AULTMORE WIND FARM REDESIGN

TECHNICAL APPENDIX 8.2

Vegetation Survey and Habitat Mapping Report
Prepared for: **Vattenfall Wind Power Ltd**

SLR Ref: 404.03640.00016
Version No: 2
July 2023

BASIS OF REPORT

CONTENTS

DOCUMENT REFERENCES

PHOTOS

TABLES

FIGURES

APPENDICES

1.0 Introduction

1.1 Overview

Vattenfall Wind Power Ltd ('Vattenfall') are seeking to redesign the consented Aultmore Wind Farm at Aultmore Forest, Moray. Vattenfall (the applicant) has appointed SLR Consulting Limited (SLR) to conduct a range of environmental studies on the site to initially inform the Scoping Report, and latterly to inform the resulting Environmental Impact Assessment. This report provides the results of a baseline UK Habitat Classification (UKHab) and National Vegetation Classification (NVC) survey carried out during August 2021. It also details the results of additional baseline habitat survey work carried out in August 2022 to inform a proposed access track leading into Aultmore Forest.

1.2 Site Location

The application site ('the Site') is located within Aultmore Forest, approximately 6km to the north of the settlement of Keith, Moray. The Site is managed on behalf of Scottish Ministers by Forestry and Land Scotland (FLS) and is defined by the red line boundary in **Figure 8.2.1**.

The Site consists predominantly of commercial forestry, which comprises one large parcel of land that is referred to as the eastern and western sections, since the central part of the Site is separated by a small strip of non-forested farmland. The three highest hills within the Site are Millstone Hill (301m above ordnance datum (AOD)) in the west, Addie Hill (272m AOD) in the centre of the Site and Old Fir Hill (262m AOD) in the east.

1.2.1 Site Access

The proposed access route into the Site has been subject to a series of variations throughout the design process. Following a design freeze meeting in March 2023, the proposed route will now traverse east from the B9016 (just north of Croft of Ryeriggs) through agricultural grazing land, rush pasture, and scrubby woodland, before joining an existing forest track within Aultmore Forest (**Figure 8.2.1**).

1.3 Scope of Study

The scope of this study was to provide mapping and descriptions of the habitats present within the Site and proposed access route using both the UKHab and National Vegetation Classification (NVC) survey protocols.

In accordance with guidance from NatureScot[1], the communities identified during the surveys have also been used to identify those communities / habitats listed on Annex 1 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). In addition to this, each community has been assessed against Scottish Environment Protection Agency (SEPA) guidelines for identifying potential Groundwater Dependent Terrestrial Ecosystems (GWDTE[2]).

The main aim of the survey was to collate sufficient baseline data to inform the wind farm design process, and consequently the development of any habitat restoration and management proposals and the subsequent EIA. The assessment of impacts resulting from the proposed development and the development of mitigation measures, if required, are beyond the scope of this report and will be covered in the EIA Report.

[1] NatureScot (previously SNH; 2018). *SNH general pre-application/ scoping advice to developers of onshore wind farms.*
[2] SEPA (2017). *Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems.* Land Use Planning System SEPA Guidance Note 31 (LUPS – GU31). Version 3 Issued 11 September 2017.

2.0 Methodology

2.1 Survey Area

2.1.1 The Site

The Site 'survey area' was initially derived through including all developable land[3] within the Site boundary and that which lay within 250m buffer from key infrastructure and 100m from new access tracks. The area surveyed is denoted by the purple and pink dashed line in **Figure 8.2.2**).

The final survey area mapped, was:

- Greater in some areas than the initial derived survey area as natural edge features were used to delineate the mapping (e.g., roads, forest rides and streams); and
- Lesser in some area where land access outside of the client own Site boundary restricted surveyor access.

2.1.2 Proposed Access Route

An additional area of land to the west of the Site boundary, encompassing the proposed access route into Aultmore Forest, was assessed in August 2022. The corresponding 'survey area' encompassed the proposed access route and an associated 250m buffer, as denoted by the blue dashed line in **Figure 8.2.2**.

2.2 Survey Methodology

2.2.1 Desk Study

Prior to going to the Site, aerial photographs of each survey area were examined. Homogenous stands and mosaics of vegetation were identified and mapped onto the aerial photographs. The stands were then drawn as polygons on field maps that could be downloaded as a KMZ file on to a tablet.

2.2.2 UKHab Survey

The UKHab survey was carried out concurrently with the NVC survey. The methodology used was based on the UK Habitat Classification User Manual[4]. As required by this mapping system, the metadata table for each survey area is shown below.

Table 2-1
UKHab Metadata Table for the Site and Proposed Access Route

Item	Data
Scope and purpose of survey	Baseline habitat survey to inform wind farm layout
Area surveyed	Area surveyed shown on **Figure 8.2.2** (as denoted by dashed lines labelled 'survey area 2021, survey area 2022, and survey area 2023')

[3] Land identified as being potentially suitable for wind farm development based on early constraint plans.
[4] Butcher B., Carey P., Edmonds R,. Norton L and Treweek J. (2020) *The UK Habitat Classification User Manual Version 1.1* [Online} Available at: www.ukhab.org [Accessed 02 May 2021].

Item	Data
UKHab edition used	Edition 1 (2020) and UK Habitat Classification - Professional Edition
Minimum level of mapping unit (MMU)	400m^2 smaller areas of interest have been target noted, data in Appendix 01.
Level of UKHab hierarchy used	Up to Level 5 where possible.
List of secondary codes used	10 – Scattered scrub 11 – Scattered trees 12 – Bracken 13 – Scattered dwarf shrubs 14 – Scattered rushes 15 – Rushes dominant 36 – Plantation 53 – Felled 55 – High forest 56 – Young trees planted 57 – Young trees self-set 111 – Road 120 – wet 127 – Peat 129 – Flush 189 – Scattered grass
Additional attributes recorded	NVC survey undertaken, species lists in Appendix 01.
Map projection and units	OSGB84
Year of survey	2021 (the Site) and 2022 (the proposed access track)
Organisation and individual undertaking survey	SLR Consulting Ltd, Nicola Faulks – Principal Ecologist (2021), Hannah Rowding – Senior Ecologist (2022)
References for existing data sets that have been used	Aultmore Wind Farm Environmental Statement: Ecology Chapter (Hyder, 2007) that also summarises relevant information from a previous Environmental Impact Assessment (AMEC, 2003).

The UKHab system has been designed to build on existing systems, so it integrates with European Union and other UK classification systems, such as Phase 1, NVC and EUNIS. For this survey the UK Habitat Classification – Professional Edition has been consulted as this document includes a list of comparative Annex 1 habitats.

2.2.3 NVC Field Methodology

The floral survey was undertaken using the NVC system (Rodwell, 1991 *et seq*[5], 5 volumes) and in accordance with NVC survey guidelines (Rodwell, 2006[6]). The NVC scheme provides a standardised system for classifying and mapping semi-natural habitats, with the aim that surveys are carried out to a consistent level of detail and accuracy.

The NVC system allows for mapping of natural and semi natural habitats only. Therefore, the Sitka spruce/lodgepole pine plantations (*Picea stichensis*/ *Pinus contorta var. latifolia*) that occur within the Site cannot be mapped using the NVC system. As a result of this, only non-forested (plantation forestry) areas have been mapped.

A tablet was used in the field to ground truth and alter predefined polygon boundaries (refer to Section 2.2.1). In addition, habitat data including quantitative records of the plant species present were recorded during field surveys. The NVC communities were attributed to each polygon using surveyor experience and by matching field data against published floristic keys and tables (Rodwell, 1991 *et seq*). Stands were classified at community level. Where sub-communities were readily identifiable, these have also been documented.

As a check for each habitat type anticipated to be present, at least one quadrat sample was taken in each community type, to quantify species composition. Where quadrat sampling was used, the following methodology was adopted:

- Initial sampling of each vegetation type was carried out as recommended in the NVC users' handbook, by sampling at random in stands of vegetation 'judged by eye to be floristically and structurally homogeneous'. Where it was difficult to establish the vegetation type, more than one sample was taken to achieve a larger data set.
- The size of quadrat used was 2 m x 2 m. Each quadrat position was recorded as an eight or ten figure grid reference using a GPS. Within each quadrat, all vascular plants and bryophytes of frequent occurrence (and some less frequent but readily recognisable) were identified and an estimate of cover value of each made, using the DOMIN scale of cover as shown in Table 2-2**Table 2-2**.
- Due to the topology of the land in parts of the survey areas, some polygons represent complex mosaics of the NVC communities attributed to that respective polygon. This was adopted where habitat parcels were at too fine a scale to map individually or where the complexity made it more practical to map as mosaics.

Table 2-2
Species Cover and Corresponding DOMIN Scale

Percentage Cover (%)	DOMIN Scale
91 - 100	10
76 - 90	9
51 - 75	8
34 - 50	7
26 - 33	6

[5] Rodwell J.S (Editor) (1991 *et seq*) *British Plant Communities*. Cambridge University Press, Cambridge.
[6] Rodwell, J.S, (2006), *NVC Users' Handbook*, Joint Nature Conservancy Council (JNCC), Peterborough.

Percentage Cover (%)	DOMIN Scale
11 - 25	5
4 - 10	4
3 – Many individuals	3
2 – Several individuals	2
1 – Few individuals	1

2.2.4 Ground Water Dependent Terrestrial Ecosystems

Groundwater Dependent Terrestrial Ecosystems (GWTDEs) are wetland habitats that derive their water supply primarily from groundwater as opposed to being rain or surface water fed, often supporting diverse, botanically rich ground-flora communities[7]. Current SEPA guidance[2] provides a table showing which NVC communities indicate whether a wetland is likely to be either highly or moderately ground water dependent, depending on the hydrogeological setting. NVC communities recorded during the survey were assessed against this guidance to identify potential GWDTEs.

2.2.5 NVC Reporting

This report has been compiled using the UKHab hierarchy, with the categories included alongside the corresponding NVC community types; that is, NVC community types have been grouped under the UKHab type that they most closely represent.

2.2.6 Nomenclature

Botanical nomenclature in this report follows that of Stace (2019[8]) for vascular plants and Atherton *et al*. (2010[9]) for bryophytes. For clarity, due to the use of different English names for some plant species, only scientific (Latin) names have been used within the main body of the report.

2.3 Survey Dates and Personnel

2.3.1 The Site

The vegetation survey of the Site was carried out by Principal Ecologist Nicola Faulks (CEcol, MCIEEM) over a four-day period between 09 and 13 August 2021. During all days, rain showers occurred, but the weather was generally dry and breezy.

2.3.2 Proposed Access Route

Vegetation surveys relating to the proposed access route into the Site were carried out by Hannah Rowding (ACIEEM) and Niamh Ni Nagy between 01 and 02 August 2022. The weather was warm, calm, and dry throughout the survey period.

[7] Confederation of Forest Industries (2018*). Practice guide for forest managers to assess and protect Groundwater Dependent Terrestrial Ecosystems when preparing woodland creation proposals*. Available at: https://www.confor.org.uk/media/246950/practice-guide-on-ground-water-dependent-terrestrial-ecosystems.pdf [accessed June 2023].

