



## **APPENDIX 6-1**

***BOTANICAL STUDY (TURBINE  
BASE ASSESSMENT)***

# **Laurclavagh Renewable Energy Development, Co. Galway**

## Appendix 6-1 – Botanical Survey Report





## DOCUMENT DETAILS

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|     |        |            |           |             |

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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 Proposed Project footprint. The detailed assessments focused on the habitats occurring within and adjacent to the Proposed Project footprint. The detailed botanical surveys were undertaken on the 4<sup>th</sup> of July 2022, 11<sup>th</sup> of July 2022, 20<sup>th</sup> of September 2022, and 17<sup>th</sup> of August 2023.

## 1.2 Survey Methods

A total of 19 relevés were undertaken within the Proposed Project footprint or representative habitats within the Site. The location of each is provided on Figure 1-1.

Relevés that were undertaken in limestone pavement, calcareous grassland and associated habitats were undertaken in line with the following guidance documents:

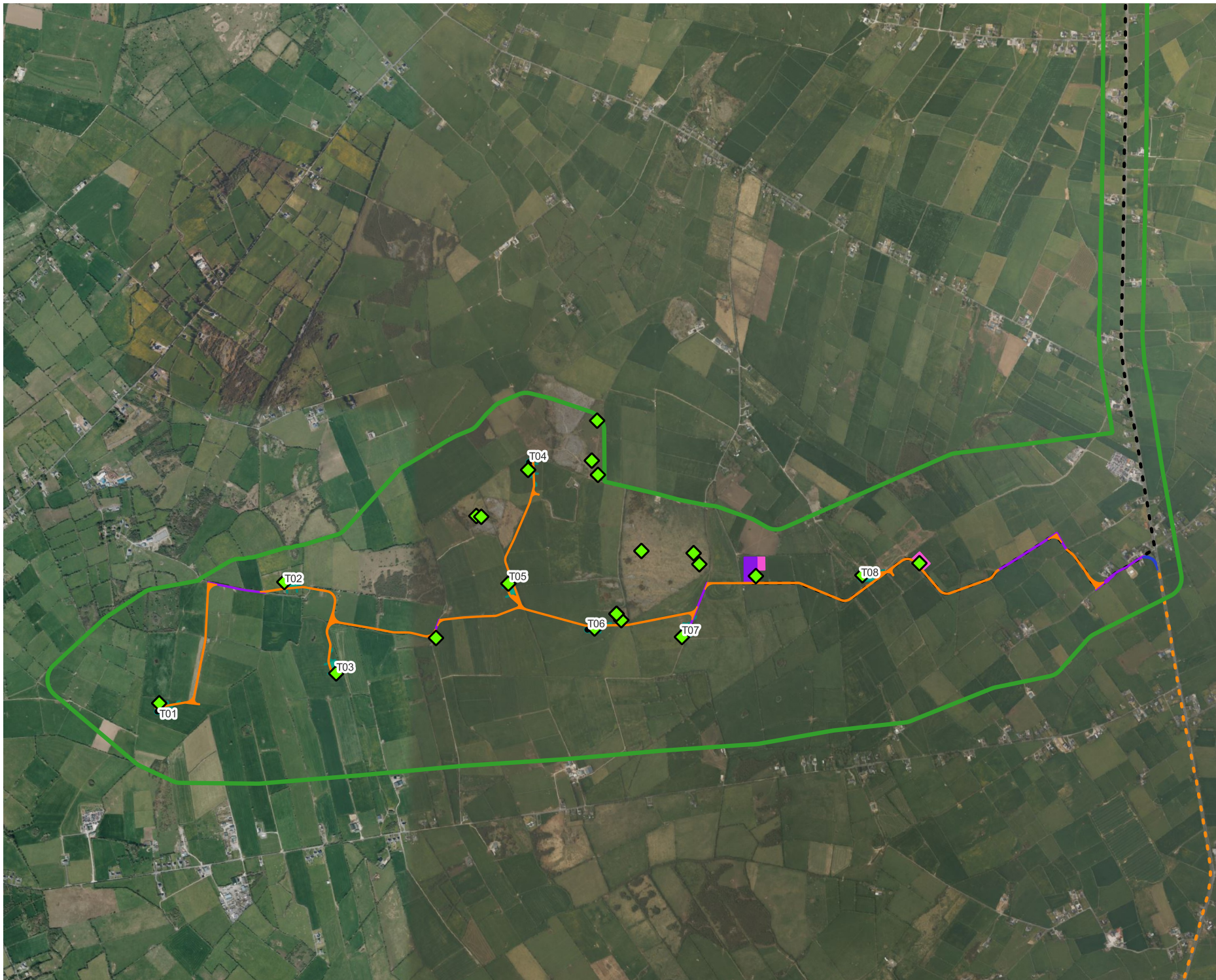
- › Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018), *The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats*. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- › O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013), *The Irish semi-natural grasslands survey 2007-2012*. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
- › Wilson, S. & Fernández, F. (2013) *National survey of limestone pavement and associated habitats in Ireland*. Irish Wildlife Manuals, No. 73. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.

