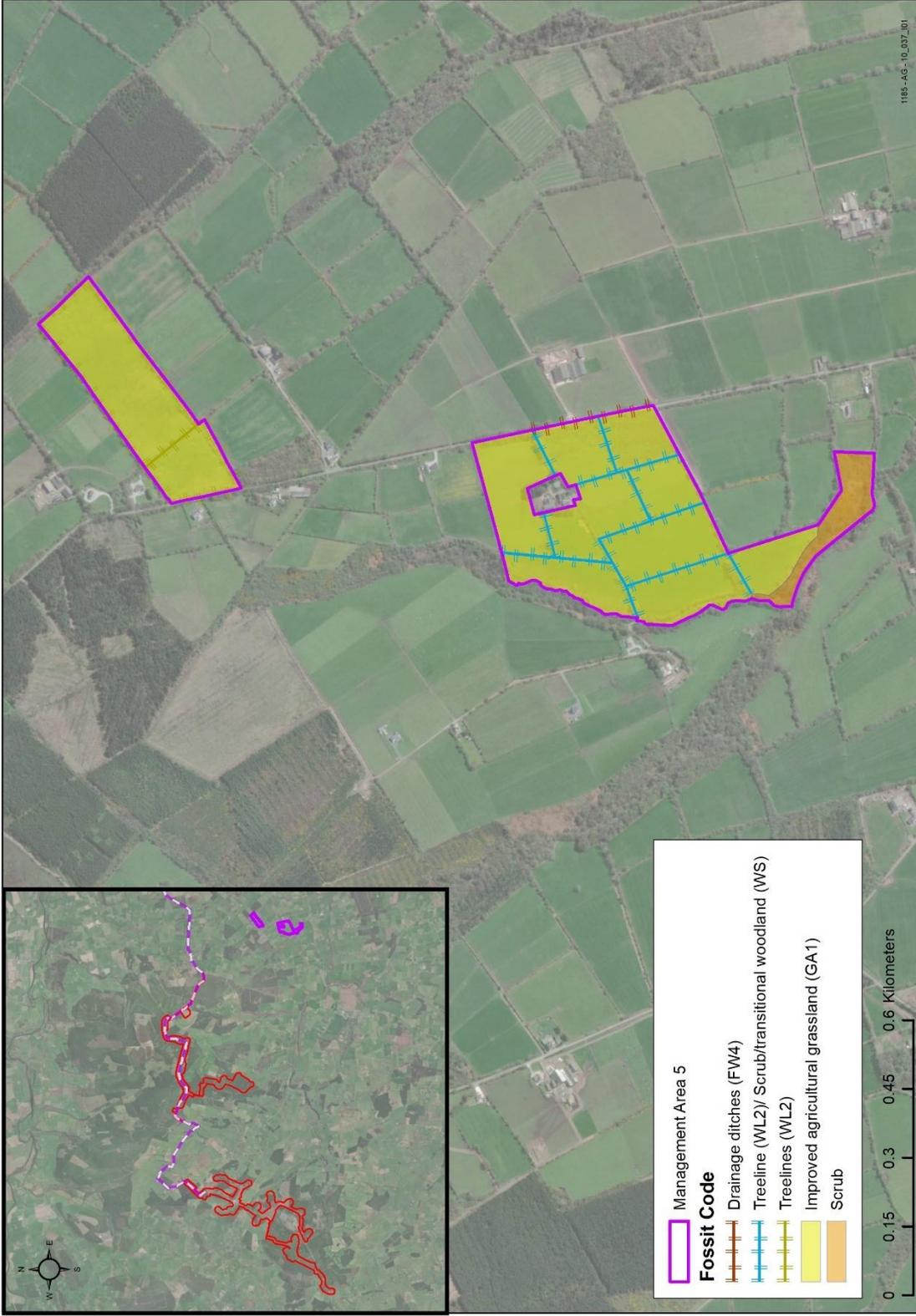
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**Management Area 4**

**Fossitt Code**

- Scrub/transitional woodland /Treelines (WS/WL2)
- Heath/ Bogs (HH/PB)
- Improved agricultural grassland (GA1)
- Scrub/transitional woodland (WS)
- Wet grassland (GS4)