[8] Stace C. (2019) *Field Flora of the British Isles*. Fourth edition. Cambridge University Press, Cambridge.
[9] Atherton I. D. M., *et al* (2010) *Mosses and Liverworts of Britain and Ireland: A Field Guide*, British Bryological Society.

2.4 Limitations

No significant limitations were encountered, though it is worth noting that many of the rides between the forest blocks were overgrown and therefore made walking between blocks an almost impossible task. As the rides were so overgrown, they have not been delineated during the mapping process and have been included as part of the forest blocks. This is not considered to have presented a constraint to the identification of the vegetation communities present within the survey area.

The Site survey area, as defined on **Figure 8.2.1** and in Section 2.1, included occasions where a full 250m buffer area from turbine locations had not been subject to survey and mapping, due to the land lying outside of the Site boundary where landowner permissions to access were not made available. Given the locations of the proposed turbines and wind farm infrastructure, this was not considered to be a limitation at the time of writing.

3.0 Results

This section provides the descriptions of each UKHab and NVC community identified during the surveys. The results of the UKHab survey have been mapped and are provided on **Figures 8.2.2a – f,** while results of the NVC survey are provided on **Figures 8.2.3a – f.** Corresponding NVC quadrat data are provided in **Appendix 01**.

As assessment of the criteria defining peatlands/carbon rich soils which seeks to define whether the degraded blanket bog habitat recorded on Site is of 'likely of national interest' or 'possible of national interest' is provided in **Appendix 02**. This assessment follows guidelines set out by NatureScot.[10]

3.1 UKHab Blanket Bog (f1a)

Under this category blanket bogs are characterised by the presence of a peat deposit greater than 50cm deep, formed from *Sphagnum* and other peat forming species, which is draped across large expanses of the landscape like a blanket. All but the steepest slopes are permanently waterlogged. Blanket bogs are rain fed – ombotrophic – and broadly convex, meaning that the surface flow lines diverge down slope from the crown of the bog unit. This description describes the bog habitats within the survey area in general terms. The NVC categories below describe the bog habitats in more detail, however all pockets fall under the UKHab level 5 category f1a6 – Degraded Blanket Bog, apart from one old forest ride located within Broken Moan which falls under the f1a5 – blanket bog category. F1a6 applies to blanket bog were there has been widespread disruption, usually by people, to the structure and/or function of the peat body, so that the bogs are not actively peat forming. In this case though, it is considered that the bogs are likely to be capable of natural regeneration, that is, could be repaired and there is a reasonable expectation of re-establishing vegetation with peat-forming capability within 30 years. Both f1a5 and f1a6 are classed as the NVC community M19 *Calluna vulgaris - Eriophorum vaginatum* blanket mire. This community is generally distinguished due to its dense sward of tussocky *Calluna vulgaris* and *Eriophorum vaginatum*; and that is certainly true here. This community is also noted for the presence of mosses both pleurocarp mosses: *Hypnum jutlandicum, Rhytidiadelphus loreus* and *Pleurozium schreberi*; as well as sphagnum mosses: *Sphagnum capillifolium, S. subnitens* and *S. papillosum*.

3.1.1 M19 *Calluna vulgaris – Eriphorum vaginatum* Blanket Mire

The Site

Small pockets of this community type were present within the Site, where the peat was deep and permanently waterlogged, trees generally absent, or very sparse (possibly only self-seeded) (Figure 3.2 a - e). One of the larger areas of M19 is located on Old Fir Hill (east side of the Site) and seems to be referred to on the OS map as Milkwell Moss.

The action of forestry planting and consequent draining can and has affected the M19 communities within the Site. Although it is considered that some limited areas of M19 community would still generally qualify as UKHab f1a5 Blanket Bog (Annex 1 H7130); overall it is more likely that due to the action of water drawdown, linked to the forestry and associated drainage, the blanket bog should be classified as UKHab f1a6 (H7120) which is degraded blanket bog. Annex 1 habitat H7120 is relevant here, as it applies to blanket bogs which are capable of natural regeneration, which if the forestry was removed, would happen here.

[10] NatureScot 2023 Advising on Peatland, carbon-rich Soils and Priority Peatland Habitats in Development Management. Available online at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management (Accessed October 2023).

It is worth noting that prior to the forestry being planted, the habitats present in this area would have included large expanses of M19. As soon as forestry blocks are felled, and then left, or replanted, the regeneration of *Calluna vulagirs, Sphagnum* and other species associated with the M19 community is quite rapid. While transiting the site, many areas of former M19, now planted with trees, were noted. These have however been recorded as plantation woodland under the UKHab system and not recorded as part of the NVC system, as they constitute plantation woodland. With time, as the planted trees begin to mature, shading out the ground and preventing the growth of the M19 botanical community, the M19 community will disappear.

Photo 3-1
Area of blanket bog M19 labelled as Milkwell Moss on the OS map

Proposed Access Route

Two stands of M19 blanket bog habitat were identified within 250m of the proposed access route into Aultmore Forest (**Figure 8.2.3f**). Vegetation in these areas were dominated by *Calluna vulgaris*, with frequent to abundant *Eriophorum vaginatum,* frequent *Trichophorum germanicum, Empetrum nigrum* and *Potentilla erecta*, and occasional *Erica tetralix, Descampsia flexuosa and Narthecium ossifragum.* The ground flora in both areas comprised a patchwork of pleurocarp moss species (primarily *Hylocomium splendens* and *Pleurozium scheberi)* and *Sphagnum capillifolium.* The dominance of *Calluna vulgaris* and pleurocarp moss species in both areas indicates that the blanket mire has been subject to dewatering and has therefore been classified as degraded blanket bog (f1a6). In addition, a clear linear step is present within the blanket bog habitat to the north of the study area, indicating that historic peat extraction activities may have taken place. The affected area has however regenerated with a variety of mire species, with abundant *Calluna vulgaris* and frequent *Trichophorum germanicum, Narthesium ossifragum, Erica tetralix, Sphagnum capillifolium and Cladionia lichen* species. Due to the variation in peat depth in this area, this habitat has been mapped as a mosaic of M19 *Calluna vulgairs – Eriphorum vaginatum* blanket mire and M15* *Trichophorum germanicum – Erica tetralix* wet heath, whereby the asterisk denotes that M15 in this instance is a form of degraded blanket bog.

3.1.2 M20 *Eriophorum vaginatum* blanket and raised mire

The Site

Limited areas of the M20 community were found between the forested areas and were easily identified by either the lack of trees or uniform light green patches on the aerial imagery. This community was dominated by dense tussocky *Eriphorum vaginatum* (**Photo 3-2**), but sometimes sprigs of *Vaccinium myrtillus* or *Calluna vulgaris* poking through the tussocks too. Areas of *Sphagnum* were generally limited to depressions, but in some areas *Hypnum jutlandicum* and *Pleurozium scherberi* became more abundant, forming tussocks.

Although no peat depth measurements were taken during the survey, it is estimated that the majority of the M20 community is based on peat, with a depth of 0.5m or more, therefore this habitat type would be classified as f1a under the UKHab system. Due to the presence of the forestry, with its associated drains, the M20 community will have likely developed as a result of the drainage and degradation of the M19 community. Based on the UKHab system therefore, the M20 community would also be classified as f1a6 Degraded Blanket Bog.

Photo 3-2
***Eriophorum* dominated M20**

Proposed Access Route

M20 *Eriophorum vaginatum* blanket and raised mire was not recorded within the proposed access route survey area.

3.2 UKHab Fen Marsh and Swamp (f2)

UKHab defines wetland (f) as any habitat that is waterlogged (water table at surface with standing water for between 50% and 70% of the year). The category f2 is further defined as inundated or waterlogged lowland habitats, differing from bogs, in that water is supplied by ground water or slow-moving rainwater and this flows through them (they are soligenous) and peat does not form.

3.2.1 M6 *Carex echinata – Sphagnum fallax/ denticulatum* mire

The Site

This community was noted in areas where the slope on the deeper M19 mire, or forested areas changed, either becoming more or less steep, resulting in a seepage line forming. Additional areas of M6 are also present where forestry drains flow in to M19/M20 blanket bog areas, as the flow slows, and the drain ends, an M6 community often occurs. In these areas, *Juncus spp.* and *Carex echinata* with *Sphagnum spp.* were found to be dominant.

The seepage lines formed when there is a break in slope, were often associated with stream valleys, where the flush habitat was dominated by *Sphagnum* species such as *Sphagnum fallax* or *S. palustre* growing in amongst the stems of the rush species *Juncus effusus* or more often *Juncus acutiflorus*. Some herb species area also noted in the M6 community here, including *Ranunculus acris and Succisia pratensis*. It is therefore considered that this community is best described as M6d where *Juncus actuiflorus/J. effusus* is dominant.

Under the UKHab system, the M6 community is defined as f2c Upland flushes, fens and swamps. This category covers a wide range of vegetation types all of which are inundated or waterlogged upland habitats that are supplied by ground water or slow-moving rainwater which flows through them. They are not considered to be peat forming.

Proposed Access Route

M6 *Carex echinata – Sphagnum fallax/ denticulatum* mire was not recorded within the proposed access route survey area.

3.2.2 M23 *Juncus effusus/ acutiflorus – Galium palustre* rush-pasture

The Site

This community was found to be generally limited to less acid soils adjacent to watercourses or track edges; often occurring downstream of the M6 mire community, when associated with the off-slope M6 communities, above streams. Dominated by both *Juncus effusus* and *J. acutiflorus*, this community lacks the sphagnum species found in M6. The largest areas of this community were noted in the eastern part of the site, just north of Old Fir Hill, where presumably the forest track has changed the flow of water into the White Stripe Burn and so the waterlogged ground, with mineral input form the road has created some fairly extensive areas of M23. Smaller, unmapped areas of rush dominated M23 type communities are present across the site where drainage has been impeded by tracks and paths.

This community type would be best represented by the M23b sub community. The M23 community was often found within the forest rides, where drains were present, or drainage had been impeded (**Photo 3-3**).

Under the UKHab classification system the M23b sub-community translates to the f2b Purple Moor Grass and Rush Pasture habitat type. This is because the vegetation is generally dominated by *Juncus acutiflorus* or *Juncus effusus* here. Although this habitat category is often used to define agriculturally unimproved pastures, which the bank sides of the stream on site are not, they do have many of the same characteristic species, and are unimproved (no manure or fertilizer input). Where rushes are dominant, secondary code 15 – rushes dominant has been used.