All species were readily identifiable during the survey. 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 surveys were undertaken by Rachel Walsh (BSc., Env), Cillian Burke (BSc. Env) and Brónagh Boylan (BSc. Env). Rachel is an experienced Ecologist with over 3 years' experience in habitat surveying and ecological assessment. Cillian and Brónagh are qualified ecologists with over 1 years' experience in habitat surveys and assessment and were under the supervision of Rachel during the surveys. This report has been reviewed by John Hynes (B.Sc., M.Sc., MCIEEM). John is a highly experienced ecologist has over 10 years' professional experience in environmental management and ecological assessment.





### Map Legend

- ◆ Relevé Locations
- Temporary Construction Compound
- Turbine Location
- - - Turbine Delivery Route
- Substation
- Hardstands
- - - Grid Connection  
Underground Cabling Route
- Met Mast
- EIA Site Boundary
- Temporary Road
- Proposed Roads
- Existing Roads For Upgrade



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Drawing Title

## Relevé Locations

Project Title

Laurclavagh Renewable energy Development

|             |             |
|-------------|-------------|
| Drawn By    | Checked By  |
| RW          | JH          |
| Project No. | Drawing No. |
| 210627      | Figure 1-1  |
| Scale       | Date        |
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## 2. RESULTS

### 2.1 Proposed Wind Farm Infrastructure

#### 2.1.1 Turbine 1

Turbine 1 will be located on improved agricultural grassland (GA1) with hedgerows of hawthorn (*Crataegus monogyna*) and stone walls (BL1) along the south, east and west boundaries. The sward is species poor and dominated by perennial rye grass (*Lolium perenne*) with occasional broad-leaved dock (*Rumex obtusifolius*). Other species present outside of the recorded relevé include creeping thistle (*Cirsium arvense*) and white clover (*Trifolium repens*).

Table 2-1 Relevé results in the footprint of T1

| Relevé 1                              | Grid reference: ITM 534728<br>743177 | Date 11/07/2022                                    |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Rumex obtusifolius</i>             | Broad-leaved dock                    | 20   |
| <i>Lolium perenne</i>                 | Perennial rye grass                  | 90   |
| Fossitt (2000) Habitat Classification |                                      | Improved agricultural grassland (GA1)              |
| IVC community                         |                                      | GL2C <i>Holcus lanatus</i> - <i>Lolium perenne</i> |





*Plate 2-1 Improved agricultural grassland in the footprint of T1*



## 2.1.2 Turbine 2

Turbine 2 is within improved agricultural grassland bordered with hawthorn hedgerows and stone walls.

Table 2-2 Relevé results within Turbine 2

| Relevé 1                              | Grid reference: ITM 535361<br>743790 | Date 11/07/2022                                    |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Lolium perenne</i>                 | Perennial rye grass                  | 70   |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 20   |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 40   |
| <i>Trifolium repens</i>               | White clover                         | 5  |
| <i>Holcus lanatus</i>                 | Yorkshire fog                        | 5  |
| <i>Rumex obtusifolius</i>             | Broad-leaved dock                    | 10   |
| Fossitt (2000) Habitat Classification |                                      | Improved agricultural grassland (GA1)              |
| IVC community                         |                                      | GL2C <i>Holcus lanatus</i> - <i>Lolium perenne</i> |



Plate 2-2 Improved agricultural grassland in the footprint of Turbine 2

### 2.1.3 Turbine 3

Turbine 3 is within improved agricultural grassland (GA1) bordered with hawthorn hedgerows (WL1) and stone walls (BL1).

Table 2-3 Relevé results for Turbine 3

| Relevé 1                              | Grid reference: ITM 535623<br>743328 | Date 11/07/2022                                      |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Lolium perenne</i>                 | Perennial rye grass                  | 90   |
| <i>Rumex obtusifolius</i>             | Broad-leaved dock                    | 55   |
| <i>Bellis perennis</i>                | Daisy                                | 5  |
| <i>Trifolium repens</i>               | White clover                         | 20   |
| Fossitt (2000) Habitat Classification |                                      | Improved agricultural grassland (GA1)                |
| IVC community                         |                                      | GL3B <i>Lolium perenne</i> - <i>Trifolium repens</i> |



Plate 2-3 Habitat within the footprint of Turbine 3

## 2.1.4 Turbine 4

Turbine 4 is located within Improved Agricultural Grassland (GA1) surrounded by stone wall (BL1) boundaries.