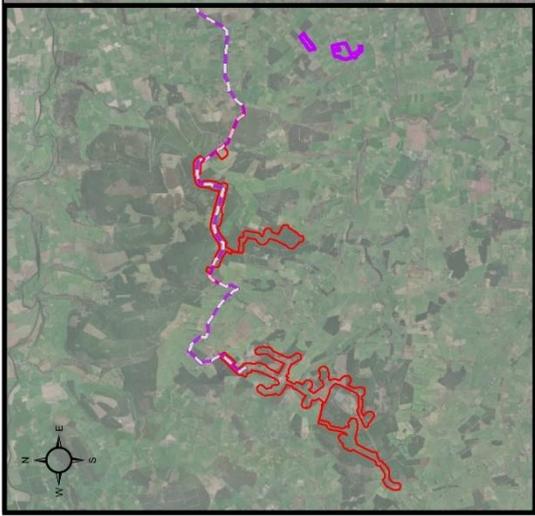


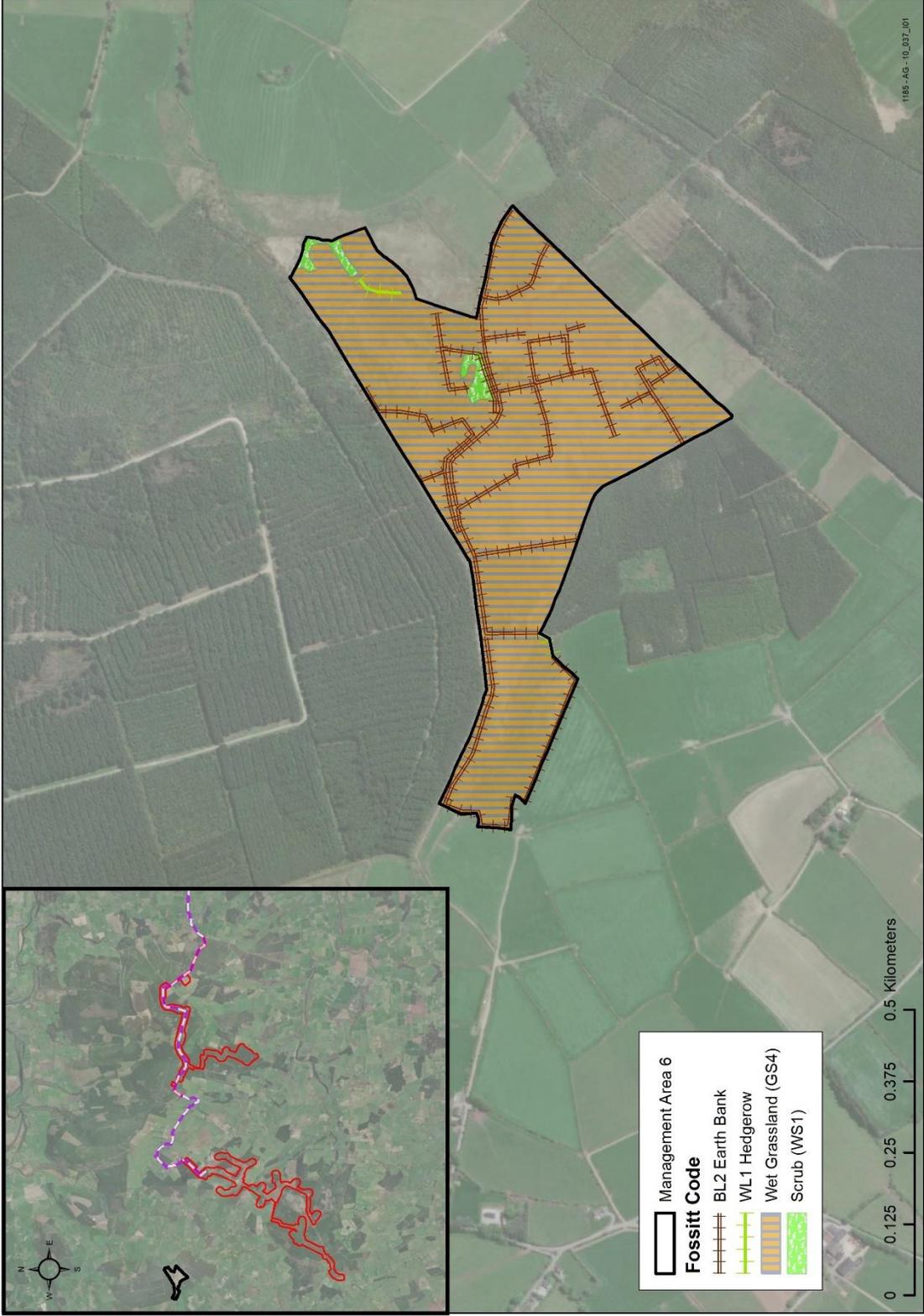


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- Management Area 5
- Fossit Code**
- Drainage ditches (FW4)
- Treeline (WL2)/ Scrub/transitional woodland (WS)
- Treelines (WL2)
- Improved agricultural grassland (GA1)
- Scrub

0 0.15 0.3 0.45 0.6 Kilometers





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Management Area 6

**Fossitt Code**

- BL2 Earth Bank
- WL1 Hedgerow
- Wet Grassland (GS4)
- Scrub (WS1)

0 0.125 0.25 0.375 0.5 Kilometers



## **APPENDIX D: CONFIRMATION OF MANAGEMENT AREA AGREEMENTS**



An Bord Pleanála  
64 Marlborough Street  
Dublin 1  
D01V902

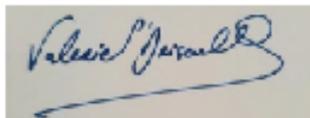
23 March 2022

**Re: Application for Planning Permission for a proposed Coom Green Energy Park Development, Substation Compound Grid Connection route and all Associated Works in the vicinity of Bottlehill Co. Cork (the "Application")**

To whom it may concern,

We hereby confirm that Coom Green Energy Park Limited having its registered office at Floor 5, City Quarter, Lapps Quay, Cork T12A2XD, holds signed option agreements for lease/co-operation agreements with the respective registered owners of the lands the subject matter of the Conservation and Habitat Management Plan (CHMP) of the Application for the purpose of a hen harrier foraging habitat as set out in Schedule 1 below.

Yours faithfully,



Valerie O'Driscoll  
Legal Counsel  
Orsted

**Schedule 1**

Property	Agreement
Folio CK167513F	Option agreement for Lease in respect of Biodiversity management
Folio CK110974F	Option agreement for Lease in respect of Biodiversity management
Part of property comprised in Folio CK33330 and Folio CK19561F	Option agreement for Co-operation Agreement in respect of Biodiversity management
Plan 14054_2 of Folio CK14054	Option agreement for Lease in respect of Biodiversity management
Folio CK9801F	Option agreement for Co-operation Agreement in respect of Biodiversity management