



APPENDIX 6-1

***BOTANICAL STUDY OF
PROPOSED PROJECT
FOOTPRINT***

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1. INTRODUCTION

1.1 Introduction

MKO were commissioned to undertake detailed botanical surveys to provide an evaluation and assessments of the habitats occurring at the footprint of the proposed renewable energy development, the “Proposed Project” at Borrisbeg and adjacent townlands, near Templemore, Co. Tipperary. The detailed assessments focused on the habitats occurring at the Proposed Project footprint. The detailed botanical surveys were undertaken on the 11th of August 2022, 25th August 2022, 18th October 2022, 13th April 2023, 27th April 2023, 11th May 2023 and the 21st of September 2023, with additional information on habitat mapping undertaken on numerous other dates in 2022 and 2023.

1.2 Survey Methods

A total of 15 relevées were undertaken within the construction footprint or representative habitats within the study area. The location of each is provided on Figure 1-1.

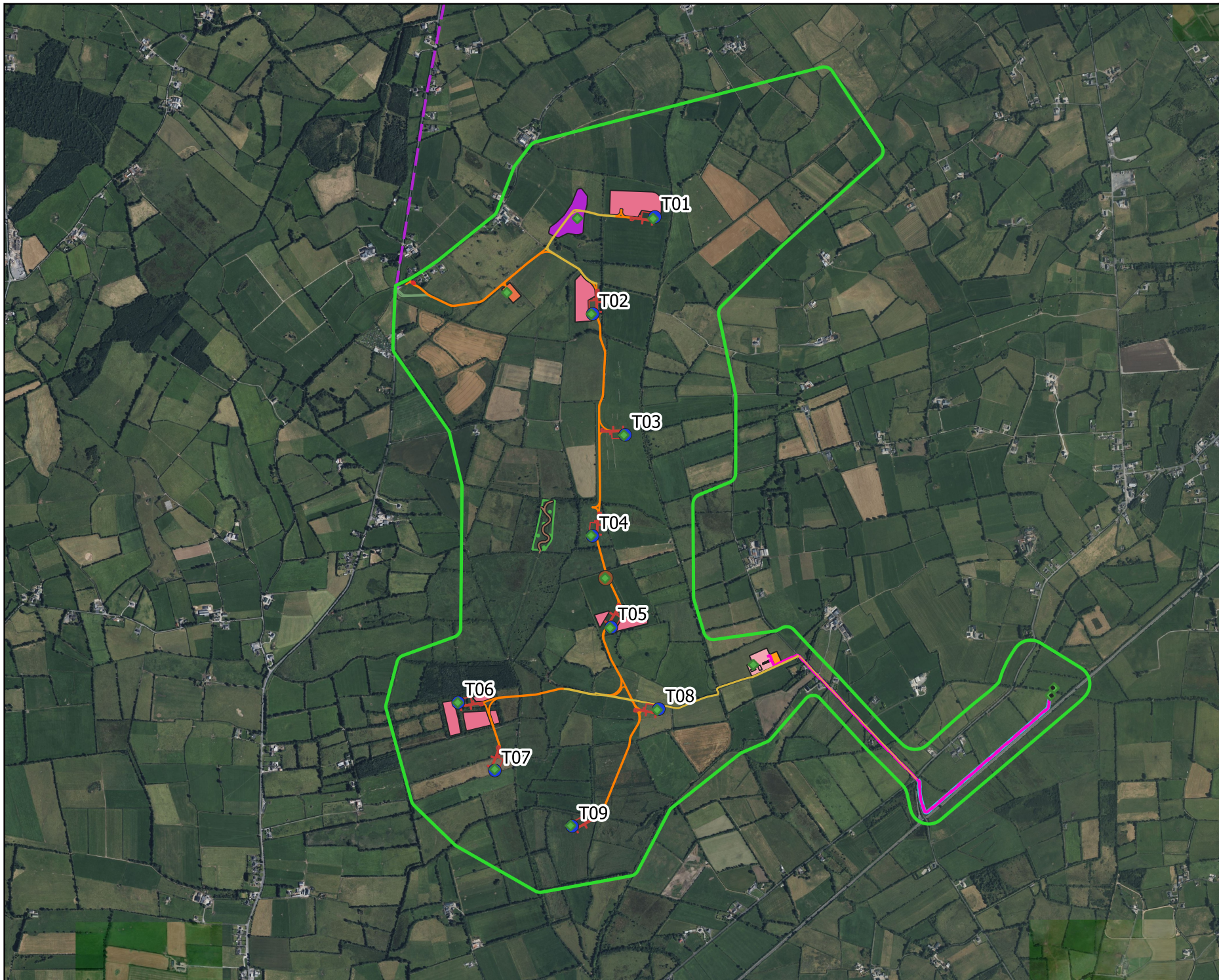
All species were readily identifiable during the surveys. Plant nomenclature for vascular plants follows ‘*New Flora of the British Isles*’ (Stace, 2010), while mosses and liverworts nomenclature follows ‘*Mosses and Liverworts of Britain and Ireland - a field guide*’ (British Bryological Society, 2010).