Photo 3-3
Typical example of M23 adjacent to a stream

Proposed Access Route

M23 *Juncus effusus/ acutiflorus – Galium palustre* rush pasture makes up a large proportion of the proposed access route survey area, where it occurs in mosaic with MG9 *Holcus lanatus – Deschampsia cespitosa* grassland. This habitat was characterised by a dominance of *Juncus acuitflorus*, with frequent *Ranunculus flammula*, *Lathyrus pratensis*, *Holcus lanatus* and occasional *Epilobium palustre*. Given the dominance of *Juncus acutiflorus* within the stand, this community is best represented by the M23a – *Juncus acutiflorus* sub-community.UKHab Upland Heathland (h1b)

UKHab defines h1 Dwarf Shrub Heath as vegetation that has a greater than 25% cover of plant species from the heath family (ericoids) or Dwarf Gorse *Ulex minor.* For h1b Upland Heathland, this is defined as heathland vegetation which occurs widely on mineral soils and thin peats (<0.5m deep) throughout the uplands and moorlands of the UK. It is characterised by the presence of dwarf shrubs at a cover of at least 25%. Defined as lying below the alpine or montane zone and usually above the upper edge of enclosed agricultural land.

3.2.3 H12 *Calluna vulgaris – Vaccinium myrtillus* heath

The Site

Although not mapped as present within the Site survey area, this community type had regenerated in recently felled/replanted areas where shallower, free-draining peaty soils were present (**Photo 3-4**). Due to the way that the NVC system works these habitats were classified as plantation woodland. As conifer trees grow, this community will be shaded out and will disappear, though its seedbank will remain. This community type has been recorded here for completeness as the knowledge that naturally regenerating heathland communities are present, may be useful for a future compensation/mitigation plan for the wind farm habitat management plan.

Under the UKHab classification this type of upland heathland keys out as h1b Upland Heathland, occurring on mineral soils and thin peats less than 0.5 metre deep. But as with the NVC mapping it has been mapped as other coniferous woodland.

Photo 3-4
Heathland present in recently planted forest at Hill of Clashmadin

Proposed Access Route

H12 *calluna vulgaris* was not recorded within the proposed access route survey area.

3.2.4 M15 *Scirpus cespitosus-Erica tetralix* wet heath

For ease of description within this report, the M15 *Trichophorum germanicum – Erica tetralix* community has been separated into two broad habitat types:

- M15 refers to wet heath habitat that occurs on peaty mineral soils that are naturally less than 0.5m deep; and
- M15* refers to degraded blanket bog habitat where dewatering and/or peat extraction has resulted in a decrease in the abundance of species characteristic of blanket mire and/or a reduction in peat depth.

The Site

This community was found to be present on wet areas of shallower peat, in the western part of the Site. One of the main areas recorded lies on a now overgrown ride, on the eastern boundary of the site. All of the elements of wet heath were found to be present here, including the main species which comprise this community: *Calluna vulgaris, Erica tetralix, Eriphorum vaginatum, Potentilla erecta.* It is considered likely that the sub-community best represented here is the M15b typical sub-community, which has a thick sward of *Calluna vulgaris* and *Erica tetralix.* Deer grazing was also noted in this area, with two lie-ups with droppings also recorded.

As is often the case, this type of community is not continuous, small areas of M6 flush community were also noted, and considered most likely to be associated with the now defunct drainage ditches which would once have been present along the sides of the former track. An M23 marshy grassland community was also recorded adjacent to ditch banks or where less acidic flush lines are present. Most were too small to map.

Under the UKHab classification M15 is classified as f1a Blanket Bog – however blanket bogs are defined as being greater than 0.5 metres deep. Peat depth probing was not undertaken as part of the NVC survey; however, it is considered likely that the peat depth within the area of M15 is generally

less than 0.5 metres. So according to the UK Hab, the M15 within the main Site has been classified as h1b Upland Heathland, vegetation occurring on mineral soils and peats less than 0.5 metres depth. The definition also states that dwarf shrubs should have a cover or at least 25% and in this case the threshold was generally exceeded in all areas.

Photo 3-5
M15 with dense *Calluna vulgaris growth*, western Site boundary

Proposed Access Route

One main area of M15* was identified within the proposed access track survey area, occurring on peat generally greater than 0.5m deep in mosaic with M19 *Calluna vulgaris – Eripohorum vaginatum* blanket mire. As such this habitat has been classified as degraded blanket bog (f1a6) and labelled as M15* (Figures 3.1f and 3.2f).

3.2.5 Dense Scrub (h3)

This category relates to patches of shrubs less than 5 metres tall with continuous (>90%) cover.

The Site

Within the Site, this habitat was dominated by *Ulex europaeus* and has therefore been categorised as h3 dense scrub under the UKHab system.

For the NVC system this community is most like W23 – *Ulex europaeus – Rubus fruticosus* scrub, though in this case there was less *Rubus fruticosus* and more *Rubus idaeus*. Only small areas of this community were present, though it is likely kept in check by the forestry blocks as they grow denser and start to shade out this sun loving community.

Proposed Access Route

Two main types of dense scrub habitat were identified within the proposed access route survey area. The first was formed of W23 *Ulex europaeus - Rubus fruitcisus* scrub (h3e), of which was present along boundary lines and as patches along an old railway embankment. The other form of dense scrub was comprised predominantly of *Salix* species with occasional to frequent semi-mature *Betula pubescens* occurring in small pockets (**Photo 3-6**). As this vegetation was dominated mainly by dense *Salix* species

less than 5m in height with limited understory vegetation, it has been classified within the UKHab category dense scrub (h3).

Photo 3-6
Willow scrub habitat within the proposed access route survey area

3.3 Acid Grassland (g1)

3.3.1 U4 *Festuca ovina – Agrostis capillaris – Gallium saxatile* grassland

The Site

This community was present in small patches across the Site, especially where thin well-draining soils exist between forestry blocks, or on tracksides; however, these areas were often too small to map. The largest extent of this habitat type is present in the western part of the site, on what appears to be an area that was likely an enclosed field. Now rank and unmanaged the species here were found to be characteristic of acid upland grassland with species such as *Holcus lanatus, Agrostis capillaris and Pleurozium schreberi* dominant, but also *Gallium saxatile, Potentialla erecta* and *Rhytideadelphus squarrosus.*

Under the UKHab system, g1b upland acid grassland is defined as acid grassland in the uplands, normally above 300 metres altitude and grassland on both enclosed and unenclosed uplands. Includes montane acid grassland. Swards in old and non-functional enclosures in the upland fringes, which are managed as free-range rough grazing in association with unenclosed tracts of upland.

Proposed Access Route

Acid grassland was not recorded within the proposed access route survey area.

3.3.2 U20 *Pteridium aquilinum – Gallium saxatile* community

The Site

The U20 patches identified within the Site were often too small to map, but one area of sufficient size to map is located adjacent to the Corsekell burn. This community type tends to grow on similar habitats to the U4 and is often underlain by U4 grassland. Within the forestry, this community type may be associated with areas that were previously forested with broadleaf tree species, typical of acid soils and riparian woodlands with *Betula pendula.*

The UKHab category assigned here is g1c bracken, described as land with *Pteridium aquilinum* at >95% canopy cover at the height of the growing season (not mapped due to small areas recorded).

Proposed Access Route

Stands of vegetation comprised predominantly of *Pteridium aquilinum* were not recorded within the proposed access route survey area.

3.4 UKHab Neutral Grassland (g3)

NVC communities and corresponding UKHab codes with associated descriptions relating to 'other neutral grassland' are provided below.

3.4.1 MG9 *Holcus lanatus – Deschampsia cespitosa* grassland

The MG9 *Holcus lanatus – Deschampsia cespitosa* NVC community is a damp lowland grassland that is generally characterised by tall swards of *Descampsia cespitosa, Holcus lanatus,* and *Poa trivialis* with a variety of other grasses and mesotrophic forbs[11].

The Site

While the vegetation community MG9 *Holcus lanatus – Deschampsia cespitosa* grassland was not recorded within the main Site, it was identified within the proposed access route survey area – details of which are described below.

Proposed Access Route

Stands of MG9 *Holcus lanatus – Deschampsia cespitosa* grassland were recorded in mosaic with M23 *Juncus effusus/ acutiflorus – Galium palustre* rush pasture across sloping agricultural fields and lining small watercourses within the proposed access route survey area (**Photo 3-7)**. This vegetation community comprised frequent to abundant *Deschampsia cespitosa* and *Holcus lanatus*, with occasional to frequent *Arrhenatherum elatius*, *Dactylis glomerata*, *Anthoxanthum odouratum*, and *Agrostis species*. Under the UKHab classification system, the MG9 vegetation community translates to the g3c7 *Deschampsia* neutral grassland habitat type.

[11] Averis, A., Averis, B., Birks, J., Horsefield, D., Thompson, D., Yeo, M. (2004). *An Illustrated Guide to British Upland Vegetation*. JNCC, Peterborough

Photo 3-7
MG9 *Holcus lanatus – Deschampsia cespitosa* grassland

3.4.2 MG10 *Holcus lanatus – Juncus effusus* rush-pasture

The Site

Between the east and west forestry blocks which make up the Site, there is a strip of grassland. It has been classified here under the UKHab heading of other neutral grassland, as habitat in which *Lolium perenne* is likely to be present at <30% with between nine and 13 species. This habitat lies between two woodland blocks. It appears to be used for grazing, though at the time of survey no stock were seen. Generally, the community is dominated by *Holcus lanatus, Juncus effusus* and *Agrostis capillaris*. It is likely an established grassland but one that has historically been created on peat, through draining and liming of the soils to create a less acidic substrate. While this has worked in general, some remnants of the previous heathland assemblage were noted. Patches of dense *Trichophorum cespitosum* were still present within the field to the north of the forestry track. This species, a remnant of the former heathland community, is less palatable to farm animals, so is likely to remain ungrazed.

Based on the UKHab categories, this community would be classified as g3c8 Holcus-Juncus neutral grassland. This is a neutral grassland in which *Hocus lanatus* and rushes *Juncus spp.* are dominant.

Photo 3-8
Field between the woodland blocks, ungrazed

Proposed Access Route

Two small areas of MG10 *Holcus lanatus – Juncus effusus* rush pasture (g3c8) were recorded within the proposed access route survey area. Vegetation within this community was characterised by the presence of frequent to abundant *Juncus effusus* and *Holcus lanatus*, with *Cynosaurus cristatus, Trifolium repens* and *Ranunculus repens* also noted throughout.

3.4.3 M23 *Juncus effusus/acutiflorus – Galium palustre* rush pasture

The Site

Under the UKHab system, all M23 *Juncus effusus/ acutiflorus – Galium palustre* rush pasture communities identified within the main Site have been categorised under Purple Moor Grass and Rush Pasture (f2b), as described in Section 3.2.2.

Proposed Access Route

A small, linear stand of M23 *Juncus effusus/ acutiflorus – Galium palustre* rush pasture is present within the north of the proposed access route survey area. Vegetation in this area was dominated almost entirely by *Juncus effusus*, with occasional to frequent *Deschampsia cespitosa, Rumex acetosa* and occasional *Epilobium palustre*. The dominance of *Juncus effusus* within the stand lends itself to M23b – *Juncus effusus* sub-community. While the NVC community M23 is generally considered to fall under Purple Moor Grass and Rush Pasture (code f2b) in the UK Habitat Classification scheme, wet meadows with frequent to dominant cover of rushes that are not waterlogged, such as this particular M23b community, are a better fit in the Neutral Grassland category (code g3c8 with secondary code 15) and have therefore been classified as such.

