Loch Toftingall BESS

Appendix 7.2: Outline Habitat Management Plan

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The business of sustainability

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Acronyms and Abbreviations

Name	Description
BESS	Battery Energy Storage System

1. INTRODUCTION

1.1 Background

Boralex is seeking permission to construct a Battery Energy Storage System (BESS) near the Loch of Toftingall, in the Highlands, hereby referred to as the Proposed Development. It will accommodate up to 52 battery energy storage units, electrical connection and control buildings, landscaping, fencing and ancillary infrastructure, with access linking into the existing tracks for the Halsary Wind Farm to the south. Construction is expected to take 36 weeks and the development will be of permanent use, with initial repowering exercises after 10-15 years and then again at 20-25 years. An overview of the Proposed Development is in Chapter 4 of the Environmental Report.

The design of the Proposed Development has sought to implement the mitigation hierarchy and avoid features of biodiversity importance wherever possible. There will, however, be some losses of habitat and effects on fauna species. These are summarised below and described in more detail in the Ecological Assessment in Chapter 7 of the ER. Hence, there is a need to compensate for losses and seek enhancements to provide net gain for biodiversity in line with current policy and best practice.

1.2 Aims and Objectives of the OHMP

This Outline Habitat Management Plan (oHMP) has been prepared to provide an overview of the habitat creation and enhancement measures that Boralex will implement to compensate for the habitat losses and enhance habitats to provide a net gain for biodiversity.

Opportunities have been sought to maximise benefits to biodiversity through measures that complement those described in the HMP for the Halsary Wind Farm[1], that adjoins the Proposed Development to the south.

This is an outline HMP to seek agreement on the approach and key components with The Highland Council (THC) and other key stakeholders as part of the consenting process. Subject to approval of the Proposed Development, Boralex is committed to producing a more detailed HMP with the selected contractor prior to construction commencing. It is expected that the HMP will be a live document that will be operated throughout the life of the Proposed Development and will take account of ongoing monitoring of the measures it contains and linkages with habitat management in the wider area.

This oHMP does not include measures that will be implemented to prevent / mitigate construction effects, unless they are retained and contribute to post construction enhancements for biodiversity.

1.3 The Location of the Proposed Development

The Proposed Development Site (referred to hereafter as the “Site”) encompasses an area of approximately 40.3 ha of which an area of 1.3 ha will be developed including the access road. The site is located approximately 940 m to the southeast of the village of Mybster and 1.6 km southeast of the village of Spittal (see Chapter 2, Figure 2.1).

2. THE SITE AND GENERAL ECOLOGICAL CONTEXT

2.1 General Ecological Context

The Site is located in an area that is dominated by commercial conifer plantations (in varying stages), peatland habitats, agricultural land and small villages and a linking road network. There are some large waterbodies notably the Loch of Toftingall that lies approximately 500 m to the east of the Site and eight streams associated with loch in the Wick River catchment. The Halsary Wind Farm lies to

[1] Halsary Wind Farm Habitat Management Plan (October 2018) Version 1.4 submitted to discharge condition 12 of planning permission 17/04827/S42.

the south of the Site and is an area of felled conifer plantation that is being developed back to blanket bog as part of the HMP for that development.

2.2 The Existing Site and Immediate Surrounds

Habitat on the main part of the Site is predominantly coniferous Sitka spruce plantation (with some Norway spruce), with areas of blanket bog in the rides and occasional watercourses with marshy grassland along their margins in places (see Chapter 7, Figure 7.3). The access road runs through an area of wet modified bog. Habitats adjacent to the Site are largely similar, but with an area of felled plantation to the north and small areas of flushes in the wet modified bog to the west. Only the Allt Eireannaich watercourse and its small tributaries lie within the Site boundary. It flows west to east through the main part of the Site into Loch of Toftingall and at the time of the survey visit comprised a wet channel blocked by vegetation.

Several NVC communities were identified in the wetland habitats, often close to watercourses (see Chapter 7, Figure 7.3):

- M25 *Molinia caerulea – Potentilla erecta* and occasional M23b rush pastures in the areas of wet modified bog;
- M20 *Eriophorum vaginatum*-blanket and raised mire;
- M23 rush pastures, and M6 *Carex echinata – Sphagnum recurvum / auriculatum* mire;
- M23b rush pasture with a *Juncus effusus* sub-community;
- M6c *Carex echinata-Sphagnum fallax/denticulatum* mire and acid flush, with *Juncus effusus* sub-community.

The areas of high / moderate potential groundwater dependant habitats included the flushes, sedge and rush dominated mires adjacent to the Site to the northwest and along Allt Eireannaich and an associated tributary. As the Site comprises existing and felled coniferous forestry plantation, the drainage regime has been affected by artificial drainage and hence in these areas much of the habitat has become rain fed rather than being supported by groundwater (Chapter 11).