1.3 Statement of Authority

Field assessments were conducted by MKO ecologists Aran von der Geest Moroney (B.Sc.), Cillian Burke (B.Sc.), Ellen Tuck (B.Sc.), Stephanie Corkery (B.Sc., M.Sc.) and Rachel Walsh (B.Sc.).

Rachel has over 3 years’ professional experience in ecological surveys and assessment. Aran has over 2 years’ professional experience in ecological surveys and assessment. Cillian, Stephanie and Ellen are qualified ecologists with experience and assessment in ecological surveys and monitoring.

This report has been reviewed by John Hynes (BSc., MSc., MCIEEM) who has over 10 years’ experience in ecological assessment and ecological management.



Map Legend

- ◆ Relevé Locations
- Proposed Turbines
- Proposed Met Mast
- Proposed Haul Route
- Proposed Grid Connection Cable Route
- Existing Roads
- Proposed New Roads
- Proposed Turbine Hardstands
- Proposed New Road for Underground Cable
- Proposed End Masts
- Proposed Permanent 110KV Substation
- Proposed Temporary Security Cabins
- Proposed Temporary Borrow Pit
- Proposed Spoil Management Areas
- Temporary Substation Construction Compound
- Temporary Wind Farm Construction Compound
- River Enhancement Stream Concept
- River Enhancement 5m Riparian Buffer
- River Enhancement 1.8ha Natural Woodland
- EIAR Study Boundary

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Drawing Title	
Relevé Locations	
Project Title	
Borrisbeg Renewable Energy Development	
Drawn By	Checked By
AvdGM	JH
Project No.	Drawing No.
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2. RESULTS

2.1 Turbine 1

Turbine 1 is located on Improved agricultural grassland (GA1). A Treeline (WL2) of beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*) is located along the south and east boundaries of the field. A small section of Scrub (WS1) is located within the southern section of the field boundary. A Drainage ditch (FW4) is located along the southern field boundary.

Table 2-1 Botanical Survey Results

Quadrat 1	Grid reference: S 13487 76699	Date 11/08/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	90
<i>Rumex obtusifolius</i>	Broad-leaved dock	<5
<i>Trifolium repens</i>	White clover	10
<i>Taraxacum officinale agg.</i>	Dandelion	<5
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-1 Location of Turbine 1, categorised as Improved agricultural grassland (GAI).

2.2

Turbine 2

Turbine 2 is located within improved agricultural grassland (GA1) bordered with a Treeline (WL2) of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*) and bramble (*Rubus fruticosus agg.*) along the south, east and west boundaries. There is Scrub (WS1) to the south of the site and a section of Dry meadows and grassy verges (GS2) to the east. A Drainage ditch (FW4) is located on the western site boundary.

Table 2-1 Botanical Survey Results

Quadrat 1	Grid reference: S 13159 76213	Date 11/08/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	90
<i>Rumex obtusifolius</i>	Broad-leaved dock	<5
<i>Cirsium arvense</i>	Creeping Thistle	10
<i>Jacobaea vulgaris</i>	Ragwort	<5
<i>Taraxicum officinale agg</i>	Dandelion	<5
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-2 Location of Turbine 2, categorised as Improved agricultural grassland (GA1).