3.5 Modified grassland (g4)

Under the UKHab classification system, modified grassland is defined as vegetation dominated by a few fast-growing, palatable grasses on fertile, neutral soils. It is frequently characterised by an abundance of *Lolium spp*. and *Trifolium repens*.

The Site

While no evidence of modified grassland was recorded within the main Site, this habitat type was however identified within the proposed access route survey area, as described below.

Proposed Access Route

Modified grassland (g4) was identified within the west and south of the proposed access route survey area. The NVC community that most closely represents this habitat type is MG6 *Lolium perenne – Cynosaurus cristatus* grassland.

3.5.1 MG6 *Lolium perenne – Cynosurus cristatus* grassland

This community was characterised by a short, recently mown, grass-dominated sward dominated by *Lolium perenne* and *Trifolium repens*, with frequent *Ranunculus repens, Cynosurus cristatus*, and *Holcus lanatus* (**Photo 3-9**). Within these agricultural fields, some areas had not been mown as recently, creating a slightly taller sward dominated by the same species, with frequent *Phleum pratense* and occasional *Juncus effusus* also evident. The dominance of *Trifolium repens* with *Lolium perenne* in the sward indicates that this vegetation fits relatively well with the MG6a 'typical sub-community'.

Photo 3-9
MG6 *Lolium perenne – Cynosurus cristatus* grassland

3.6 UKHab Woodland and Forest (w)

Defined as – land with more than 25% cover of trees more than 5 m in height. But does include recently felled woodland, where it will be, or has recently been prepared for replanting.

3.6.1 Coniferous woodland (w2)

According to UKHab, w2 is vegetation dominated by trees that are more than 5 m high when mature, which form a distinct, although sometimes open canopy with a cover of greater than 20%, and where the parentage cover of these trees in the stand exceeds 80% of the total cover of trees present. The daughter category for w2 is w2c – other coniferous woodland. This is coniferous woodland that does not meet the definition of w2a or w2b, that is, not dominated by Scot's pine. W2c allows for

dominance by non-native plantation species which within this site are *Picea stichensis*, *Pinus contorta var. latifolia predominantly,* but also with some *Larix decidua* too.

During the mapping process a number of secondary codes have been used:

- 36 – Plantation – possibly not required as w2c indicates that the woodland is plantation.
- 53 – Felled – some plantations had recently been felled but with no sign yet of replanting (**Photo 3-10**).
- 55 – High forest – this code was used to describe the more mature plantation blocks (**Photo 3-11**).
- 56 – Young trees planted – where clear fell had been replanted but the trees were less than 5 metres in height (**Photo 3-12**).
- 57 – Young trees self-set – this code was used to describe overgrown rides and the edge of some of the blanket bog areas where scattered conifer trees were present.

Photo 3-10
Felled plantation, not replanted.

Photo 3-11
Dense plantation of pine, with limited ground flora

Photo 3-12
Young trees, recently planted

3.7 UKHab Rivers and Lakes

This category is defined as inland surface waters (freshwater ecosystems).

3.7.1 Other rivers and streams (r2b)

Five main watercourses are present on Site and include the Burn of Aultmore, Milk Burn, Burn of Fernking, Burn of Thievesbush and the Burn of Tynet (Corsekell Burn). There are various smaller watercourses also present on Site and include Burn of Blackhills, White Strip, Ardmachie Burn, Strip

of Gateside, Drodland Burn, Rumbling Burn and Sheil Burn. These burns are characterised as narrow, approximately 1m wide, and shallow in most places.

4.0 Summary and Conclusion

4.1 Habitats and Vegetation Communities

4.1.1 The Site

The survey results show that the Site mainly comprises conifer dominated forestry, with peatland habitats in the more open non-forested areas (**Figure 8.2.2a-e** and **Figure 8.2.3a-e**).

Table 4-1 shows the area of each habitat type identified within the Site survey area. For the communities which were simply target noted, no area of coverage has been given. This typically applied to flushes, which were too small to accurately map.

Table 4-1
Area of Habitats/ NVC Communities Present within the Site Boundary

UKHab Category	UKHab Community	NVC Category	NVC Community Name	Area (ha) Within Site Boundary
f1a5	Blanket Bog	M19	*Calluna vulgaris - Eriophorum vaginatum* blanket mire	0.29
f1a6	Degraded blanket bog	M19	*Calluna vulgaris - Eriophorum vaginatum* blanket mire	21.61
		M20	*Eriophorum vaginatum* blanket and raised mire	5.44
f2b	Purple moor grass and rush pasture	M23	Juncus effusus/ acutiflorus – Galium palustre rush-pasture	4.83
f2c	Upland flushes, fens and swamps	M6	*Carex echinata – Sphagnum fallax/ denticulatum* mire	0.14
g3c	Other neutral grassland	MG10	*MG10 Holcus lanatus – Juncus effusus* rush-pasture	0.66
g3c8	Holcus-Juncus neutral grassland	MG10	*MG10 Holcus lanatus – Juncus effusus* rush-pasture	0.74
h1b	Upland heathland	M15	*Trichophorum cespitosum-Erica tetralix* wet heath	5.79
h3	Dense scrub	W23	*Ulex europaeus – Rubus fruticosus* scrub	10.56
g1b	Upland acid grassland	U4	*U4 Festuca ovina – Agrostis capillaris – Gallium saxatile* grassland	1.54
g1c	Bracken	U20	*Pteridium aquilinum – Gallium saxatile* community	2.03
w2c	Forestry Including young plantation woodland	N/A	N/A	1606.1

4.1.2 Proposed Access Route

Survey results indicate that the proposed access route survey area is formed of primarily of coniferous plantation, modified grassland, other neutral grassland and rush pasture. Smaller stands of scrub and degraded blanket bog habitat are also present.

Table 4-2 shows the area of each habitat type identified within the vicinity of the proposed access route. Note that only habitats within the updated site boundary (not the full survey area) have been included within Table 4-2. For communities that were too small to map, these have been target noted only, with no area of coverage provided.

Table 4-2
Broad Habitats and corresponding NVC Communities Present within the vicinity of Proposed Access Route

UKHab Category	UKHab Community	NVC Category	NVC Community Name	UKHab Area (ha) Within Site Boundary**
f1a6	Degraded blanket bog	M19	*Calluna vulgaris - Eriophorum vaginatum* blanket mire	1.66
		M15*	*Trichiphorum germanicum – Erica tetralix* wet heath	
f2b	Purple moor grass and rush pasture	M23	*Juncus effusus/ acutiflorus – Galium palustre* rush-pasture	2.94
		M25	*Molinia carulea – Potentilla erecta mire*	
		M23/MG9	*Holcus lanatus – Deschampsia cespitosa* grassland/ *Juncus effusus/ acutiflorus – Galium palustre* rush-pasture	
g3c7	Other neutral grassland	MG9	*Holcus lanatus – Deschampsia cespitosa* grassland	7.38
		MG9/M23	*Holcus lanatus – Deschampsia cespitosa* grassland/ *Juncus effusus/ acutiflorus – Galium palustre* rush-pasture	
g4	Modified grassland	MG6	*MG6 Lolium perenne – Cynosurus cristatus grassland*	0.07
h3e	Dense scrub	W23	*Ulex europaeus – Rubus fruticosus* scrub	0.12
h3	Dense scrub	W1/2	*Salix cinerea – Galium palustre* woodland/ *Salix cinerea - Betula pubescens – Phragmites australis* woodland	2.38
w2c	Coniferous woodland	N/A	N/A	0.03
Table notes				

UKHab Category	UKHab Community	NVC Category	NVC Community Name	UKHab Area (ha) Within Site Boundary**
** Due to complexity associated with NVC community mosaics, areas shown above are based on UKHab classification codes.				

4.2 Conservation Status of the Habitats and Vegetation Communities Recorded

Some bog habitats are listed on Annex 1 of the Habitat Regulations (i.e., Conservation (Natural Habitats, &c.) Regulations 1994 (as amended))[12]. The habitats listed in Annex 1 of the Regulations are natural habitat types whose conservation requires the designation of Special Areas of Conservation and are generally regarded as being of European importance (i.e., now forming part of a UK-wide network of protected sites, as defined in the 1994 Regulations (as amended); although, the term European site is still relevant[8]). **Table 4-3** shows which of the NVC habitats identified within the site boundary may be classified as Annex 1 Habitats.

The Scottish Biodiversity List[13] (SBL) is a list of animals, plants and habitats which the Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The purpose of the list is to identify species and habitats which are the highest priority for conservation in Scotland. Habitats identified within the Site and proposed access route survey area are that are listed on the SBL are also highlighted in **Table 4-3.**

Table 4-3
Annex 1 and SBL Habitats/ Vegetation Communities Identified During Botanical Surveys

NVC Category	NVC Community Name	Annex 1/SBL
M6	*Carex echinata – Sphagnum fallax/ denticulatum* mire	SBL
M15	*Trichophorum cespitosum-Erica tetralix* wet heath	Annex 1 (not all types), SBL
M19	*Calluna vulgaris - Eriophorum vaginatum* blanket mire	Annex 1, SBL
M20	*Eriophorum vaginatum* blanket and raised mire	SBL
M23	*Juncus effusus/ acutiflorus – Galium palustre* rush-pasture	SBL
U4	*U4 Festuca ovina – Agrostis capillaris – Gallium saxatile* grassland	-
U20	*Pteridium aquilinum – Gallium saxatile* community	-
W23	*Ulex europaeus – Rubus fruticosus* scrub	-
MG10	*MG10 Holcus lanatus – Juncus effusus* rush-pasture	-

[12] The Conservation (Natural Habitats & c.) Regulations have been amended by the Conservation (Natural Habitats, & c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. While some terminology changes have been made, these regulations remain valid after the UK's departure from the European Union.
[13] SBL (2013) Updated Scottish Biodiversity List [online] Available at: https://www.nature.scot/doc/scottish-biodiversity-list [Accessed 22 September 2022]

NVC Category	NVC Community Name	Annex 1/SBL
Forestry	N/A	-

4.3 Groundwater Dependent Terrestrial Ecosystems

Table 4-4 highlights the likely groundwater dependence of each NVC community, based on current SEPA guidance. A map showing the location of the GWDTE's is provided as **Figure 8.2.4**, and further details are found in **Chapter 10: Geology, Hydrology and Hydrogeology** of the EIA Report.