3. OUTLINE HABITAT MANAGEMENT PLAN

The main focus of the Habitat management Plan will be to restore peatland habitats in the Site boundary. Peatland habitat is one of Scotland's largest degrading ecosystems, the habitat is widely recognised for its ability to capture and store carbon. Destruction of the habitats increases carbon release and therefore contributing to CO2 emission in the atmosphere (Nature Scot 2023)[2]. As such peatland restoration is at the forefront of Scottish government agenda and as such this oHMP sets out key peatland restoration aims and objectives in line with Scotland's National Peatland Plan: Working for our future. Blanket bog is identified as a priority habitat on the Scottish Biodiversity List[3].

All areas of existing conifer plantation in the Site boundary will be felled including in areas where infrastructure will not be built. Areas of existing blanket bog along the rides between the blocks of conifers will be retained.

The habitats lost to the Proposed Development are shown in **Table 1**. Some areas of wet modified bog will be lost to allow for the new access road for the Proposed Development and whilst they were within the Halsary WF site boundary, these areas had been excluded already from the Halsary WF HMP, to allow the access road to be constructed.

[2] NatureScot (2023) Guidence, Peatland ACTION - What we do, Working to improve the condition of degraded bogs across Scotland. Available at: Peatland ACTION - What we do | NatureScot (Accessed 19/09/2023)

[3] NatureScot (2020) Scottish Biodiversity. Available at: Scottish Biodiversity List.pdf (Accessed 19/09/2023)

Table 1 Summary of Habitat on Site and Losses for the Proposed Development

Habitat	Area Presently on Site (ha)	Area Lost (ha)
Conifer Plantation	23.40	23.40
Blanket Bog	1.00	0.00
Marsh / Marshy Grassland	0.70	0.00
Watercourses	1.05	0.00
Wet Modified Bog	14.40	0.30
Waterbodies	0.05	0.00

The restoration of the Site will comprise the creation of the following habitats as shown in Figure 6.14 (all areas are approximate):

- 10 ha of blanket bog in areas of felled conifers;
- 3 ha of new riparian planting along the Allt Eireannaich watercourse and its associated tributaries;
- 1.8 ha of natural regeneration and 1.3 ha of native deciduous tree planting around the BESS infrastructure;
- 0.2 ha of standing water (attenuation pond);

In addition, an area of approximately 7 ha of the felled commercial conifer plantation will be replanted with conifers.

The following sections provide an overview of the management measures that will be undertaken. These will be developed further in a more detailed HMP post consent and will be subject to further surveys on site to help focus areas, species and refine any approaches to creating the habitats. An Ecological Clerk of Works (ECoW) will be present on-site during construction and will oversee the habitat restoration works.

3.1 Creation of Peatland Habitats

Peatland habitats (aim is for blanket bog) will be restored across a large proportion of the Site following felling of the commercial conifer plantations. The creation of blanket bog in these areas will complement the habitat management approach associated with the Halsary WF.

These areas were all peatland habitats prior to the planting of the commercial conifers, although they will have been modified by the tree growth. The area is Class 5 Carbon and Peatland Class (peat soil, but with no peatland vegetation – see Chapter 10, Figure 10.4). The majority of peat was recorded at depths > 1 m across the Site, with 65% of probes recording depths > 2 m. Peat was found to be particularly deep in the central and northern areas of the Site. Generally, infrastructure has been sited to avoid the deepest areas of peat, but there are some elements of Site infrastructure that remain sited in areas underlain by deep peat, including the BESS compound (see Paragraph 10.5.16, Chapter 10).

The first phase of the habitat management work will entail felling and removal of the conifers from the Site, including measures to avoid effects on the underlying peat during the felling / removal process (see Paragraph 5.9.1, Chapter 5). Restoration of the habitat will commence as soon as possible after felling, to reduce the carbon emissions.

The approach will require the removal of the ridge and furrow pattern created by the tree planting which raises much of the round above the water table and encourages no-bog species which, along with the conifers, result in drying out of the area. It is likely that ground smoothing will be used, where the excavator bucket is used to upturn stumps and infill furrows, before then reprofiling the area. If the area needs flattening cross tracking could be used as a secondary approach, however, harvesting with new machines that have wide tracks often mean it is unnecessary. This will impede conifer

regeneration and help to raise water levels which are key requirements to facilitate peatland restoration. Removal of regenerating conifers is important also and hand-clearance may be required.

Exact measures and the extent of the intervention required, will be confirmed following a site survey post felling, when the cleared grounds allow a better visualisation of the drainage, slopes *etc*. For example, furrow blocking may be possible to help raise the water table and reduce erosion in areas where ridges and furrows are less prominent.