Plate 2-3 Treeline (WL2) surrounding the south, east and west field boundaries.

2.3

Turbine 3

Turbine 3 is located within grassland habitat classified as Improved Agricultural Grassland (GA1), with Dry meadows and grassy verges (GS2) at the southern boundary. The field is bordered on all sides by a Hedgerow (WL1) consisting of hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*).

Table 2-2 Botanical Survey Results

Quadrat 1	Grid reference: S 13315 75583	Date 11/08/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	80
<i>Rumex obtusifolius</i>	Broad-leaved dock	20
<i>Ranunculus repens</i>	Creeping buttercup	15
<i>Taraxacum officinale agg.</i>	Dandelion	<5
<i>Trifolium pratense</i>	Red clover	<5
Fossitt (2000) Habitat Classification		Improved Agricultural Grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-4 Location of Turbine 3, categorised as Improved agricultural grassland (GA1).



Plate 2-5 Hedgerow (WLI) surrounding the field boundary.

2.4

Turbine 4

Turbine 4 is located on Wet Grassland (GS4). The entire field boundary is delineated by a Treeline (WL2) of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), willow (*Salix spp.*) and beech (*Fagus sylvatica*). A section of Scrub (WS1) is located west within the field boundary and a dried-up Drainage ditch (FW4) is located along the west boundary.

Table 2-2 Botanical Survey Results

Quadrat 1	Grid reference: S 13151 75095	Date 11/08/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Potentilla anserina</i>	Silverweed	40
<i>Lolium perenne</i>	Perennial Rye Grass	20
<i>Alopecurus pratensis</i>	Meadow Foxtail	5
<i>Ranunculus repens</i>	Creeping buttercup	5
<i>Trifolium pratense</i>	Red clover	<5
<i>Filipendula ulmaria</i>	Meadowsweet	<5
<i>Cirsium palustre</i>	Marsh Thistle	<5
<i>Holcus lanatus</i>	Yorkshire Fog	40
<i>Juncus effusus</i>	Soft Rush	15
Fossitt (2000) Habitat Classification		Wet grassland (GS4)
IVC Classification		GL2D - Soft Rush – Common Sorrel Grassland
Affinity to Annex 1 habitat		No – Wet grasslands have the potential to correlate with the Annex I Habitat ‘ <i>Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae) (6410)</i> ’. This habitat recorded within the Site does not meet the criteria for habitat 6410 as set out in the Irish Wildlife Manual No. 78 ‘The Irish Semi-natural Grasslands Survey 2007-2012’. The NBDC description of the IVC classification GL2D states there is no significant correspondence to Annex 1 habitats.



Plate 2-6 Location of Turbine 4, categorised as Improved Agricultural Grassland (GA1).

2.5

Turbine 5

Turbine 5 is located within Improved agricultural grassland (GA1) with a Treeline (WL2) consisting of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*) and holly (*Ilex aquifolium*) located along the southern boundary. A Hedgerow (WL1) dominated by hawthorn (*Crataegus monogyna*) delineates the east and west boundaries. A drainage ditch (FW4) is located along the western boundary.

Table 2-3 Botanical Survey Results

Quadrat 1	Grid reference: S 13248 74621	Date 18/10/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Taraxacum officinale agg.</i>	Dandelion	<5
<i>Trifolium repens</i>	White clover	15
<i>Ranunculus repens</i>	Creeping buttercup	10
<i>Lolium perenne</i>	Perennial rye grass	80
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-7 Location of Turbine 5, categorised as Improved agricultural grassland (GA1).