Table 4-4
Likely Ground Water Dependence of NVC Communities within the Site

NVG Tag	NVC Name	GWDTE Potential
M6	*Carex echinata – Sphagnum fallax/ denticulatum* mire	High
M15	*Trichophorum cespitosum-Erica tetralix* wet heath	Moderate*
M19	*Trichophorum cespitosum – Eriophorum vaginatum* blanket mire	N/A
M20	*Eriophorum vaginatum* blanket and raised mire	N/A
M23	*Juncus effusus/ acutiflorus – Galium palustre* rush-pasture	High
M25	*Molinea carulea – Potentilla erecta mire*	Moderate*
W1/2	*Salix cinerea – Galium palustre* woodland/ *Salix cinerea - Betula pubescens – Phragmites australis* woodland	Moderate*
W23	*Ulex europaeus – Rubus fruticosus* scrub	N/A
U4	*U4 Festuca ovina – Agrostis capillaris – Gallium saxatile* grassland	N/A
U20	*Pteridium aquilinum – Gallium saxatile* community	N/A
MG6	*Lolium perenne – Cynosurus cristatus grassland*	N/A
MG9	*Holcus lanatus – Deschampsia cespitosa grassland*	N/A
MG10	*MG10 Holcus lanatus – Juncus effusus* rush-pasture	Moderate*
Table notes Communities marked with a yellow asterisk (*) may be moderately dependant on groundwater flow, depending on the hydrological setting.		

It must be stressed that the NVC survey is only able to identify communities which are potentially groundwater dependent and in practice some of the areas shown in **Figure 8.2.4** may not actually represent GWDTEs. Current SEPA guidance states that detailed site specific qualitative and/ or quantitative risk assessments are required for proposed infrastructure within 250m of groundwater abstractions or GWDTE, where the infrastructure will require excavation below a depth of 1m.

Typically, this includes borrow pits and turbine foundations but may include access roads and other infrastructure. If areas of potential GWDTE and the relevant buffer zones are unable to be avoided within the wind farm design, it is recommended that a hydrogeologist provides further advice on whether or not the relevant communities are in fact groundwater dependent and undertakes any further assessment that may be required.

FIGURES

340000 342000 344000 346000 348000

862000 860000 858000

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Upgraded Existing Track
- New Track
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area

N

0 0.5 1 Kilometres

VATTENFALL

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

SITE LOCATION

FIGURE 8.2.1

Scale 1:30,000 @ A3

Date OCTOBER 2023

03640.00016.0184.0 Site Location

340000 342000 344000 346000 348000

862000 860000 858000 856000

03640.00016.0185.0 UK Habitat Map

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2023
- Survey Area 2022
- Survey Area 2021

UK Habitat Classification

- f1a5 - Blanket Bog (H7130)
- f1a6 - Degraded Blanket Bog
- f2b - Purple Moor Grass and Rush Pastures
- f2c - Upland Flushes, Fens and Swamps
- g1 - Acid Grassland
- g3c - Other Neutral Grassland
- g3c7 - Deschampsia Neutral Grassland
- g3c8 - Holcus-Juncus Neutral Grassland
- g4 - Modified Grassland
- h1b - Upland Heathland
- h3 - Dense Scrub
- h3e - Gorse Scrub
- u1b5 - Building
- u1e - Built Linear Feature
- w1d - Wet Woodland
- w1e - Upland Birchwoods
- w2c - Other Coniferous Woodland

0 0.5 1 Kilometres

VATTENFALL

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

FIGURE 8.2.2a

Scale 1:30,000 @ A3

Date JULY 2023

342000

858000

N

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2023
- Survey Area 2022
- Survey Area 2021

UK Habitat Classification

- f1a5 - Blanket Bog (H7130)
- f1a6 - Degraded Blanket Bog
- f2b - Purple Moor Grass and Rush Pastures
- g1 - Acid Grassland
- g3c - Other Neutral Grassland
- g3c7 - Deschampsia Neutral Grassland
- g3c8 - Holcus-Juncus Neutral Grassland
- g4 - Modified Grassland
- h1b - Upland Heathland
- h3 - Dense Scrub
- h3e - Gorse Scrub
- w1d - Wet Woodland
- w2c - Other Coniferous Woodland

0 0.5 1 Kilometres

VATTENFALL

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

FIGURE 8.2.2b

Scale 1:10,000 @ A3

Date JULY 2023

03640.00016.0185.0 UK Habitat Map

342000

344000

858000

03640.00016.0185.0 UK Habitat Map

N

w2c 55
w2c 53
w2c
w2c 53
w2c 53
w2c 53
w2c
w2c 55
w2c
w2c 36
w2c 36
w2c 36
w2c 56
w2c 55
w2c 53
f1a6 11 57
w2c 11 53 57
f1a6 11 57
f1a5 11 57
w2c 36
w2c 11 13 53 57
w2c 13 57
w2c 55
w2c 55
w2c 56
w2c 56
w2c 55
w2c 36 56
w2c 55
w2c
1
w2c 56
w2c 55
3
w2c
w2c
w2c 56

0 0.5 1
Kilometres

LEGEND

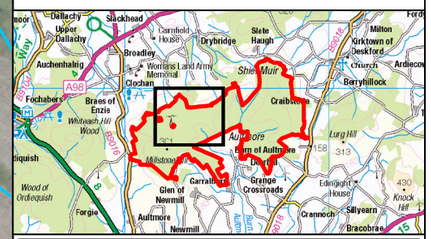
- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2023
- Survey Area 2021

UK Habitat Classification

- f1a5 - Blanket Bog (H7130)
- f1a6 - Degraded Blanket Bog
- w2c - Other Coniferous Woodland



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

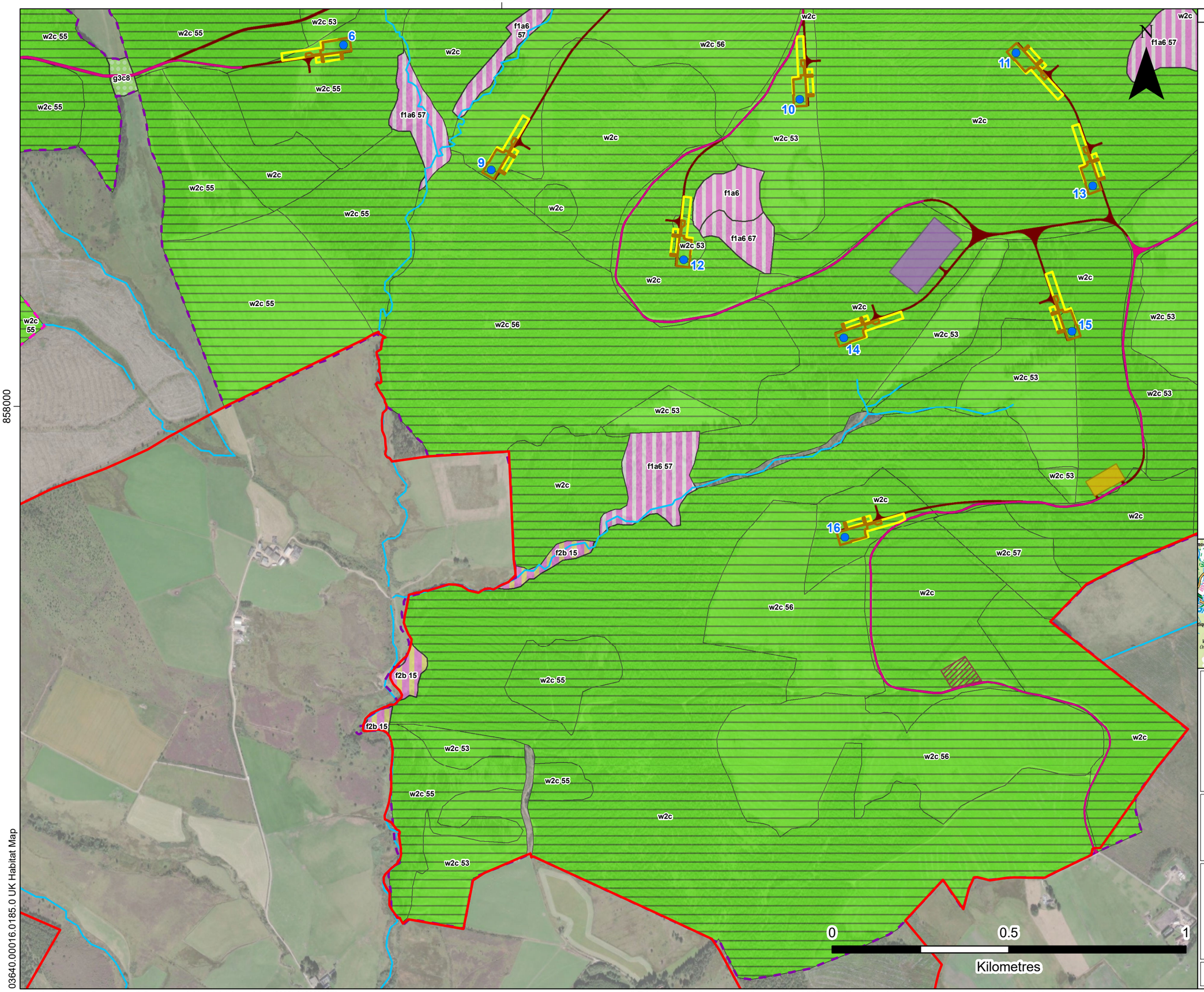
FIGURE 8.2.2c

Scale 1:10,000 @ A3

Date JULY 2023

346000

858000



LEGEND

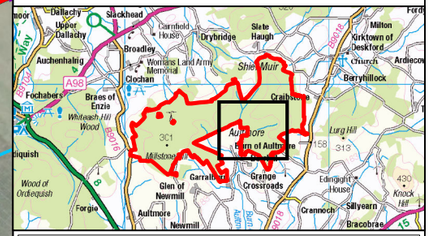
- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2023
- Survey Area 2021

UK Habitat Classification

- f1a6 - Degraded Blanket Bog
- f2b - Purple Moor Grass and Rush Pastures
- g3c8 - Holcus-Juncus Neutral Grassland
- w2c - Other Coniferous Woodland



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

FIGURE 8.2.2d

Scale 1:10,000 @ A3

Date JULY 2023

03640.00016.0185.0 UK Habitat Map

346000

348000

860000

N

LEGEND

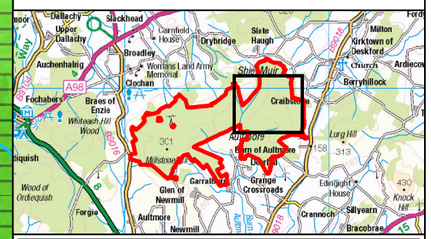
- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2021

UK Habitat Classification

- f1a6 - Degraded Blanket Bog
- f2c - Upland Flushes, Fens and Swamps
- w2c - Other Coniferous Woodland



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

FIGURE 8.2.2e

Scale 1:10,000 @ A3

Date JULY 2023

0 0.5 1 Kilometres

03640.00016.0185.0 UK Habitat Map

340000

w1e 10
h3
w1e 10
w2c
g1
w2c
w2c 120 127
w2c
h3
w2c 55
w2c 36 56 120 127
h1b
w1d
u1e 111
f1a6 10 11
g3c 15
h3e
h3
f2b
h3
f2b 14
w2c
w2c 55
w2c 36
g4 14
h3 11
g3c 14
f2b 13 189
f1a6
g4 14
g3c7 15
u1b5
f1a6 10 14
g3c7 14
g4
w2c 36
h3e
f2b 189
g4 14
g3c8 15
g3c8 14