Table 2-4 Relevé results at Turbine 4

| Relevé 1                              | Grid reference: ITM 536594<br>744357 | Date 20/09/2022  |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                  | 70   |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 10   |
| <i>Trifolium repens</i>               | White clover                         | 15   |
| <i>Cerastium fontanum</i>             | Mouse-ear chickweed                  | 1  |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 1  |
| <i>Trifolium pratense</i>             | Red clover                           | 5  |
| <i>Plantago lanceolata</i>            | Ribwort plantain                     | 1  |
|                                       |                                      |  |
| Fossitt (2000) Habitat Classification |                                      | Improved Agricultural<br>Grassland (GA1)                                 |
| IVC community                         |                                      | WE1D <i>Lolium perenne</i> -<br><i>Anagallis arvensis</i> (transitional) |



*Plate 2-4 Habitat within the footprint of Turbine 4*



## 2.1.5 Turbine 5

Turbine 5 is located on Improved Agricultural Grassland (GA1) adjacent to a stone wall (BL1) and a gappy hawthorn hedgerow (WL1).

Table 2-5 Relevé results at Turbine 5

| Relevé 1                              | Grid reference: ITM 536494<br>743782 | Date 20/09/2022  |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                  | 80   |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 5  |
| <i>Trifolium repens</i>               | White clover                         | 20   |
| Fossitt (2000) Habitat Classification |                                      |  |
|                                       |                                      | Improved Agricultural<br>Grassland (GA1)                               |
| IVC community                         |                                      |  |
|                                       |                                      | GL3B <i>Lolium perenne</i> -<br><i>Trifolium repens</i> (transitional) |



Plate 2-5 Habitat within the footprint of Turbine 5



## 2.1.6 Turbine 6

Turbine 6 is located within an open area of Improved Agricultural Grassland (GA1).

Table 2-6 Relevé results at Turbine 6

| Relevé 1                              | Grid reference: ITM 536930<br>743555 | Date 20/09/2022   |
|---------------------------------------|--------------------------------------|---|
| Species                               | Common Name                          | % Cover   |
| <b>Vascular Plants</b>                |                                      |   |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                  | 70  |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 5   |
| <i>Trifolium repens</i>               | White clover                         | 35  |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                    | 20  |
| <i>Cirsium arvense</i>                | Creeping thistle                     | 25  |
| <i>Cerastium fontanum</i>             | Mouse-ear chickweed                  | 1   |
|                                       |                                      |   |
| Fossitt (2000) Habitat Classification |                                      | Improved Agricultural<br>Grassland (GA1)                |
| IVC community                         |                                      | GL3B <i>Lolium perenne</i> -<br><i>Trifolium repens</i> |



*Plate 2-6 Habitat within the footprint of Turbine 6*

## 2.1.7 Turbine 7

Turbine 7 is located within an open area of improved agricultural grassland (GA1) and farm tracks (ED2).

Table 2-7 Relevé results for T7

| Relevé 1                              | Grid reference: ITM 537372<br>743512 | Date 17/08/2023   |
|---------------------------------------|--------------------------------------|---|
| Species                               | Common Name                          | % Cover   |
| <b>Vascular Plants</b>                |                                      |   |
| <i>Lolium perenne</i>                 | Perennial rye grass                  | 20  |
| <i>Holcus lanatus</i>                 | Yorkshire fog                        | 20  |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 10  |
| <i>Trifolium pratense</i>             | Red clover                           | 5   |
| <i>Plantago lanceolata</i>            | Ribwort plantain                     | 10  |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                    | 5   |
| <i>Prunella vulgaris</i>              | Self heal                            | 10  |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 10  |
| <i>Rumex crispus</i>                  | Curled leaf dock                     | 5   |
|                                       |                                      |   |
| Fossitt (2000) Habitat Classification |                                      | Improved agricultural grassland (GA1)                             |
| IVC community                         |                                      | GL3C <i>Holcus lanatus</i> - <i>Lolium perenne</i> (transitional) |



*Plate 2-7 Habitat in the footprint of Turbine 7*



## 2.1.8 Turbine 8

Turbine 8 is located within a field which in 2022 was planted with crop (*Brassicaceae*) and categorised under Horticultural land (BC2), but in 2023 had been resown with perennial rye grass (*Lolium perenne*) and re-categorised as improved agricultural grassland (GA1). The field is surrounded by stone walls (BL1). A group of 6 mature ash (*Fraxinus excelsior*) are present along the northern stone wall boundary. Hedgerow (WL1) of hawthorn (*Crataegus monogyna*) is present along the western boundary of this field. Within the field to the west is a mosaic of dense bracken (HD1) and dry meadow (GS2) habitat. To the west again of this area is a small area of immature woodland (WS2) dominated by hawthorn.