Turbine 6

Turbine 6 is located on an area of wet grassland (GS4) and the Turbine 6 hardstand footprint also overlaps with an area of linear woodland classified as (mixed) broadleaved woodland (WD1). This woodland originated as hedgerows/ treelines established on both sides of drains which merged and expanded outwards into neighbouring fields. This has resulted in thin layers of woodland forming between the areas of wet grassland (GS4). Species within the (mixed) broadleaved woodland (WD1) habitat are dominated by hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), common hazel (*Corylus avellana*), and ash (*Fraxinus excelsior*), and also containing spindle (*Euonymus europaeus*), dog rose (*Rosa canina*), willow (*Salix* spp.), bramble (*Rubus fruticosus* agg.), common gorse (*Ulex europaeus*), holly (*Ilex aquifolium*), primrose (*Primula vulgaris*), ivy (*Hedera hibernica*), barren strawberry (*Potentilla sterilis*), wood sedge (*Carex sylvatica*), common dog violet (*Viola riviniana*), pig nut (*Conopodium majus*), wood sanicle (*Sanicula europaea*), male fern (*Dryopteris filix-mas*), cleavers (*Galium aparine*), harts-tongue fern (*Phyllitis scolopendrium*), dandelion (*Taraxacum officinale* agg), and lesser celandine (*Ficaria verna*). Due to this habitat's proximity to the nearby Eastwood River this habitats' potential correspondence to the Annex I habitat: 'Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)' has been considered. The National Survey of Native Woodlands 2003-2008 (Perrin et al., 2008), and the Interpretation Manual of European Union Habitats were both consulted. While some of the tree species which occur in this habitat overlap with those of the Annex I habitat the herb layer for this habitat was lacking in diversity expected of an Alluvial woodland and was highly dominated by ivy and areas of bramble, with only one *Carex* spp. recorded. Given this and the likely origins of the habitat being that of treelines established along drains, field edges and old farm tracks the habitat is not considered to correspond to the Annex I habitat 'Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)'. Drainage ditches (FW4) are found along the edges of the fields surrounding Turbine 6 and within the thin strips of (Mixed) broadleaved woodland (WD1). A drainage ditch is present within the footprint of Turbine 6 hardstand. A drain to the south of the T6 field flows east. The wider area consists of similar wet grassland (GS4) fields separated by narrow strips of (mixed) broadleaved woodland (WD1).

Table 2-4 Botanical Survey Results

Quadrat 1	Grid reference: S 12466 74251	Date 11/05/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Juncus effusus</i>	Soft rush	30
<i>Trifolium repens</i>	White clover	12
<i>Ranunculus repens</i>	Creeping buttercup	20
<i>Rumex obtusifolius</i>	Broad-leaved dock	15
<i>Holcus lanatus</i>	Yorkshire fog	30
<i>Rumex acetosa</i>	Common sorrel	20
<i>Cirsium palustre</i>	Marsh thistle	3

<i>Galium palustre</i>	Marsh bedstraw	5
<i>Lolium perenne</i>	Perennial ryegrass	10
<i>Agrostis stolonifera</i>	Creeping bent grass	5
<i>Filipendula ulmaria</i>	Meadow sweet	2
<i>Potentilla anserina</i>	Silverweed	2
<i>Ficaria verna</i>	Lesser celandine	5
<i>Cirsium arvense</i>	Creeping thistle	<1
Non-vascular Plants		
<i>Pseudoscleropodium purum</i>	Neat Feather-moss	20
Fossitt (2000) Habitat Classification		Wet grassland (GS4)
IVC Classification		GL2D - Soft Rush – Common Sorrel Grassland
Affinity to Annex 1 habitat		No – Wet grasslands have the potential to correlate with the Annex I Habitat ‘ <i>Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae) (6410)</i> ’. This habitat recorded within the Site does not meet the criteria for habitat 6410 as set out in the Irish Wildlife Manual No. 78 ‘The Irish Semi-natural Grasslands Survey 2007-2012’. The NBDC description of the IVC classification GL2D states there is no significant correspondence to Annex 1 habitats.



Plate 28 Wet grassland (GS4) located at Turbine 6



Plate 29 Drain and woodland within the Turbine 6 hardstand footprint .



Plate 2-10 Thin strip of woodland north of Turbine 6 surrounding what was previously an old farm track.

Turbine 7

Turbine 7 is located on an area of wet grassland (GS4). Drainage ditches (FW2) are located at the north and south of the wet grassland with the Eastwood River to the east and flowing in a south easterly direction. A hedgerow (WL1) is located at the north of the wet grassland containing European gorse (*Ulex e*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), and grey willow (*Salix cinerea*). Trees were also scattered throughout this hedgerow consisting of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), and grey willow (*Salix cinerea*).

