

Technical Appendix 8.6:

Outline Nature Enhancement Management Plan

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Figure 8.13 – Outline NEMP

1.0 Introduction

This Technical Appendix has been prepared to accompany the Oliver Forest Wind Farm ('the Proposed Development') Environmental Impact Assessment (EIA) Report.

It presents outline habitat management principles (in the form of an Outline Nature Enhancement Management Plan, 'NEMP') of measures to be implemented to enhance habitats on-site, to be finalised in consultation with Scottish Borders Council (SBC), NatureScot and additional relevant stakeholders following receipt of planning consent (through a Steering Group and Review Committee to be established, see section 1.1). It is assumed the Outline NEMP will be implemented as a Nature Enhancement Management Plan (NEMP) in accordance with a suitably worded pre-commencement planning condition and will be adopted following the completion of the construction of the Proposed Development.

1.1 Steering Group and Review Committee

An SGRC would be established prior to the finalisation of the NEMP to agree to the effectiveness of prescribed management measures and monitoring techniques, oversee the implementation of the NEMP, monitoring results and recommendations for any amendments to the NEMP.

For the first five years of implementation, the steering group would meet or correspond at least annually.

The following bodies would be invited to form part of the steering group and review committee:

- the Owners of the Proposed Development;
- the Landowners (or their representatives);
- independent ecologist appointed by the Owner(s);
- SBC;
- NatureScot;
- Scottish Environment Protection Agency (SEPA); and
- River Tweed Commission.

1.2 Aims and Objectives

The purpose of the Outline NEMP as implemented will be to ensure creation and ongoing management of habitats at the site to benefit biodiversity in accordance with the principles outlined in the National Planning Framework 4 (NPF4), Policy 3, the intent of which is to '*protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*', with the outcome that '*biodiversity is enhanced and better connected including through strengthened nature networks and nature-based solutions*'.

The Outline NEMP includes four key aims to improve and enhance biodiversity at the Proposed Development site:

- Enhance peatland habitats, within Glenmuck Bog.
- Enhance and manage grassland in the River Tweed Valley.
- Enhancement of fisheries habitats.
- Improve opportunities for nesting and foraging birds and bats.

2.0 Site Overview

This Technical Appendix has been prepared to accompany the Oliver Forest Wind Farm ('the Proposed Development') Environmental Impact Assessment (EIA) Report.

The term 'the site' is used throughout this Technical Appendix and is illustrated as the red line planning application boundary on Figure 8.13.

Detailed baseline habitat descriptions of the site are provided within Chapter 8, and Technical Appendix 8.1.

In summary, the site is dominated by commercial coniferous plantation (principally Sitka spruce *Picea sitchensis*), with small areas of larch (*Larix decidua*), Scots pine (*Pinus sylvestris*) and planted native-leaved trees. The open high ground is dominated by bog, with lower and steeper slopes within rides and along watercourses mostly being a mosaic of dry dwarf shrub heath, marshy grassland, acid grassland and bracken (*Pteridium aquilinum*).

Baseline studies identified bog on-site to be M19a¹, some of which is potentially of national interest (in accordance with NatureScot, 2023; see Technical Appendix 8.1). There are also areas of M25² and this is considered potentially restorable where on deeper peat (as detailed in NatureScot guidance, 2023), particularly where it forms mosaics with M19a habitat.

The lower regions of the site support some areas of semi-natural woodland and mature scattered trees, mostly being a mix of beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*). In the low-lying valley bottom along the public road and the banks of the River Tweed there are several fields of semi-improved grassland currently used for sheep grazing.

3.0 Overview of Aims and Objectives

3.1 Approach to Outline NEMP

The Proposed Development infrastructure layout has been designed to minimise potentially significant effects on sensitive ecological and ornithological features and peat reserves. A description of the Proposed Development is provided in EIA Report Chapter 3.

Opportunities for restoration and enhancement of blanket bog have been identified and which in turn will aim to enhance the biodiversity, flood storage and carbon sequestration/ storage of the site. Further enhancement works are proposed which will include restoration of habitats within a local biodiversity site, improvement in the quality of a meadow (with subsequent benefits for wildlife like invertebrates), increasing nesting and foraging opportunities for wildlife, including birds and bats on-site, and improving habitat connectivity through the site. These measures will have multi-faceted benefits for biodiversity and will improve habitat connectivity and networks in, and through, the site.