Table 28 Relevé results for turbine 8

| Relevé 1                              | Grid reference: ITM 538285<br>743824 | Date 17/08/2023  |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Lolium perenne</i>                 | Perennial rye grass                  | 80   |
| <i>Chenopodium album</i>              | Fat hen                              | 15   |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 10   |
| <i>Senecio vulgaris</i>               | Groundsel                            | 8  |
| <i>Persicaria amphibia</i>            | Amphibious bistort                   | 3  |
| <i>Stellaria media</i>                | Common chickweed                     | 8  |
| <i>Trifolium repens</i>               | White clover                         | 5  |
| <i>Sonchus sp.</i>                    | Sowthistle                           | 2  |
| <i>Rumex obtusifolius</i>             | Broad-leaved dock                    | 1  |
|                                       |                                      |  |
| Fossitt (2000) Habitat Classification |                                      | Improved agricultural grassland (GA1)                        |
| IVC community                         |                                      | WE1E <i>Poa annua</i> - <i>Plantago major</i> (transitional) |





*Plate 2-8 Improved agricultural grassland (GA1) in the footprint of Turbine 8 in 2023*



*Plate 2-9 Horticultural land in the footprint of T8 in 2022*

2.1.9

## Proposed Temporary Construction Compound

The proposed temporary construction compound, located east of Turbine 8, is situated on Improved Agricultural grassland (GA1) adjacent to a hedgerow (WL1) of hawthorn, hazel (*Corylus avellana*), bramble scrub and bracken (*Pteridium aquilinum*).

Table 2-9 Relevé 1 in the footprint of the temporary construction compound

| Relevé 1                              | Grid reference: ITM 538573<br>743885 | Date 20/09/2022  |
|---------------------------------------|--------------------------------------|--|
| Species                               | Common Name                          | % Cover  |
| <b>Vascular Plants</b>                |                                      |  |
| <i>Holcus lanatus</i>                 | Yorkshire fog                        | 70   |
| <i>Plantago lanceolata</i>            | Ribwort Plantain                     | 20   |
| <i>Ranunculus acris</i>               | Meadow buttercup                     | 5  |
| <i>Dactylis glomerata</i>             | Cocks foot                           | 25   |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                  | 15   |
| <i>Ranunculus repens</i>              | Creeping buttercup                   | 10   |
| <i>Trifolium pratense</i>             | Red clover                           | 2  |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                    | 0.5  |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 5  |
|                                       |                                      |  |
| Fossitt (2000) Habitat Classification |                                      | Improved Agricultural<br>Grassland (GA1)               |
| IVC community                         |                                      | GL2C <i>Holcus lanatus</i> - <i>Lolium<br/>perenne</i> |

Table 2-10 Relevé 2 in the footprint of the temporary construction compound

| Relevé 2                    | Grid reference: ITM 538581<br>743869 | Date 04/07/2022 |
|-----------------------------|--------------------------------------|-----------------|
| Species                     | Common Name                          | % Cover         |
| <b>Vascular Plants</b>      |                                      |                 |
| <i>Holcus lanatus</i>       | Yorkshire fog                        | 70              |
| <i>Alopecurus pratensis</i> | Meadow foxtail                       | 1               |
| <i>Ranunculus acris</i>     | Meadow buttercup                     | 5               |

|                                       |                     |  |
|---------------------------------------|---------------------|--|
| <i>Dactylis glomerata</i>             | Cocks foot          | 2  |
| <i>Lolium perenne</i>                 | Perennial Rye Grass | 40   |
| <i>Ranunculus repens</i>              | Creeping buttercup  | 3  |
| <i>Trifolium pratense</i>             | Red clover          | 1  |
| <i>Trifolium repens</i>               | White clover        | 2  |
| <i>Cynosurus cristatus</i>            | Crested dogs tail   | 20   |
| <i>Taraxacum officinale agg.</i>      | Dandelion           | 3  |
| <i>Rumex acetosa</i>                  | Common sorrel       | 3  |
| <i>Anthoxanthum odoratum</i>          | Sweet vernal grass  | 12   |
| <i>Bellis perennis</i>                | Daisy               | 1  |
|                                       |                     |  |
| Fossitt (2000) Habitat Classification |                     | Improved Agricultural Grassland (GA1)              |
| IVC community                         |                     | GL2C <i>Holcus lanatus</i> - <i>Lolium perenne</i> |





*Plate 2-10 Habitat in the footprint of the temporary construction compound*

## 2.1.10 Met Mast

The proposed met mast is located adjacent to an existing farm track (ED2) at the edge of improved agricultural grassland (GA1).