Table 2.5 Botanical Survey Results

Quadrat 1	Grid reference: S 12660 73904	Date 13/04/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire fog	30
<i>Juncus effusus</i>	Soft rush	45
<i>Rumex obtusifolius</i>	Broadleaved dock	10
<i>Ranunculus repens</i>	Creeping buttercup	15
<i>Cardamine pratensis</i>	Cuckoo flower	3
<i>Cirsium vulgare</i>	Spear thistle	<1
<i>Jacobaea vulgaris</i>	Common ragwort	2
<i>Epilobium hirsutum</i>	Great Willow herb	2
<i>Agrostis stolonifera</i>	Creeping bent grass	10
<i>Lolium perenne</i>	Perennial ryegrass	20
Fossitt (2000) Habitat Classification		
		Wet grassland (GS4)
IVC Classification		
		GL2D - Soft Rush – Common Sorrel Grassland
Affinity to Annex I habitat		
		No – Wet grasslands have the potential to correlate with the Annex I Habitat <i>Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae)</i> (6410). This habitat recorded within the Site does not meet the criteria for habitat 6410 as set out in the Irish Wildlife Manual No. 78 ‘The Irish Semi-

	<p>natural Grasslands Survey 2007-2012'. The NBDC description of the IVC classification GL2D states there is no significant correspondence to Annex 1 habitats.</p>
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Plate 2-11 View of Wet grassland (GS4) at Turbine 7 with hedgerow (WL1) and scattered trees to the north of the field.



Plate 2-12 Drainage ditch (FW2) located to the south of Turbine 7, flowing east toward the Eastwood River.

2.8

Turbine 8

Turbine 8 is located on Improved agricultural grassland (GA1), with a hawthorn (*Crataegus monogyna*). Hedgerow (WL1) to the north. A Treeline (WL2) consisting of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), ivy (*Hedera helix*) and bramble (*Rubus fruticosus agg.*) with a Drainage ditch (FW4) delineates the north boundary of the field. A Hedgerow (WL1) of bramble (*Rubus fruticosus agg.*), willow (*Salix spp.*), hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*), is located along the western boundary. A Treeline (WL2) consisting of willow (*Salix spp.*), hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*) defines the southern boundary. A Drainage ditch (FW4) is located along the southern and western boundaries of the field.

Table 26 Botanical Survey Results

Quadrat 1	Grid reference: S 13502 74215	Date 18/10/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial Rye Grass	100
<i>Poa pratensis</i>	Smooth meadow grass	<5
<i>Trifolium repens</i>	White Clover	<5
<i>Cirsium arvense</i>	Creeping thistle	10
Fossitt (2000) Habitat Classification		Improved Agricultural Grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-13 Location of Turbine 8, categorised as Improved agricultural grassland (GA1)



Plate 2-14 Treeline (WL2) and Drainage ditch (FW4) located along the southern field boundary.



Plate 2-15 Hedgerow (WL1) and Drainage ditch (FW4) located along the western field boundary.

Turbine 9

Turbine 9 is to be located on recently planted young conifer plantation (WD4) consisting of Sitka Spruce (*Picea sitchensis*) which is located throughout the area of the proposed Turbine 9 infrastructure.

Table 2-7 Botanical Survey Results

Quadrat 1	Grid reference: S 13056 73625	Date 18/10/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	80
<i>Ranunculus repens</i>	Creeping buttercup	5
<i>Potentilla anserina</i>	Silverweed	2
<i>Juncus inflexus</i>	Hard rush	40
<i>Betula spp.</i>	Birch	20
<i>Filipendula ulmaria</i>	Meadowsweet	<5
<i>Taraxacum officinale agg.</i>	Dandelion	<5
<i>Picea sitchensis</i>	Sitka Spruce	25
Fossitt (2000) Habitat Classification		
		Recently planted Conifer plantation (WD4) on Improved Agricultural Grassland (GA1)
IVC Classification		
		Recently planted WL5A – Sitka Spruce Forest on GL2C Yorkshire Fog – Perennial Rye Grass Grassland



Plate 2-16 Location of Turbine 9, categorised as Improved Agricultural grassland (GA1) and Conifer plantation (WD4).