Statkraft UK Ltd. have a partnership with UK charity Buglife – the conservation trust. There are measures included within this Outline NEMP which have a strong focus on enhancing habitats for the benefit of invertebrates. Invertebrates are key to healthy ecosystems. From pollination, dispersing seeds, providing food for wildlife, recycling nutrients and cleaning water, insects and pollinators play a critical role in life on our planet, without them whole ecosystems would collapse. In a UK wide study, it was found that the UK's flying insect population has decreased by as much as 58.5% in the last 20 years (Ball *et al.*, 2022), this decline could potentially be fatal for many ecosystem services we rely on as well as habitats and ecosystems across the UK. Resources available, as well as the extent of habitat restoration areas, mean that renewable energy projects can play a pivotal role in halting this dramatic decline. The partnership between Statkraft UK Ltd. and Buglife allows bespoke habitat management measures to be incorporated into this Outline NEMP (and subsequent NEMP, if the Proposed Development is consented), helping achieve sustainable populations of invertebrates and, in light of NPF4 policy 3, support in delivering biodiversity enhancement within, and improving habitat connectivity through the Site.

Impacts on protected species or neighbouring habitats will be minimised during the implementation of the NEMP, and derogation licences will be obtained from NatureScot, if necessary.

The aims, objectives and habitat management measures outlined herein will be further refined and prescribed through detailed site investigation work and further consultation with NatureScot and SBC, post-consent.

3.2 Aim 1: Enhance Peatland Habitats, within Glenmuck Bog

Objective 1: Promote Improved Structural Diversity of Blanket Bog

In accordance with NatureScot guidance (2023), given the requirements for a significant level of enhancement required under NPF4, c. 10 % of the baseline amount of priority peatland habitat on-site (as determined through baseline surveys) is required for restoration.

The area of priority peatland habitats on-site (M19a) is 36.18 ha (as shown on Figure 8.12a; also see Technical Appendix 8.5), and accordingly there is a requirement to enhance 3.62 ha of peatland.

Within the Glenmuck Bog LWS 3.62 ha of M25 (mosaic) habitat (on peat ≥ 0.5 cm) will be restored to achieve the required level of enhancement of peatland on-site. Glenmuck Bog is a non-statutory local biodiversity site which

¹ *Calluna vulgaris* – *Eriophorum vaginatum* mire, *Erica tetralix* sub-community.

² *Molinia caerulea*-*Potentilla erecta* mire.

is located within the site (see Figure 8.13). It has the following habitat interest: un-modified blanket bog, valley mire, flush and species-rich marshy grassland along a small burn.

A condition assessment of the Glenmuck Bog was undertaken (see Technical Appendix 8.1) which identified a number of enhancement measures that could be adopted to improve the quality and condition of the qualifying features of the non-statutory site.

A ditch (shown on Figure 8.13) was recorded within the Glenmuck Bog which was found to be causing a drying effect (see also Technical Appendix 8.1), and therefore degradation of the bog habitat. The condition assessment also found that Sitka spruce was establishing across the Glenmuck Bog, also resulting in degradation of the bog habitats. Evidence of substantial grazing by deer was found to also be a cause of degradation. As a result, measures including those listed below are to be implemented, where possible, to improve the quality of the bog (peatland) habitats within Glenmuck Bog:

- blocking and infilling of the ditch present;
- managing deer numbers in Glenmuck Bog (likely through the use of exclusion fencing, or increased culling if applicable, and should be agreed with stakeholders and the success of the measure reviewed as part of the monitoring);
- control of Sitka spruce scrub that is encroaching on the bog habitats; and
- bracken control within the eastern spur of Glenmuck Bog that follows the burn in the east.

The success of the habitat improvement and peat restoration activities will be monitored on a regular basis for an ongoing period during the operational phase of the Proposed Development (see Section 4 regarding frequency of monitoring). It is considered that with the above listed measures adopted more than 3.62 ha of habitat will be enhanced (with 3.62 ha considered the minimum). An initial trial period of up to five years from implementation is proposed, after which the effectiveness of the measures will be re-assessed in consultation with SBC (and additional relevant stakeholders) and whether the frequency of monitoring in Section 4 is considered appropriate. The details will be included within the NEMP to be agreed but will likely include recording key features/indicators of the bog (following NatureScot's peatland condition assessment; NatureScot, 2023), to appraise the condition of the peatland (compared to baseline conditions), and repeated surveys over, at least part of, the Proposed Development's lifespan (see Section 4 regarding frequency of monitoring) and whether any remedial works are required. The programme will be agreed through consultation with NatureScot and the SBC. Survey results will be shared with NatureScot and the SBC to provide updated information for condition assessments of the non-statutory site.