Table 2-11 Relevé results in the footprint of the proposed met mast

| Relevé 1                              | Grid reference: ITM 536128<br>743507 | Date 17/08/2023   |
|---------------------------------------|--------------------------------------|---|
| Species                               | Common Name                          | % Cover   |
| <b>Vascular Plants</b>                |                                      |   |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                  | 75  |
| <i>Trifolium repens</i>               | White clover                         | 20  |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                    | 2   |
| <i>Taraxacum officinale agg.</i>      | Dandelion                            | 5   |
| <i>Plantago major</i>                 | Broadleaved plantain                 | 3   |
| <i>Bellis perennis</i>                | Daisy                                | 3   |
| Bare soil                             |                                      | 10  |
|                                       |                                      |   |
| Fossitt (2000) Habitat Classification |                                      | Improved Agricultural Grassland (GA1)                   |
| IVC community                         |                                      | GL3B <i>Lolium perenne</i> -<br><i>Trifolium repens</i> |





*Plate 2-11 Improved agricultural grassland in the footprint of the proposed met mast*

## 2.2 Proposed Grid Connection

### 2.2.1 Proposed Onsite 110kV Substation, Associated Temporary Construction Compound

The proposed onsite 110kV substation and associated temporary construction compound is located within Improved Agricultural grassland surrounded by hedgerows of hawthorn and bramble (*Rubus fruticosus agg.*).

Table 2-12 Relevé within footprint of proposed onsite 110kV substation and construction compound

| Relevé 1                              | Grid reference: ITM 537746<br>743820                 | Date 04/07/2022 |
|---------------------------------------|--|-----------------|
| Species                               | Common Name  | % Cover         |
| <b>Vascular Plants</b>                |  |                 |
| <i>Holcus lanatus</i>                 | Yorkshire fog  | 30              |
| <i>Trifolium repens</i>               | White clover   | 60              |
| <i>Lolium perenne</i>                 | Perennial Rye Grass                                  | 50              |
| <i>Dactylis glomerata</i>             | Cocks foot   | 5               |
| <i>Anthoxanthum odoratum</i>          | Sweet vernal grass                                   | 40              |
| <i>Ranunculus repens</i>              | Creeping buttercup                                   | 5               |
| <i>Rumex acetosa</i>                  | Common sorrel  | 1               |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                                    | 5               |
| <i>Cirsium arvense</i>                | Creeping thistle                                     | 15              |
| <i>Cerastium fontanum</i>             | Mouse ear chickweed                                  | 3               |
|                                       |  |                 |
| Fossitt (2000) Habitat Classification | Improved Agricultural Grassland (GA1)                |                 |
| IVC community                         | GL3B <i>Lolium perenne</i> - <i>Trifolium repens</i> |                 |



*Plate 2-12 Receiving habitat in the footprint of the proposed onsite 110kV substation and temporary construction compound*

## 2.2.2 **Underground Cabling**

The Proposed Grid Connection underground cabling will be located within the existing road, therefore botanical relevés along the cabling route were not required. A description of the cable route and habitats present in the wider area adjacent to the road is found in Chapter 6 of the EIAR.

## 2.3 Habitats Outside the Proposed Project Footprint

### 2.3.1 Limestone Pavement and Associated Habitats

The below relevés in  
Table 2-13 to

Table 2-15 were taken within the area mapped as Article 17 limestone pavement within the Proposed Wind Farm site. These habitats are outside of the Proposed Project footprint. The relevés indicate that the area consists of a mosaic of bare limestone pavement, dry calcareous heath (HH2) and calcareous grassland (GS1).

Besides those listed in the relevés below, other species recorded within the mapped areas include spring gentian (*Gentiana verna*), wild thyme (*Thymus polytrichous*), wild carrot (*Daucus carota*), lady's bedstraw (*Galium verum*), wall rue (*Asplenium ruta-muraria*), mountain everlasting (*Antennaria dioica*), common milkwort (*Polygala vulgaris*), kidney vetch (*Anthyllis vulneraria*), mouse ear hawkweed (*Pilosella officinarum*), yellow rattle (*Rhinanthus minor*) and the bryophytes *Ctenidium molluscum*, *Neckera crispa* and *Tortella tortuosum*. The westernmost calcareous heath habitat also contains yellow wort (*Blackstonia perfoliata*), squinancywort (*Asperula cynanchica*), bell heather (*Erica cinerea*) and fragrant orchid (*Gymnadenia conopsea*).

Bracken (*Pteridium aquilinum*) was found encroaching much of the large central mapped area as well as common gorse in places.

Table 2-13 Relevé 1 on large, central, Article 17 mapped Limestone Pavement

| Relevé 1                      | Grid reference: ITM 537167<br>743947 | Date 20/09/2022 |
|-------------------------------|--------------------------------------|-----------------|
| Species                       | Common Name                          | % Cover         |
| <b>Vascular Plants</b>        |                                      |                 |
| <i>Dryas octopetala</i>       | Mountain avens                       | 50              |
| <i>Sesleria caerulea</i>      | Blue moor grass                      | 40              |
| <i>Leontodon hispidus</i>     | Rough hawkbit                        | 20              |
| <i>Molinia caerulea</i>       | Purple moor grass                    | 15              |
| <i>Briza media</i>            | Quaking grass                        | 10              |
| <i>Lotus corniculatus</i>     | Birds foot trefoil                   | 5               |
| <i>Succisa pratensis</i>      | Devils Bit Scabious                  | 3               |
| <i>Salix repens</i>           | Creeping willow                      | 2               |
| <i>Campanula rotundifolia</i> | Harebell                             | 3               |
| <i>Calluna vulgaris</i>       | Ling heather                         | 3               |
| <i>Carlina vulgaris</i>       | Carlina thistle                      | 1               |

|                                       |            |  |
|---------------------------------------|------------|--|
| <i>Solidago virgaurea</i>             | Golden rod | 1  |
|                                       |            |  |
| Fossitt (2000) Habitat Classification |            | HH2 Dry calcareous heath   |
| IVC classification                    |            | HE1A <i>Dryas octopetala</i> -<br><i>Sesleria caerulea</i><br><br>Annex I habitat: 4060 Alpine<br>and subalpine heath / 4030 Dry<br>heaths |