Where the Proposed Development will result in the permanent loss of peat soils, those soils and turves will be excavated, stored and used in the creation of new habitats in line with the OPMP.

The Contractor will programme restoration works to avoid back-tracking over habitat and peat restoration areas.

Additional planting and deer fencing will be provided to help surface vegetation become established. Tree planting, grazing and muirburn will be prohibited from restoration areas, as will be the application of any treatments that would alter soil acidity.

Monitoring will be undertaken of the bog restoration progress using a series of characteristics to show that it is moving towards *"good"*[4] for example:

- The water table is high (*ie* within 10 cm of the surface most of the year);
- The presence of small pools of open water formed by pooling where the water table is high;
- Limited areas of bare peat showing signs of continuing erosion;
- A wide variety of bog species present including at least six bog indicator species (*eg* heather (*Calluna vulgaris*), sundews (*Drosera* spp), heaths (*Erica* spp), crowberry (*Empetrum nigrum*), cotton grasses (*Eriophorum* spp), bog asphodel (*Narthecium ossifragum*), non-crustose lichens, feather mosses (*Pleurocarpous* mosses), reindeer moss (various *Cladonia* lichens), woolly hair moss (*Racomitrium lanuginosum*), cloudberry (*Rubus chamaemorus*), *Sphagnum* spp, deer grass (*Trichophorum cespitosum*), bilberry, cranberry, cowberry (*Vaccinium* spp);
- A good balance of vegetation types (*eg* approximately ⅓ heather; ⅓ cotton grasses and at least ⅓ *Sphagnum* (more *Sphagnum* the better, as it should be ideally forming an understorey beneath the other species) and with a range of other wetland species present.
- The presence of hummock forming *Sphagnum* mosses (*eg S papillosum, S capillifolium* and *S magellanicum*); and
- No exposure of the peat surface or lasting ruts caused by vehicles, if burning or cutting management has taken place.

The approach to monitoring will be set out in the detailed HMP, but it is likely to include on site surveys, comparison of photographs at fixed locations *etc*.

3.2 Protecting / Improving Existing Blanket Bog

Species poor blanket bog (M20) is present within the forestry rides between conifer plantation stands. These areas of bog will be protected and monitored during construction and operation of the Proposed Development. Such habitat will provide a source of bog habitat species to assist in the colonisation of areas that are to be restored back to blanket bog (see Chapter 3, Section 3.1).

Measures will be implemented to avoid effects on these areas of bog including:

- Demarcation of the bogs so they are easy to identify and avoid;
- Buffers to be maintained around the bogs to they are not affected by nearby activities;

[4] Uplands Management Group (2017) Blanket Bog Land Manager Guidance. Available at: Blanket-bog-land-manager-guidance-FAQs-Report.pdf (moorsforthefuture.org.uk) (Accessed 19/09/2023)

- Avoidance of construction activities that will affect the hydrology and compaction of the peat adjacent to the bogs (*eg* using low ground pressure vehicles, appropriate construction plant);
- Measures to reduce grazing in these habitats and help improve their condition;
- Temporary laydown and storage areas to be away from the bogs; and
- Appropriate surface drainage controls to avoid run-off into the bogs.

Monitoring will be undertaken of these blanket bogs to confirm that they are being protected and their condition is being improved. This will be set out in the detailed HMP, but is likely to be based on a detailed assessment of the bogs prior to construction starting and subsequent fixed point quadrat monitoring.

3.3 Native Tree Planting / Natural Regeneration Around the BESS

A mix of native tree species is to be planted, to provide visual screening of the BESS and enhancing biodiversity (see Chapter 6, Figure 6.14). Following the planting, trees will be routinely checked until they become suitably established, with maintenance undertaken as required including protection against deer. The proposed species mix is set out below.

- *Alnus glutinosa* (25%).
- *Betula pendula* (15%).
- *Betula pubescens* (15%).
- *Pinus sylvestris* (15%).
- *Salix fragilis* (5%).
- *Salix cinerea* (10%).
- *Salix caprea* (10%).
- *Sorbus aucuparia* (5%).

Areas of the Site immediately around the BESS and the attenuation pond will be left to colonise naturally. The regeneration process will be monitored and any necessary management measures implemented taking account of the habitat that develops.

3.4 Riparian Habitat Management and Creation

New riparian habitat will be created along the Allt Eireannaich and around the attenuation basin that will be developed as part of the drainage strategy. The aim will be to improve the watercourse and its corridor and link in with the open blanket bog habitats being created after felling of the conifers. Creation of a more diverse habitat along the watercourse will increase the biodiversity value of the corridor and is likely to provide greater opportunities for fauna species (*eg* nesting, foraging, commuting, loafing) and linkages to the Loch of Toftingall.