0 0.25 0.5
Kilometres

LEGEND

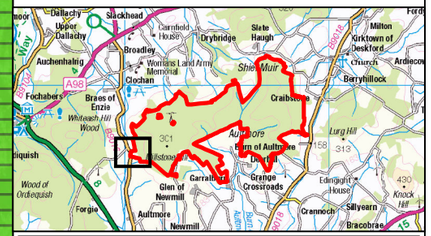
- Site Boundary
- Permanent Hardstanding
- Temporary Hardstanding
- Upgraded Existing Track
- New Track
- Watercourse

Lable

- Survey Area 2022
- Survey Area 2021

UK Habitat Classification

- f1a6 - Degraded Blanket Bog
- f2b - Purple Moor Grass and Rush Pastures
- g1 - Acid Grassland
- g3c - Other Neutral Grassland
- g3c7 - Deschampsia Neutral Grassland
- g3c8 - Holcus-Juncus Neutral Grassland
- g4 - Modified Grassland
- h1b - Upland Heathland
- h3 - Dense Scrub
- h3e - Gorse Scrub
- u1b5 - Building
- u1e - Built Linear Feature
- w1d - Wet Woodland
- w1e - Upland Birchwoods
- w2c - Other Coniferous Woodland



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

UK HABITAT MAP

FIGURE 8.2.2f

Scale 1:5,000 @ A3

Date JULY 2023

03640.00016.0185.0 UK Habitat Map

340000 342000 344000 346000 348000

862000 860000 858000 856000

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M6
- M15
- M19
- M20
- M23
- M23a, M19, MG9a
- M23b
- M25
- MG6a
- MG9a
- MG9a, M23a
- MG9b
- MG10a
- U20
- U4
- W1, W2
- W23

Other

- CF

VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3a

Scale 1:30,000 @ A3

Date JUNE 2023

0 0.5 1
Kilometres

03640.00016.0186.0 NVC Map

342000

858000

N

LEGEND

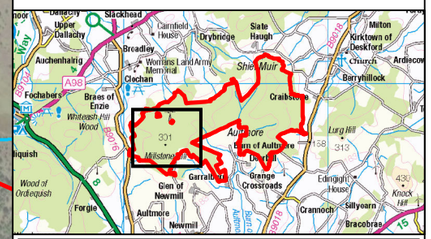
- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M15
- M19
- M20
- M23a, M19, MG9a
- M23b
- M25
- MG6a
- MG9a
- MG9a, M23a
- MG10a
- U20
- U4
- W1, W2
- W23

Other

- CF



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3b

Scale	Date
1:10,000 @ A3	JUNE 2023

0 0.5 1

Kilometres

03640.00016.0186.0 NVC Map

342000

344000

858000

03640.00016.0186.0 NVC Map

N

U4

M15

1

3

0 0.5 1

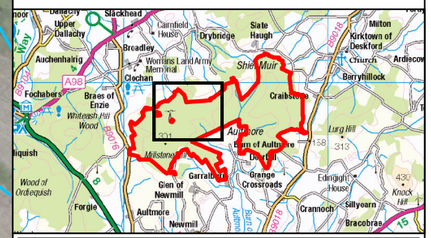
Kilometres

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M15
- U4



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3c

Scale	Date
1:10,000 @ A3	JUNE 2023

346000

858000

N

6 9 10 11 12 13 14 15 16

M20 M19 M19 M19 M23 M23 M23 M23 M15 M6 M23

0 0.5 1

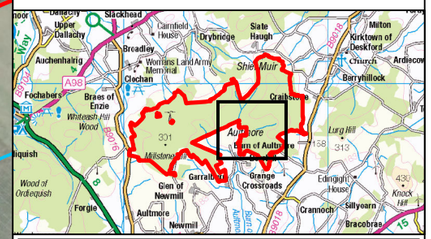
Kilometres

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M6
- M15
- M19
- M20
- M23



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3d

Scale 1:10,000 @ A3

Date JUNE 2023

03640.00016.0186.0 NVC Map

346000

348000

860000

N

M20

M23

M20

M19

M23

M19

M19

M23

M19

6

7

8

9

10

11

12

13

14

15

0 0.5 1

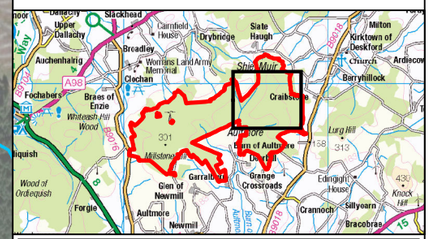
Kilometres

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M19
- M20
- M23



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3e

Scale 1:10,000 @ A3

Date JUNE 2023

03640.00016.0186.0 NVC Map

340000

N

W23
U20
M19
M15
CF
M23a\M19\MG9a
W1\W2
MG9b
M23b
W23
M25
W1\W2
W1\W2
MG6a
MG9a\M23a
MG9a\M23a
M19
MG9a\M23a
MG9a
MG6a
CF
W23
CF
M23b
MG6a
M23b
MG10a

0 0.25 0.5
Kilometres

LEGEND

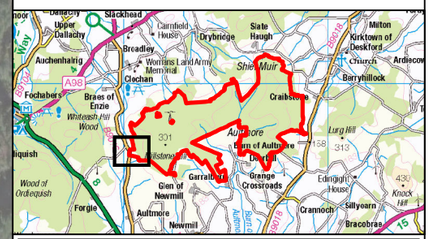
- Site Boundary
- Permanent Hardstanding
- Temporary Hardstanding
- Upgraded Existing Track
- New Track

National Vegetation Classification (NVC)

- M15
- M19
- M23a, M19, MG9a
- M23b
- M25
- MG6a
- MG9a
- MG9a, M23a
- MG9b
- MG10a
- U20
- W1, W2
- W23

Other

- CF



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

NVC MAP

FIGURE 8.2.3f

Scale	Date
1:5,000 @ A3	JUNE 2023

03640.00016.0186.0 NVC Map

340000 342000 344000 346000 348000

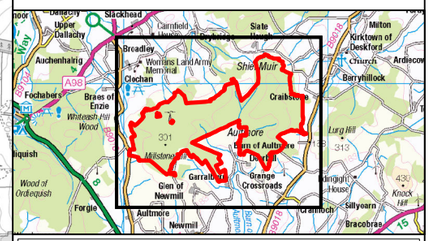
862000 860000 858000 856000

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2022
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- High
- High - Dominant NVC community
- High - Subordinate NVC Community
- Moderate
- Moderate - Subordinate NVC community



VATTENFALL

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4a

Scale 1:30,000 @ A3

Date JULY 2023

0 0.5 1
Kilometres

03640.00016.0187.0 GWDTE Map

342000

858000

N

Ardnachie Burn

Burn of Fernking

Burn of Thievesbush

Corsekell Burn

Burn of Blackhills

Burn of Sunnybrae

1

2

3

4

5

M15

M15

M15

MG10a

M19/M15°

M23b

W1/2

M23a/MG9a

M25

W1/2

M23a/MG9a

W1/2

MG9a/M23a

MG9a/M23a

M23b

MG10a

M23b

MG9a/M23a

0

0.5

1

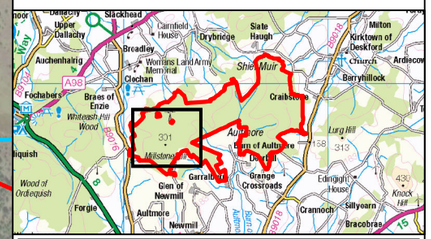
Kilometres

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2022
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- High
- High - Dominant NVC community
- High - Subordinate NVC Community
- Moderate
- Moderate - Subordinate NVC community



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4b

Scale 1:10,000 @ A3

Date JULY 2023

03640.00016.0187.0 GWDTE Map

342000

344000

858000

03640.00016.0187.0 GWDTE Map

N

Ardmachie Burn

Rumbling Burn

Burn of Fernking

Burn of Thievesbush

Corsekell Burn

1

3

M15

0 0.5 1

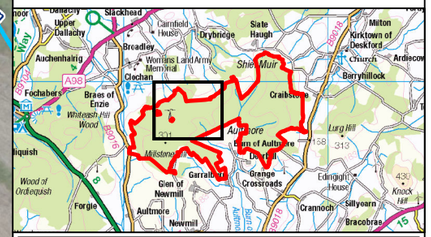
Kilometres

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- Moderate



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4c

Scale 1:10,000 @ A3

Date JULY 2023

346000

858000

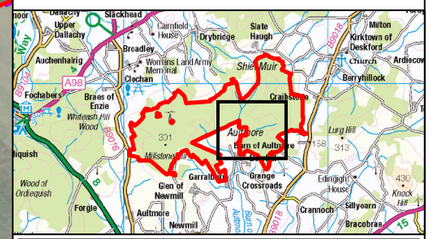
N

LEGEND

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- High
- Moderate



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4d

Scale	Date
1:10,000 @ A3	JULY 2023

0 0.5 1

Kilometres

03640.00016.0187.0 GWDTE Map

346000

348000

860000

N

LEGEND

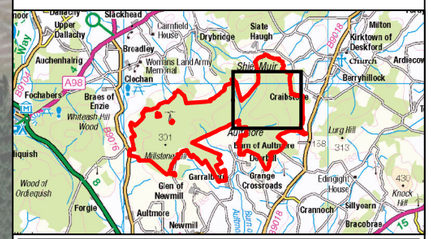
- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- High

Burn of Austmore
White Stripe
Milk Burn
M23
6
7
8
9
10
11
12
13
14
15

0 0.5 1
Kilometres



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4e

Scale 1:10,000 @ A3

Date JULY 2023

03640.00016.0187.0 GWDTE Map

340000

Corsekelll Burn

M15b
M15b
MG10a
MG10a
MG10a
MG10a
M15
M19/M15*
M23a/MG9a
M23b
W1/2
W1/2
M25
W1/2
MG9a/M23a
MG9a/M23a
M23a/MG9a
MG10a
M23b
M23b
MG10a/MG6

N

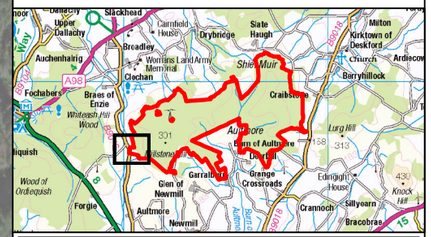
0 0.25 0.5
Kilometres

LEGEND

- Site Boundary
- Permanent Hardstanding
- Temporary Hardstanding
- Upgraded Existing Track
- New Track
- Watercourse
- Survey Area 2022
- Survey Area 2021

Ground Water Dependent Terrestrial Ecosystem (GWDTE)

- High
- High - Dominant NVC community
- High - Subordinate NVC Community
- Moderate
- Moderate - Subordinate NVC community



VATTENFALL

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

AULTMORE WIND FARM REDESIGN

TA 8.2 - VEGETATION REPORT

GWDTE MAP

FIGURE 8.2.4f

Scale 1:5,000 @ A3

Date JULY 2023

03640.00016.0187.0 GWDTE Map

APPENDIX 01

Quadrat Descriptions and Species Lists

Date: 10/08/2021	Quadrat No: Q1	Grid Ref: NJ41022 57090	NVC: Transition M15
Description: Ride between plantations, wetter than elsewhere with sphagnum moss, cotton grass and quite a thick cover of heather. No track only a grazed trod deer path. Two roe deer also noted.			