2.10

Temporary Construction Compound (West of Turbine 2)

The temporary construction compound west of Turbine 2 in the north west of the Site is located on an Improved agricultural grassland (GA1) field, with hedgerows (WL1) consisting of hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*), surrounding the north, south, east and west boundaries of the field. Species within the grassland include perennial ryegrass (*Lolium perenne*), dandelion (*Taraxacum officinale agg.*), creeping buttercup (*Ranunculus repens*), broad-leaved dock (*Rumex obtusifolius*), ribwort plantain (*Plantago lanceolata*) and daisy (*Bellis perennis*).

Table 2-8 Botanical Survey Results

Quadrat 1	Grid reference: S 12739 76334	Date 13/04/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	85
<i>Taraxacum officinale agg.</i>	Dandelion	<5
<i>Rumex obtusifolius</i>	Broad Leaved Dock	30
<i>Ranunculus repens</i>	Creeping buttercup	<1
<i>Stellaria media</i>	Chickweed	<1
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-17 location of temporary construction compound west of Turbine 2 classified as Improved Agricultural grassland (GA1).

2.11

Temporary Borrow Pit

The temporary borrow pit is located within an area of improved agricultural grassland (GA1) present on either side of a gravel and dirt farm access track classified as Spoil and bare ground (ED2). Species present within the grassland include Perennial ryegrass (*Lolium perenne*), Germander Speedwell (*Veronica chamaedrys*), Nettle (*Urtica dioica*), Yorkshire fog (*Holcus lanatus*) and Cocks foot (*Dactylis glomerata*).

Table 2-9 Botanical Survey Results

Quadrat 1	Grid reference: S 13079 76717	Date 21/09/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial ryegrass	95
<i>Veronica chamaedrys</i>	Germander Speedwell	<1
<i>Urtica dioica</i>	Nettle	<5
<i>Holcus lanatus</i>	Yorkshire fog	10

Fossitt (2000) Habitat Classification	Improved Agricultural Grassland (GA1)
IVC Classification	GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-18 Improved Agricultural grassland present at the proposed borrow pit location.

2.12

Proposed Met Mast

The proposed met mast is to be located within the same field as Turbine 5 to the north. Species recorded within the field include Dandelion (*Taraxacum officinale* agg.), White clover (*Trifolium repens*), Creeping buttercup (*Ranunculus repens*), Perennial rye grass (*Lolium perenne*) and common mouse-ear (*Cerastium fontanum*).

Table 2-10 Botanical Survey Results

Quadrat 1	Grid reference: S 13227 74876	Date 18/10/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Taraxacum officinale</i> agg.	Dandelion	<5

<i>Trifolium repens</i>	White clover	10
<i>Ranunculus repens</i>	Creeping buttercup	10
<i>Lolium perenne</i>	Perennial rye grass	90
<i>Cerastium fontanum</i>	Common mouse-ear	<1
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-19 Improved Agricultural Grassland (GA1) field containing both Turbine 5 and the proposed met mast.

2.13

Proposed Biodiversity Enhancement Area

The existing habitats within the proposed river restoration area consist predominantly of a highly modified depositing/ lowland river (FW2) (Eastwood River) which flows through a wet grassland (GS4). Species found within the wet grassland habitat found on both sides of the Eastwood River include meadowsweet (*Filipendula ulmaria*), ribwort plantain (*Plantago lanceolata*), creeping buttercup (*Ranunculus repens*), meadow buttercup (*Ranunculus acris*), ragwort (*Jacobea vulgaris*), areas of yellow flag iris (*Iris pseudoacorus*), curly dock (*Rumex crispus*), broad leaved dock (*Rumex obtusifolius*), silver