Table 2-14 Relevé 2 on large, central, Article 17 mapped Limestone Pavement

| Relevé 2                              | Grid reference: ITM 537460<br>743880 | Date 17/08/2023          |
|---------------------------------------|--------------------------------------|--------------------------|
| Species                               | Common Name                          | % Cover                  |
| <b>Vascular Plants</b>                |                                      |                          |
| <i>Dryas octopetala</i>               | Mountain avens                       | 20                       |
| <i>Pteridium aquilinum</i>            | Bracken                              | 20                       |
| <i>Solidago virgaurea</i>             | Golden rod                           | 10                       |
| <i>Euphrasia officinalis agg</i>      | Eyebright                            | 10                       |
| <i>Calluna vulgaris</i>               | Ling heather                         | 5                        |
| <i>Leucanthemum vulgare</i>           | Ox eye daisy                         | 5                        |
| <i>Lotus corniculatus</i>             | Birds foot trefoil                   | 2                        |
| <i>Reseda luteola</i>                 | Weld                                 | 2                        |
| <i>Festuca rubra</i>                  | Red fescue                           | 2                        |
| <i>Centaurea nigra</i>                | Knapweed                             | 2                        |
| <i>Cynosurus cristatus</i>            | Crested dogs tail                    | 2                        |
| <i>Vicia sativa</i>                   | Common vetch                         | 1                        |
| <i>Succisa pratensis</i>              | Devils bit scabious                  | 1                        |
| <i>Linum catharticum</i>              | Fairy flax                           | 1                        |
|                                       |                                      |                          |
| Fossitt (2000) Habitat Classification |                                      | HH2 Dry calcareous heath |



|                    |  |
|--------------------|--|
| IVC classification | HE1A <i>Dryas octopetala</i> -<br><i>Sesleria caerulea</i><br><br>Annex I habitat: 4060 Alpine<br>and subalpine heath / 4030 Dry<br>heaths |
|--------------------|--|

Table 2-15 Relevé 3 on large, central, Article 17 mapped Limestone Pavement

| Relevé 3                              | Grid reference: ITM 537431<br>743936 | Date 17/08/2023   |
|---------------------------------------|--------------------------------------|---|
| Species                               | Common Name                          | % Cover   |
| <b>Vascular Plants</b>                |                                      |   |
| <i>Campanula rotundifolia</i>         | Harebell                             | 40  |
| <i>Achillea millefolium</i>           | Yarrow                               | 40  |
| <i>Lotus corniculatus</i>             | Birds foot trefoil                   | 20  |
| <i>Solidago virgaurea</i>             | Golden rod                           | 10  |
| <i>Prunella vulgaris</i>              | Self heal                            | 5   |
| <i>Succisa pratensis</i>              | Devils bit scabious                  | 5   |
| <i>Rosa spinosissima</i>              | Burnet rose                          | 5   |
| <i>Centaurea nigra</i>                | Knapweed                             | 5   |
| <i>Plantago lanceolata</i>            | Ribwort plantain                     | 2   |
| <i>Festuca rubra</i>                  | Red fescue                           | 1   |
| <i>Cerastium fontanum</i>             | Mouse ear chickweed                  | 1   |
| <i>Dactylorhiza fuchsii</i>           | Common spotted orchid                | 1   |
| Fossitt (2000) Habitat Classification |                                      |   |
|                                       |                                      | GS1 Dry calcareous and neutral<br>grassland   |
| IVC classification                    |                                      |   |
|                                       |                                      | GL3A - <i>Briza media</i> - <i>Thymus<br/>polytrichus</i> (transitional)<br><br>Subcommunity GL3Ai occurs in<br>association with limestone<br>pavement and contains a higher<br>frequency of pavement indicator<br>species than subcommunity<br>GL3Aii. |

|  |  |
|--|--|
|  | <p>Annex I habitat: Annex I habitat: 4060 Alpine and subalpine heath / 4030 Dry heaths</p> |
|--|--|



*Plate 2-13 Exposed calcaeous rock (ER2)*





Plate 2-14 Limestone pavement relevé 2 17.08.2023



Plate 2-15 Limestone pavement relevé 3 17.08.2023





Plate 2-16 Calcareous heath (HH2) in the vicinity of mapped limestone pavement areas

### 2.3.2 Calcareous Grassland

Table 2-16 and

Table 2-17 below contain the results of relevés taken on slightly improved dry calcareous grassland adjacent to Article 17 mapped limestone pavement areas in the west of the Proposed Wind Farm site.