Species	Domin	Species	Domin
Calluna vulgaris	10	*Rhytideadelphus loreus*	4
Eriophorum vaginatum	3	*Pleurozium schreberi*	6
Carex pendulata	4	*Sphagnum fallax*	4
Potentilla erecta	5	*Erica tetralix*	4
Polytrichum commune	4	*Agrostis capillaris*	5
Juncus squarrosus	P	*Sphagnum subnitens*	P

Date: 10/08/2021	Quadrat No: Q2	Grid Ref: NJ40891 57206	NVC: M6 + M19
Description: Further down path more open area which resembles M19 and with some small flush M6 areas where the drainage ditch flows into the bog. Soft rush and sphagnum are dominant in the flush areas.			

Species	Domin	Species	Domin
Calluna vulgaris	9	*Eriophorum vaginatum*	5
Erica tetralix	4	*Carex echinata*	5
Sphagnum capillifolium	6	*Juncus effusus*	3
Sphagnum fallax	4	*Pleurozium schreberi*	6
Sphagnum palustre	3	*Phytidiadelphus loreus*	5
Hypnum jutlandicum	8	*Deschampsia flexuosa*	3
Polytrichum commune	6	*Hylocomium splendens*	3
Juncus squarrosus	3	*Blechnum spicant*	P

Date: 10/08/2021	Quadrat No: Track sides to create general species list.	Grid Ref: NJ4107057057 NJ4134856906	NVC: N/A
Description: Species list compiled of the various species found on the side of the tracks, manmade habitats with more mineral soil input from the track substrate but mixing with the peaty soils of the site where the forestry is present. Domin values have not been provided as the list was compiled while walking a 200m stretch of track.			

Species	Species	Species

Date: 10/08/2021	Quadrat No: Track sides to create general species list.	Grid Ref: NJ4107057057 NJ4134856906	NVC: N/A
Ulex europaeus	*Salix spp*	*Hypochaeris radicata*	
Cytisus scoparius	*Chaemerion angustifolium*	*Leodonton autumnalis*	
Luzula sylvatica	*Epilobium brunnescens*	*Euphrasia spp.*	
Calluna vulgaris	*Lycopodiella inundata*	*Rubus idaeus*	
Erica cinerea	*Polytrichum commune*	*Agrostis capillaris*	
Luzula multifolora	*Larix decidua* (seedlings)	*Holcus lanatus*	
Ribes fruticosus agg	*Betula pendula* (seedlings)	*Festuca ovina*	
Rhydtideadelphus loreus	*Juncus conglomeratus*	*Fstuca rubra*	
Rhytideadelphus squarrosus	*Juncus effusus*	*Anthoxamnthum odoratum*	
Carex nigra	*Circium palustre*	*Circium arvense*	
Cerastium fontanum	*Digitalis purpurea*	*Poteneilla erecta*	
Senecio jacobaea	*Trifolium repens*	*Rhinanthus minor*	
Polygala serphllifolia	*Pedicularis sylvatica*	*Odontites vernus*	
Pinguicula vulgaris	*Prunella vulgaris*	*Vicia cracca*	
Lathyrus pratensis	*Lotus corniculatus*	*Achillea millefolium*	
Achillea ptarmica	*Ranunculus repens*	*Ranunculus acris*	
Rumex acetosa	*Rumex crispus*	*Urtica dioica*	
Dibaeis baeomyces			

Date: 10/08/2021	Quadrat No: Q3	Grid Ref: NJ41367 56618	NVC: U4
Description: Raised dryer area between two forest compartments, often overgrown with self-seeded trees, but some areas are still open with an acid grassland habitat, grazed by deer, with deer lie-ups noted and lots of ticks.			
Species	**Domin**	**Species**	**Domin**
Rhytideadelphus squarrosus	6	*Holcus lanatus*	4
Pleurozium schreberi	8	*Agrostis capillaris*	5
Hylocomium splendens	6	*Deschampsia flexuosa*	5
Calluna vulgaris	5	*Polytrichum commune*	5
Galium saxatille	6	*Carex nigra*	4
Luzula multiflora	3		

Date: 11/08/2021	Quadrat No: Q4	Grid Ref: NJ42574 57911	NVC: U4

Description: Remnants of an area of previously farmed pasture land, though now rank and overgrown. In some areas there are mounds of red stemmed feather moss, with both heath bedstraw and small patches of heather growing on the dryer mound tops.

Species	Domin	Species	Domin
Holcus lanatus	8	*Vicia cracca*	3
Agrostis capillaris	7	*Rhytideadelphus squarrosus*	6
Circium palustre	5	*Dactylus glomeratus*	4
Deschampsia cespitosa	4	*Digitalus purpurea*	4
Juncus effusus	4	*Oxalis acetosa*	4
Pleurozium schreberi	7	*Lathyrus pratensis*	3
Calluna vulgaris	4	*Rumex crispus*	2
Galium saxatille	4	*Potentilla erecta*	4
Alchillea millefolium	3	*Deschampsia flexuosa*	5
Anthoxanthum odoratum	4		

Date: 11/08/2021	Quadrat No: Q5	Grid Ref: NJ43904 58877	NVC: N/A

Description:
Overgrown previously surfaced ride between two woodland blocks, one now felled the other intact. Both appear to have been planted on peat substrate, potentially over 50cm deep in places judging from the depth of the drainage ditches. Some areas are relatively grassy, others more heathy.

Species	Domin	Species	Domin
Holcus lanatus	9	*Potentilla erecta*	5
Agrostis capillares	8	*Digitalis purpurea*	3
Juncus effusus	4	*Oxalis acetosa*	5
Luzula sulvatica	4	*Hypericum perforatum*	2
Polytrichum commune	5	*Galium saxatille*	6
Veronica officialis	4	*Anthoxanthum odoratum*	5
Juncus conglomeratus	3	*Rhytideadelphus squarrosus*	5
Prunella vulgaris	p	*Euphrasia spp*	P
Pleurozium schreberi	6	*Hylocomium splendens*	5
Pseudoscleropodium purum	5		

Date: 12/08/2021	Quadrat No: Q6	Grid Ref: NJ46855 57163	NVC: M20 best fit

Description: Wetter area like M20 with dominance of cotton grass, but recently replanted with conifer so this will be a temporary habitat. The drier ridges have a heathier accumulation of species, with the limited sphagnum present in the lower wetter areas between the ridges. Generally the variation in species is quite limited.

Species	Domin	Species	Domin
Eriophorum vaginatum	9	*Blechnum spicant*	2
Polytrichum commune	4	*Deschampsia flexuosa*	3
Sphagnum fallax	6	*Calluna vulgaris*	4

Date: 12/08/2021	Quadrat No: Q7	Grid Ref: NJ46053 57509	NVC: M23 (M6)

Description:
This is an area of M23 dominated by patches of soft rush or sharp flowered rush. In the slightly drier areas Yorkshire fog becomes more obvious. It is bounded on two sides by streams and probably gets run off water from the forestry on the banking above. Close to the margins of the steep peaty slopes there is some sphagnum, indicative of M6 (*Sphagnum fallax* and *S. palustre*).

Species	Domin	Species	Domin
Juncus acutiflorus	10	*Carex nigra*	4
Deschampsia cespitosa	4	*Succisia pratensis*	4
Holcus lanatus	5	*Rumex acetosa*	4
Juncus effusus	5	*Gallium palustre*	3

Date: 12/08/2021	Quadrat No: Q8	Grid Ref: NJ46390 57716	NVC: M19

Description: Area of M19 bog which has only been partially planted over. Large hummocks present which lead down to the stream side. Further away from the stream, there previous planting and harvesting of trees has taken place. Chickweed-wintergreen also noted as growing. Six frogs were noted while walking through this area.

Species	Domin	Species	Domin
Vaccinium myrtillus	6	*Sitka spp*	3
Empetrum nigurm	5	*Arctostaphylos uva-ursi*	4
Erica tetralix	4	*Hypnum jutlandicum*	6
Calluna vulgaris	8	*Blechnum spicant*	3
Eriophorum vaginatum	6	*Rhytideadelphus squarrosus*	3
Hylocomium splendens	5	*Pleurozium schreberi*	8

Date: 12/08/2021	Quadrat No: Q8	Grid Ref: NJ46390 57716	NVC: M19
Sphagnum papillosum	5	*Sphagnum fallax*	5
Sphagnum capillifolium	5	*Deschampsia flexuosa*	3
Polytrichum commune	4	*Potentilla erecta*	3
Trientalis europaea	P	*Molinia caerulea*	2

Date: 13/08/2021	Quadrat No: Q9	Grid Ref: NJ47963 58978	NVC: M19
Description: Higher point in the site with what looks like quite deep peaty soils. Heather growth where trees have been felled is quite dense. Appears to be more like a dry heath environment rather than blanket bog, though it is likely that this is due to the pioneering growth of the heather and the remaining drainage from the forestry. The area does not appear to have been replanted. Track ruts are very deep, so peat may be 1m greater depth in areas.			
Species	**Domin**	**Species**	**Domin**
Calluna vulgaris	9	*Hypnum jutlandicum*	6
Eriophorum vaginatum	6	*Rhytideadelphus quarrosus*	8
Empetrum nigrum	4	*Hylocomium splendens*	4
Sphagnum capillifolium	5	*Sphagnum fallax*	3
Polytrichum commune	5	*Deschampsia flexuosa*	4
Blechnum spicant	2	*Luzula multiflora*	4
Juncus squarrosus	3	*Rubus idaeus*	2
Agrostis capillares	4	*Rhytideadelphus loreus*	P
Juncus effusus	2	*Chaemerion angustifolium*	2

Date: 13/08/2021	Quadrat No: Q10	Grid Ref: NJ47190 59906	NVC: H12
Description: Track leading up to a high point within the site. Trees have previously been felled and replanted. Peaty soils but has a heathier feel, especially within 20 metres of the now overgrown track. At about 1km along the track there is a dense cover of gorse. Given an NVC category of H12, but has species present which are likely due to the mineral input from the track, e.g. autumn hawkbit.			
Species	**Domin**	**Species**	**Domin**
Calluna vulgaris	10	*Rhytideadelphus squarrosus*	8
Anthxanthum odoratum	5	*Deschampsia flexuosa*	6
Empetrum nigrum	3	*Nardus stricta*	4
Erica cinerea	4	*Agrostis capillares*	5
Polytrichum commune	5	*Cladonia portentosa*	2