The channel of the Allt Eireannaich is heavily vegetated restricting water flow. Surveys will confirm where and how this vegetation can be managed to improve the value of the watercourse, including for wildlife.

In places, the existing Allt Eireannaich corridor margins comprise grassland habitats including M23b *Juncus effusus/acutiflorus-Galium palustre* rush-pasture (Juncus effusus sub-community) and M25 *Molinia caerulea – Potentilla erecta* grasslands. The approach reported in the HMP for the Halsary WF was to establish W4 (*Betula pubescens-Molinia caerulea* woodland) in riparian zones to replace areas where conifers had been felled.

The areas of riparian planting shown in Figure 6.14 are indicative both along the watercourses and in terms of their width around them. Further surveys will check existing habitat types along the

watercourse and its corridor and confirm where new riparian planting should be established along their margins, including areas of W4 (*Betula pubescens-Molinia caerulea* woodland) to complement the approach on the Halsary WF site and other typical wetland tree species such as:

- Downy birch;
- Goat willow; and
- Alder.

In addition, further wetland habitat creation will be explored as part of the creation of the drainage system for the Proposed Development once it is operational. An attenuation basin will be created between the BESS and the Allt Eireannaich and water from it will be discharged (under licence from SEPA) to the watercourse via a swale. This, along with clearance of some of the vegetation that is currently blocking the watercourse, will increase the regular flow along the watercourse. As part of the detailed development of the drainage strategy, opportunities will be explored to create habitat that will provide biodiversity value, including for fauna species. The swale and the attenuation basin will provide a link between the Allt Eireannaich watercourse and associated riparian planting and the new tree planting and other habitat creation around the BESS.

3.5 Commercial Conifer Plantation

A block of felled commercial conifer plantation in the northern part of the Site will be replanted with a combination of Sitka spruce and lodgepole pine. This replanting is not seen as delivering biodiversity value, but is part of a commitment to retain some commercial forestry.

3.6 Protected Species

Protected species surveys have been undertaken at the site alongside habitat surveys and full reports and details of these can be found in the ER and accompanying Technical Appendices. As many fauna species are highly mobile, pre-construction surveys will be undertaken to confirm any changes in distribution that have taken place since the surveys for the ER were undertaken.

Whilst the Site is currently of little value for fauna species, the creation of new habitat will seek to increase the value for fauna especially along the Allt Eireannaich (*eg* for otter, water vole, bats, birds, amphibians, reptiles) through the provision of nesting, foraging, loafing and commuting habitats and refugia / hibernacula for herptiles.

The lighting strategy for the Proposed Development will avoid significant effects on surrounding habitats created and hence not affect sensitive fauna species (*eg* bat species).

It is possible that development of peatland habitats may attract breeding raptors and waders (*eg* hen harrier, golden plover). Hen harriers prefer dry habitat for nesting[5][6] and once blanket bog is created, conditions will be unsuitable for this species. However, it is possible that conditions for nesting may occur between felling and blanket bog establishment. In contrast wader species such as golden plover prefer blanket bogs[7] and may be attracted to the Site as this habitat type develops. Any use of the Site by ground nesting raptors / waders will be identified by the monitoring and the need for any management actions will be determined in agreement with NatureScot.

[5] Hardey *et al* (2013) Raptors – A Field Guide for Surveys and Monitoring. 3rd Edition. The Stationary Office.

[6] NatureScot (2016) Wind Farm Proposed on Afforested Sites Advice on Reducing Suitability for Hen Harrier, Merlin and Short-Eared Owls. Available at: Wind farm proposals on afforested sites advice on reducing suitability for hen harrier, merlin and short-eared owl | NatureScot (Accessed 19/09/2023)

[7] Bryrkjedal I & Thompson D (1998) Tundra Plovers – The Eurasian, Pacific and American Golden Plovers and Grey Plover. T & A D Poyser.

4. NET BIODIVERSITY GAIN

The habitat management for the Proposed Development will result in a significant net increase in biodiversity value. The main losses will be of commercial conifer plantations, which provide low biodiversity value and the loss of a small area of wet modified bog for the access road. The restoration of blanket bog (a priority habitat on the Scottish Biodiversity List), new native tree planting and habitat creation and enhancement of riparian habitats along the Allt Eireannaich watercourse and through features to be created as part of the drainage strategy, will result in a significant positive overall biodiversity gain for the site post construction. In particular, the area of blanket bog on the Site will increase significantly with approximately 10 ha created in areas where conifers have been felled and improvement sought in areas of existing, but species poor, blanket bog along the forest rides.

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