weed (*Potentilla anserina*), spear thistle (*Cirsium vulgare*), selfheal (*Prunella vulgaris*), small areas of bramble (*Rubus fruticosus agg.*) near the river’s edge, nettle (*Urtica dioica*), occasional willow species (*Salix spp.*) on the banks of the watercourse, Yorkshire fog (*Holcus lanatus*), occasional hawthorn (*Crataegus monogyna*) on the banks of the watercourse, cocks foot (*Dactylis glomerata*), knapweed (*Centaurea nigra*), chickweed (*Stellaria media*), clover (*Trifolium spp.*), creeping thistle (*Cirsium arvense*), daisy (*Belis perennis*) and hard rush (*Juncus inflexus*). A hedgerow and some willow (*Salix spp.*) scrub is located on the western boundary of the proposed river restoration/ biodiversity enhancement area. Species within the hedgerow include marsh woundwort (*Stachys palustris*), nettle (*Urtica dioica*), willow (*Salix spp.*), bramble (*Rubus fruticosus agg.*), hedge bindweed (*Calstegia sepium*), hawthorn (*Crataegus monogyna*), and blackthorn (*Prunus spinosa*). The hedgerow along the western boundary of the river will not be altered by the restoration.

At the time of survey the river restoration area of the Eastwood River was in high flow (near flood) with the width of the river (in this area) between 4 and 7 metres (Plate 2-20). The river bed was heavily silted with no course material visible and the water depth was approximately 1.2m in depth. There is very little instream vegetation however marginal vegetation consists of watercress (*Nasturtium officinale*) and water forget me not (*Myosotis scorpioides*) in patches along the watercourse. Areas of the river banks as well as the surrounding grassland have been heavily poached.



Plate 2-20 Eastwood River within the river restoration area bordered by wet grassland (GS4) on both banks.

2.14

Proposed Spoil Management Areas

Spoil management areas are proposed at multiple locations within the site adjacent to Turbine 1, Turbine 2, Turbine 5 and Turbine 6. Spoil management areas adjacent to Turbines 1, 2 and 5 are located within Improved agricultural grassland (GA1). Spoil management areas adjacent to Turbine 6 are located predominantly within wet grassland habitat (GS4) with a small section of (Mixed) broadleaved woodland (WD1) and a Drainage ditches (FW4) also within a proposed spoil management area adjacent to Turbine 6. This section of (Mixed) broadleaved woodland (WD1) is also proposed to be felled as a result of the Bat Buffer associated with Turbine 6. Bat Buffers are defined in Appendix 6-2. Species present within

proposed spoil management areas are consistent with those found at the proposed Turbines which they are in close proximity to and are not repeated here.

2.15 Proposed Underground Cabling and Proposed Internal Roads

Proposed internal roads and proposed underground cabling pass through a variety of habitats between turbines to the substation and from the substation to the end masts. Habitats crossed by proposed internal roads/ access tracks and proposed underground cabling include predominantly Improved Agricultural Grassland (GA1) but also areas of Wet Grassland (GS4), Buildings and Artificial Surfaces (BL3), Conifer Plantation (WD4), thin strips of (Mixed) Broadleaved Woodland (WD1) near Turbine 6, Hedgerow (WL1), Treeline (WL2), Dry Meadows and Grassy Verges (GS2), Spoil and Bare Ground (ED2), Depositing Lowland Rivers (FW2) and Drainage Ditches (FW4). Any drainage ditch crossed by proposed internal roads and cabling route will be culverted. Watercourse crossings are proposed at a number of watercourses within the Site and these will be crossed by a combination of HDD (Horizontal Directional Drilling) and clear span bridges. There will be no loss of any Depositing/ lowland rivers (FW2).

2.16 Proposed permanent Substation and associated temporary Construction Compound

This proposed substation to the southeast of the Site is on improved agricultural grassland (GA1). A dry ditch (FW4) and treeline (WL2) of ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), hawthorn (*Crataegus monogyna*), dog rose (*Rosa canina*) and bramble (*Rubus fruticosus* Agg.) delineates the northern boundary of the field, the southern boundary comprises a fence and drainage ditch (FW4) along a farm track. The River Suir (FW2) is found along the southwestern field boundary.