Date: 13/08/2021	Quadrat No: Q10	Grid Ref: NJ47190 59906	NVC: H12
Hypnum jutlandicum	5	*Potentilla erecta*	3
Vaccinium myrtillus	4	*Luzula sylvatica*	3
Leodonton autumnalis	P	*Rhynanthus minor*	P
Holcus lanatus	4	*Lotus corniculatus*	3

Date: 13/08/2021	Quadrat No: Q11	Grid Ref: NJ46134 59333	NVC: M19 (M20)
Description: Unplanted and open area of what appears to be deep peat with an M19 assemblage on it. This habitat is present on both sides of the track, but on the upside of the track the habitat is more like M20 with cotton grass dominant, but also has billberry which the downside does not. On the downside of the road, between the road and the stream, the habitat is dominated by heather with a thick covering of sphagnum too.			
Species	**Domin**	**Species**	**Domin**
Calluna vulgaris	9	*Plagiothecium undulatum*	4
Eriophorum vaginatum	8	*Erica tetralix*	4
Sphagnum capillifolium	8	*Juncus squarrosus*	3
Sphagnum palustre	4	*Sphagnum papillosum*	3
Cladonia portentosa	3	*Hypnum jutlandicum*	4

Date: 12/08/2021	Quadrat No: Q12	Grid Ref: NJ46487 59681	NVC: M20
Description: A species poor area of M20 adjacent to the stream. Big hummocks of cotton grass very wet between the hummocks.			
Species	**Domin**	**Species**	**Domin**
Eriophorum vaginatum	10	*Polytrichum communie*	4
Deschampsia flexuosa	6	*Galium saxitile*	5
Sphagnum fallax	8	*Pleurozium Scherberi*	6
Carex nigra	4	*Luzula multiflora*	2

Date: 12/08/2021	Quadrat No: Q13	Grid Ref: NJ46669 58636	NVC:M19
Description: Open high point with few trees. Appears to be a remnant of blanket bog which has suffered from drying, though many of the key species are still present. Including bog asphodel.			

Species	Domin	Species	Domin
Calluna vulgaris	7	*Cladonia portentosa*	5
Eriophorum vaginatum	7	*Sphagnum capillifolium*	8
Empetrum nigrum	3	*Dicranum scorparium*	3
Narthecium ossifragum	4	*Hypnum jutlandicum*	5
Erica tetralix	5	*Sphagnum papillosum*	3
Pleurozium schreberi	4	*Sphagnum fallax*	3

Date: 01/08/2022	Quadrat No: Q14	Grid Ref: NJ 40290 56147	NVC: MG6a
Description: Improved grassland field with recently mown areas and other areas left a little longer.			

Species	Domin	Species	Domin
Trifolium repens	9	*Cynosurus crystatus*	5
Lolium perenne	6	*Phleum pratense*	4
Holcus lanatus	6	*Ranunculus repens*	3

Date: 01/08/2022	Quadrat No: Q15	Grid Ref: NJ 40378 56176	NVC: M23a/MG9a
Description: Area to west of watercourse dominated by *Juncus acutiflorus* with frequent *Ranunculus flammula, Lathyrus pratensis, Fillipendula ulmaria, Deschampsia cespitosa, Holcus lanatus*, and occasional *Epilobium palustre*. Vegetation further upslope in drier areas is formed of abundant *Deschampsia cespitosa, Holcus lanatus* and *Juncus effusus*, with *Ranunculus repens* and *Trifolium repens* in ground layer - trending from M23 towards MG9.			

Species	Domin	Species	Domin
Trifolium repens	9	*Cynosurus crystatus*	5
Lolium perenne	6	*Phleum pratense*	4
Holcus lanatus	6	*Ranunculus repens*	3

Date: 01/08/2022	Quadrat No: Q16	Grid Ref: NJ 40449 56168	NVC: MG9a/b
Description: Old railway embankment. Not a lot of *Deschampsia cespitosa* coverage within quadrat, however relatively abundant in surrounding area.			

Species	Domin	Species	Domin
Arrehantherum elatius	5	*Deschampsia cespitosa*	4

Date: 01/08/2022	Quadrat No: Q16	Grid Ref: NJ 40449 56168	NVC: MG9a/b
Dactylis glomerata	3	*Anthoxanthum odoratum*	5
Holcus lanatus	6	*Agrostis species*	4

Date: 01/08/2022	Quadrat No: Q17	Grid Ref: NJ 40726 56421	NVC: M19

Description: Very dry M19 blanket mire. While *Sphagnum capillifolium* is present within the quadrat, other patches have little or no *Sphagnum* with frequent to abundant *Deschampsia flexuosa, Vaccinium myrtillus, C.vulgaris, Empetrum nigrum*, and frequent *Galium saxatile* on hummocks of *Eriophorum vaginatum* and hypnaceous moss species *Pleurozium scheberi* and *Hylocomium splendens*.

Species	Domin	Species	Domin
Calluna vulgaris	8	*Narthecium ossifragum*	4
Eriophorum vaginatum	6	*Potentilla erecta*	3
Trichophorum germanicum	6	*Empetrum nigrum*	7
Deschampsia flexuosa	3	*Sphagnum capillifolium*	5
Erica tetralix	4	*Pleurozium scheberi*	5

Date: 01/08/2022	Quadrat No: Q18	Grid Ref: NJ 40636 56453	NVC: M19

Description: This area looks like heath on aerial imagery. It also looks like *Calluna vulgaris* dominated heath on the ground, however on further inspection, *Eriophorum vaginatum* is present throughout and the area is formed of deep peat (>0.5m). It is therefore very dried out blanket mire habitat in which *Calluna vulgaris* is taking over.

Species	Domin	Species	Domin
Calluna vulgaris	8	*Sphagnum fallax*	3
Eriophorum vaginatum	6	*Sphagnum palustre*	4
Deschampsia flexuosa	4	*Hylocomium splendens*	4
Potentilla erecta	3	*Lysimachia europea*	8

Date: 02/08/2022	Quadrat No: Q19	Grid Ref: NJ 40458 56696	NVC: M4

Description: Area of bottle sedge mire at end of blanket bog, located between MG9a/M23a habitat. Too small to map - measures approximately 30x30m.

Species	Domin	Species	Domin
Epilobium palustre	4	*Circium palustre*	3
Potentilla palustris	4	*Galium palustre*	4
Equisetum species	3	*Holcus lanatus*	3
Carex rostrata	8	*Agrostis species*	4

Date: 02/08/2022	Quadrat No: Q19	Grid Ref: NJ 40458 56696	NVC: M4
Carex species	4	*Rumex acetosa*	4

Date: 02/08/2022	Quadrat No: Q20	Grid Ref: NJ 40452 56804	NVC: M19
Description: Degraded blanket bog habitat within the north of the proposed access route survey area. Whilst absent from the quadrat, *Empetrum nigrum* was noted to be frequent in the surrounding area.			
Species	**Domin**	**Species**	**Domin**
Calluna vulgaris	8	*Erica tetralix*	4
Eriophorum vaginatum	7	*Sphagnum capillifolium*	6
Narthecium ossifragum	4	*Sphagnum papillosum*	4
Potentialla erecta	4		

Date: 02/08/2022	Quadrat No: Q21	Grid Ref: NJ 40363 56806	NVC: MG9b
Description: Neutral grassland habitat within the north of the proposed access route survey area.			
Species	**Domin**	**Species**	**Domin**
Holcus lanatus	9	*Circium arvense*	4
Arrenatherum elatius	4	*Deschampsia cespitosa*	4
Urtica dioica	4		

Quadrat Q	Grid ref
1	NJ 41022 57090
2	NJ 40891 57206
3	NJ 41367 56618
4	NJ 42574 57911
5	NJ 43904 58877
6	NJ 46855 57163
7	NJ 46053 57509
8	NJ 46390 57716
9	NJ 47963 58978
10	NJ 47190 59906
11	NJ 46134 59333
12	NJ 46487 59681
13	NJ 46669 58636
14	NJ 40290 56147

Quadrat Q	Grid ref
15	NJ 40378 56176
16	NJ 40449 56168
17	NJ 40726 56421
18	NJ 40636 56453
19	NJ 40458 56696
20	NJ 40452 56804
21	NJ 40363 56806

APPENDIX 02

Assessment Checklist for Advising on Peatland and Carbon Rich Soil

Assessment criteria for all elements of the development mentioned in the EIA report.

1. Raised Bog supporting 'typical' bog vegetation.

No

2. Montane Bog supporting 'typical' bog vegetation or characteristics (see C&D below).

No

3. Blanket Bog – (based on quality criteria used in identifying potential SSSI).

3a. Is the proposed development within a continuous unit of blanket bog >25ha?

No*: Advise on compliance with the mitigation hierarchy and on mitigation measures for Electricity Act cases. Provide 'no comment' response for Planning Act cases.*

ASSESSMENT STOPPED HERE AS ANSWER TO 3A 'NO.'

3b. Does the proposed development footprint and/or the wider area of blanket bog of which it is a part, support vegetation capable of forming peat?

Yes: Go to C

No: Advise on compliance with the mitigation hierarchy and on mitigation measures for Electricity Act cases. Provide 'no comment' response for Planning Act cases.

3c. Does the proposed development footprint (with a buffer of 250m) support two or more of the following?

- Low frequency of drains and peat cutting
- Presence of plant species indicating peat formation capability and/or lack of disturbance
- An area of natural surface pattern
- Absence of invasion by woodland or scrub

Yes: Possible National Interest - consult adviser

No: Go to D

3d. Does the proposed development footprint (with a buffer of 250m) support one or more of the following?

- An abundance of *Sphagnum*-rich ridges
- Ridges of *Sphagnum - Betula nana*
- Hummocks of *S. fuscum* or S. *austinii*
- Peat mounds
- Hollows of *Sphagnum* or bare peat - *Rhynchospora fusca*

Yes: Possible National Interest - consult adviser

No: Advise on mitigation measures

***Likely national interest** – These habitats are particularly sensitive to any impacts, and restoration is difficult to achieve so it is expected that there will be impacts on peatland of national interest.*

***Possible national interest** – It is possible that there will be an impact to peatland of national interest, specialist advice is required and potentially a site visit.*

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 906 4280

CARDIFF
T: +44 (0)29 2049 1010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: + 44 (0)1392 490152

GLASGOW
T: +44 (0)141 353 5037

GUILDFORD
T: +44 (0)1483 889800

LONDON
T: +44 (0)203 805 6418

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER (Denton)
T: +44 (0)161 549 8410

MANCHESTER (Media City)
T: +44 (0)161 872 7564

NEWCASTLE UPON TYNE
T: +44 (0)191 261 1966

NOTTINGHAM
T: +44 (0)115 964 7280

SHEFFIELD
T: +44 (0)114 245 5153

SHREWSBURY
T: +44 (0)1743 23 9250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)6 23 37 14 14