Table 2-16 Relevé 1 on dry calcareous/neutral grassland habitat

| Relevé 1                   | Grid reference: ITM 536332<br>744124 | Date 17/08/2023 |
|----------------------------|--------------------------------------|-----------------|
| Species                    | Common Name                          | % Cover         |
| <b>Vascular Plants</b>     |                                      |                 |
| <i>Plantago lanceolata</i> | Ribwort plantain                     | 30              |
| <i>Lolium perenne</i>      | Perennial rye grass                  | 20              |
| <i>Trifolium repens</i>    | White clover                         | 15              |
| <i>Ranunculus repens</i>   | Creeping buttercup                   | 15              |

|                                       |                     |  |
|---------------------------------------|---------------------|--|
| <i>Achillea millefolium</i>           | Yarrow              | 15   |
| <i>Hypochaeris radicata</i>           | Cats ear            | 10   |
| <i>Cynosurus cristatus</i>            | Crested dogs tail   | 5  |
| <i>Ranunculus acris</i>               | Meadow buttercup    | 3  |
| <i>Taraxacum officinale agg.</i>      | Dandelion           | 3  |
| <i>Galium verum</i>                   | Ladys bedstraw      | 5  |
| <i>Holcus lanatus</i>                 | Yorkshire fog       | 5  |
| <i>Lotus corniculatus</i>             | Birds foot trefoil  | 5  |
| <i>Cirsium arvense</i>                | Creeping thistle    | 5  |
| <i>Trifolium pratense</i>             | Red clover          | 5  |
| <i>Campanula rotundifolia</i>         | Harebell            | 3  |
| <i>Potentilla erecta</i>              | Tormentil           | 2  |
| <i>Pilosella officinarum</i>          | Mouse ear hawkweed  | 2  |
| <i>Cerastium fontanum</i>             | Mouse ear chickweed | 2  |
| <i>Lathyrus pratensis</i>             | Meadow vetchling    | 2  |
| <i>Senecio jacobaea</i>               | Ragwort             | 1  |
| <b>Non-Vascular Plants</b>            |                     |  |
| <i>Pseudoscleropodium purum</i>       |                     | 3  |
| <i>Rhytidiadelphus squarrosus</i>     |                     | 20   |
|                                       |                     |  |
| Fossitt (2000) Habitat Classification |                     | Dry calcareous and neutral grassland (GS1)   |
| IVC classification                    |                     | GL3D <i>Cynosurus cristatus</i> - <i>Trifolium pratense</i> (transitional)<br><br>Annex I Habitat affinity: 6210 Orchid-rich calcareous grassland* (20.7%) |



Table 2-17 Relevé 2 on dry calcareous/neutral grassland habitat

| Relevé 2                         | Grid reference: ITM 536357<br>744120 | Date 17/08/2023 |
|----------------------------------|--------------------------------------|-----------------|
| Species                          | Common Name                          | % Cover         |
| <b>Vascular Plants</b>           |                                      |                 |
| <i>Trifolium repens</i>          | White clover                         | 25              |
| <i>Ranunculus repens</i>         | Creeping buttercup                   | 20              |
| <i>Achillea millefolium</i>      | Yarrow                               | 20              |
| <i>Hypochaeris radicata</i>      | Cats ear                             | 15              |
| <i>Cynosurus cristatus</i>       | Crested dogs tail                    | 20              |
| <i>Taraxacum officinale agg.</i> | Dandelion                            | 5               |
| <i>Pimpinella saxifraga</i>      | Burnet saxifrage                     | 18              |
| <i>Galium verum</i>              | Ladys bedstraw                       | 15              |
| <i>Potentilla erecta</i>         | Tormentil                            | 15              |
| <i>Dactylis glomerata</i>        | Cocks foot                           | 10              |
| <i>Holcus lanatus</i>            | Yorkshire fog                        | 5               |
| <i>Lotus corniculatus</i>        | Birds foot trefoil                   | 10              |
| <i>Prunella vulgaris</i>         | Self heal                            | 5               |
| <i>Plantago lanceolata</i>       | Ribwort plantain                     | 5               |
| <i>Leucanthemum vulgare</i>      | Ox eye daisy                         | 5               |
| <i>Festuca rubra</i>             | Red fescue                           | 5               |
| <i>Lathyrus pratensis</i>        | Meadow vetchling                     | 5               |
| <i>Centaurea nigra</i>           | Knapweed                             | 3               |
| <i>Senecio jacobaea</i>          | Ragwort                              | 2               |
| <i>Achillea ptarmica</i>         | Sneezewort                           | 1               |
| <i>Agrostis stolonifera</i>      | Creeping bent                        | 1               |
| <b>Non-Vascular Plants</b>       |                                      |                 |

|                                       |   |    |
|---------------------------------------|---|----|
| <i>Rhytidiadelphus squarrosus</i>     |   | 40 |
|                                       |   |    |
| Fossitt (2000) Habitat Classification | Dry calcareous and neutral grassland (GS1)  |    |
| IVC classification                    | GL3D <i>Cynosurus cristatus</i> - <i>Trifolium pratense</i><br><br>Annex I habitat affinity: 6210 Orchid-rich calcareous grassland* (20.7%) |    |