Table 2-11 Botanical Survey Results

Quadrat 1	Grid reference: S 14011 74435	Date 11/08/2022
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial rye grass	100
Fossitt (2000) Habitat Classification		
		Improved agricultural grassland (GA1)
IVC Classification		
		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-21 Location of proposed permanent substation and associated temporary construction compound consisting of Improved Agricultural grassland (GA1). Treeline (WL2) located to the north of the location on the field boundary.

2.17

Proposed End Mast 1

Mast location 1 is located on an area of Improved agricultural grassland (GA1). This field is used for grazing livestock and light poaching was visible. This field is bordered at the north and south by treeline (WL2) and hedgerow (WL1) to the west and east. The treelines comprise mainly of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) with some ash (*Fraxinus excelsior*) scattered throughout. The hedgerows also comprise of hawthorn (*Crataegus monogyna*), willow (*Salix* spp.) and bramble (*Rubus fruticosus* agg.). Drainage ditches (FW4) are present at the north, east and south of the field.

Table 2-12 Botanical Survey Results

Quadrat 1	Grid reference: S 15481 74285	Date 13/04/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire fog	20
<i>Rumex obtusifolius</i>	Broad leaf dock	5
<i>Ranunculus repens</i>	Creeping buttercup	10
<i>Lolium perenne</i>	Perennial ryegrass	80

<i>Ranunculus acris</i>	Meadow buttercup	5
<i>Cirsium arvense</i>	Creeping thistle	<1
<i>Trifolium repens</i>	White clover	5
<i>Taraxacum officinale agg.</i>	Dandelion	2
Fossitt (2000) Habitat Classification		Improved Agricultural Grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-22 View of Improved agricultural grassland (GA1) near existing overhead line.



Plate 2-23 Existing overhead line within Improved agricultural grassland (GA1).



Plate 2-24 Drainage ditch (FW4) and treeline (WL2) located between fields for the proposed end masts.

2.18

Proposed End Mast 2

Mast location 2 is located on an area of Improved agricultural grassland (GA1). This field is also used for grazing livestock and light poaching was visible. This field is bordered at the north, west and south by treeline (WL2) and hedgerow (WL1) to the east. The treelines comprise mainly of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) with some ash (*Fraxinus excelsior*) scattered throughout. The hedgerows comprise of hawthorn (*Crataegus monogyna*), willow (*Salix* spp.) and bramble (*Rubus fruticosus* agg.). Drainage ditches are present at the east and south of the field.

Table 2-13 Botanical Survey Results

Quadrat 1	Grid reference: S 15489 74330	Date 13/04/2023
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	Perennial ryegrass	80
<i>Ranunculus repens</i>	Creeping buttercup	15
<i>Cirsium arvense</i>	Creeping thistle	<1
<i>Bellis perennis</i>	Daisy	2
<i>Taraxacum officinale</i> agg.	Dandelion	3
<i>Holcus lanatus</i>	Yorkshire fog	20
Fossitt (2000) Habitat Classification		Improved Agricultural Grassland (GA1)
IVC Classification		GL2C – Yorkshire Fog-Perennial Rye-Grass Grassland



Plate 2-25 View of Improved agricultural grassland (GA1) located at the End Mast 2 field.



Plate 2-26 View of Hedgerow (WLI) along the southeastern boundary.

3.

CONCLUSION

Turbines 1, 2, 3, 5 and 8 are located on Improved agricultural grassland (GA1) habitat. Turbines 4, 6 and 7 are located on wet grassland (GS4) with areas of Turbine 6 overlapping an existing field boundary classified as (mixed) broadleaved woodland (WD1). Turbine 9 is located within conifer plantation (WD4). The habitat within the proposed substation and construction compounds consists entirely of Improved agricultural grassland (GA1). The temporary borrow pit is located within an area of improved agricultural grassland (GA1) present on either side of a gravel and dirt farm access track classified as Spoil and bare ground (ED2). The habitat within the proposed met mast consists entirely of Improved agricultural grassland (GA1). The proposed end masts at the end of the Proposed Grid Connection are to be located under the existing overhead line in an area of agricultural grassland (GA1).

4.

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