In addition to the work at Glenmuck Bog, throughout the site vegetation cover will be re-established as quickly as possible on track and infrastructure verges and cut slopes, by re-laying of excavated peat acrotelm, to improve slope stability and provide erosion protection. Additional methods, including hydroseeding and/or use of a biodegradable geotextile, will be considered if necessary, in specific areas.

3.3 Aim 2: Enhance and Manage Grassland in the River Tweed Valley

Objective 1: Improving Condition of Grassland benefiting wildlife like invertebrates and ground-nesting birds

A field (c. 9.4 ha) adjacent to the River Tweed (see Figure 8.13) is currently heavily grazed by livestock (sheep). However, habitat surveys found that the field is relatively species-rich and included small amounts of species which are indicators of less improved grasslands and suggest possible former hay meadows, such as pignut (*Conopodium majus*) and yellow rattle (*Rhinanthus minor*).

There are grassland habitats adjoining the field to the west and east totalling c. 7.08 ha, which are also available for enhancement (as detailed below).

This means that, although these fields are currently more heavily grazed, a change in management could result in a substantial improvement in ecological value and creation of more diverse grassland/meadow with resulting positive implications for the diversity of fauna, including invertebrates, small mammals and bird diversity.

Detailed habitat surveys are needed prior to adoption of specific management prescriptions, as the habitat survey undertaken was preliminary. However, the preliminary results identified that although the area meets the criteria for acid grassland, the botanical species noted will suggest a potential neutral character at least in places.

If more detailed surveys show that the grassland is mostly clearly acid in character, management could involve reduction in grazing.

If more neutral in character, the field could be managed as hay meadows. This will include the following measures where practicable:

- use of cut hay from donor area to increase diversity of seed bank; and
- undertake a hay cut between mid-July and September, to allow late flowering species to seed.

The field also supported a modest breeding assemblage of ground-nesting waders (one breeding lapwing (*Vanellus vanellus*) pair and one breeding oystercatcher (*Haematopus ostralegus*) pair, see Figure 9.6). The management adopted will therefore also target benefiting ground-nesting wader species.

The success of the grassland management will be monitored on a regular basis (see Section 4 regarding frequency of monitoring) for an ongoing period during the operational phase of the Proposed Development. This will include NVC surveys to determine whether species diversity and composition is improving due to the measures. Furthermore, monitoring will also include surveying for invertebrates and ground-nesting birds to assess the benefit of the measures to a wide range of biodiversity. An initial trial period of up to five years from implementation is proposed, after which the effectiveness of the management in promoting increased invertebrate and ground-nesting bird diversity, will be re-assessed in consultation with the SBC (and additional relevant stakeholders), and whether the monitoring frequency as detailed in Section 4 is appropriate. The details will be included within the NEMP to be agreed.

Buglife will be consulted following detailed habitat surveys into the most appropriate management of the grassland habitat for the benefit of invertebrates.

It is proposed that a minimum of five large 'bug hotels' are deployed on peripheral areas of the grassland enhancement area, as well as a minimum of ten log piles that will provide habitat for wildlife. Following discussions with Buglife the log piles will be located in differing lighting conditions (where possible) with some positioned in sun, and some in shade to benefit a diverse array of invertebrates. As advised by Buglife a number of bug hotels have potential to help re-establish strong local invertebrate populations until natural habitat fully recover. A suitable location for creation of a bee bank will also be investigated within the grassland enhancement area for the benefit of ground-nesting bees. It is proposed that Buglife will be further consulted for input into the most appropriate locations for these invertebrate features.

The grassland enhancement area is located adjacent to the River Tweed and Buglife have advised that there is an opportunity for the area to become a part of Buglife's River Tweed B-Line and also be considered as part of the Pollinators Along the Tweed Project, enabling Buglife to provide strong support for the effective management of the grassland enhancement area for the benefit of invertebrates. The grassland enhancement area being considered as part of both of these Buglife's initiatives has the potential therefore to help enhance habitat connectivity at the locality (through enhancing the 'natural' network), which is a fundamental part of NPF4 Policy 3.