Table 2-18 and

Table 2-19 below contain relevés taken on dry calcareous grassland adjacent to the Article 17 mapped limestone pavement areas in the north of the Proposed Wind Farm site.

Table 2-18 Relevé on dry calcareous/neutral grassland to the north of the Proposed Wind Farm site

| Relevé 3                              | Grid reference: ITM 536947<br>744332       | Date 17/08/2023 |
|---------------------------------------|--|-----------------|
| Species                               | Common Name                                | % Cover         |
| <b>Vascular Plants</b>                |  |                 |
| <i>Centaurea nigra</i>                | Knapweed                                   | 40              |
| <i>Rumex crispus</i>                  | Curled dock                                | 20              |
| <i>Euphrasia officinalis agg.</i>     | Eyebright                                  | 20              |
| <i>Plantago lanceolata</i>            | Ribwort plantain                           | 15              |
| <i>Ranunculus repens</i>              | Creeping buttercup                         | 20              |
| <i>Leontodon hispidus</i>             | Rough hawkbit                              | 10              |
| <i>Ranunculus acris</i>               | Meadow buttercup                           | 10              |
| <i>Taraxacum officinale agg.</i>      | Dandelion                                  | 10              |
| <i>Agrostis stolonifera</i>           | Creeping bent                              | 5               |
| <i>Cerastium fontanum</i>             | Mouse ear chickweed                        | 5               |
| <i>Prunella vulgaris</i>              | Self heal                                  | 5               |
|                                       |  |                 |
| Fossitt (2000) Habitat Classification | Dry calcareous and neutral grassland (GS1) |                 |

|                    |  |
|--------------------|--|
| IVC classification | GL3C <i>Festuca rubra</i> - <i>Plantago lanceolata</i> (transitional)<br><br>Annex I habitat affinity: 6210<br>Orchid-rich calcareous grassland* (19.2%) / 6510<br>Lowland hay meadows (15.4%) |
|--------------------|--|

Table 2-19 Relevé on dry calcareous/neutral grassland to the north of the Proposed Wind Farm site

| Relevé 4                              | Grid reference: ITM 536916<br>744404  | Date 17/08/2023 |
|---------------------------------------|---|-----------------|
| Species                               | Common Name   | % Cover         |
| <b>Vascular Plants</b>                |   |                 |
| <i>Galium verum</i>                   | Ladys bedstraw  | 30              |
| <i>Centaurea nigra</i>                | Knapweed  | 20              |
| <i>Chenopodium majus</i>              | Pignut  | 20              |
| <i>Euphrasia officinalis agg</i>      | Eyebright   | 10              |
| <i>Campanula rotundifolia</i>         | Harebell  | 15              |
| <i>Ranunculus repens</i>              | Creeping buttercup  | 20              |
| <i>Leucanthemum vulgare</i>           | Ox eye daisy  | 10              |
| <i>Trifolium repens</i>               | White clover  | 10              |
| <i>Taraxacum officinale agg.</i>      | Dandelion   | 10              |
| <i>Achillea millefolium</i>           | Yarrow  | 5               |
| <i>Galium aparine</i>                 | Cleavers  | 5               |
| <i>Trifolium pratense</i>             | Red clover  | 5               |
| <i>Lotus corniculatus</i>             | Birds foot trefoil  | 2               |
| <i>Persicaria amphibia</i>            | Bistort   | 1               |
|                                       |   |                 |
| Fossitt (2000) Habitat Classification | Dry calcareous and neutral grassland (GS1)  |                 |
| IVC classification                    | DU2C <i>Festuca rubra</i> - <i>Plantago lanceolata</i> - <i>Carex arenaria</i> (Transitional) |                 |



*Plate 2-17 Calcareous grassland (Relevé 2)*



### 3. CONCLUSION

As demonstrated by the relevés recorded and presented in Sections 2.1 to 2.11, habitats within the footprint of the Proposed Project consist of species poor improved agricultural grassland (GA1) of limited conservation value. The following Annex I habitats are present within the Proposed Wind Farm site:

- > Limestone pavements (8240)
- > European dry heaths (4030)
- > Orchid- rich/calcareous grassland (Festuco-Brometalia) (6210)

However, these habitats are outside of the Proposed Project footprint and are completely avoided.

## 4.

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