3.4 Aim 3: Enhancement of Fisheries Habitats

Watercourses on-site typically only offer limited habitat for fish, but the Rigs Burn and tributaries which flows into the River Tweed in the south (see Figures 8.10 and 8.13), is considered to offer some of the most suitable on-site habitat, at least for juvenile fish.

Opportunities to enhance and/or create fish habitats, including fish cover, riparian planting and any opportunities for the removal of barriers to fish movement will be identified by a suitably competent and qualified ecologist, in consultation with the River Tweed Commission (RTC). Prescriptive measures for inclusion within the NEMP will then be agreed with SBC (and additional relevant stakeholders).

Objective 1: Management of Fish Cover

Opportunities to increase habitat complexity for fish within watercourses on-site (Rigs Burn and tributaries), will be identified by a suitably competent and qualified ecologist, in consultation with the RTC, with prescriptive measures agreed with the SBC (and additional relevant stakeholders).

Measures for improving and/or creating fish cover to be explored will comprise techniques, such as placing boulders in watercourse channels, which whilst providing refugia for both juvenile and adult fish, can provide opportunities for macroinvertebrates (as well as increase the number of potential spraint locations for otter (*Lutra lutra*)).

Objective 2: Removal of Barriers to Migration

The identification of any existing potential barriers (such as tree debris) to fish movement within watercourses (including Rigs Burn) will be undertaken by a suitably competent and qualified ecologist in consultation with RTC. Remedial measures as appropriate will then be prescribed and agreed with SBC (and additional relevant stakeholders), to alleviate any major barriers to movement.

Where required to facilitate the Proposed Development, upgrades to the one existing watercourse crossings will be of a design to allow the free passage of fish and other wildlife beneath (see Outline CEMP, Technical Appendix 3.1). Two footbridges will be constructed to accommodate the recreational heritage path. The

footbridges will be designed to span the watercourse stretches and allow the continued free passage of wildlife beneath.

Objective 3: Management of Bank Side Vegetation

Native riparian planting can deliver benefits for fisheries, including the casting of shade, maintenance of cool water temperatures, provision of cover and sources of food from in-falling litter and insects.

Riparian planting can also deliver opportunities for foraging and commuting bats, terrestrial mammals, birds and reptiles. As such, prescriptive measures may incorporate additional objectives for other species but will remain sensitive to the potential for exacerbating potential impacts upon such species groups, resulting from the Proposed Development (e.g. mortality risks to bats through interaction with wind farm infrastructure).

Riparian planting within the site will be carried out along 1.25 km of the Rigs Burn (in the west of the site) and the final planting plan (including species composition) will be agreed in consultation with RTC and prescriptive measures for inclusion within the NEMP agreed in consultation with SBC (and additional relevant stakeholders).

3.5 Aim 4: Improve Opportunities for Nesting and Foraging for Wildlife

Objective 1: Improve habitat features

Native-tree planting will be undertaken along riparian habitats (Rigs Burn, see Aim 4) and the location of this planting is along the edges of commercial forestry, to help 'soften' the effect of the commercial conifers on adjacent open habitats. Furthermore, there will be an additional 0.9 ha planting of broad-leaved trees within the site (see Figure 15.5) which will increase foraging opportunities for bats and birds, and longer-term nesting opportunities for birds. The precise locations of the native planting will be the focus of on-site investigation to ensure the most suitable locality is chosen without compromising other key features such as deeper areas of peat and ground-nesting waders (as well as avoiding increased 'edge-effect'). Indicative area for riparian tree planting (1.25 km) is provided in Figure 8.13.

Tree planting will also be considered where appropriate close to the grassland enhancement area with elm (*Ulmus* sp.) the main species of interest to plant given Buglife's input that the white-letter hairstreak butterfly (*Satyrion w-album*) which is found relatively nearby to the grassland enhancement area would potentially benefit from elm planting. This measure would however be sensitively considered to ensure it would not be in conflict with the open nature of the grassland enhancement area which is most suitable for ground-nesting waders.

The creation of linear habitat features like tree-lines will provide opportunities for a variety of bird species. Scrub and tree species of local provenance (prioritising fruit-producing species) which will provide nesting and foraging resources for many bird species will be chosen. Tree planting will also benefit a host of wildlife and will improve habitat connectivity and habitat networks in and through the site.

Enhancement of the meadow adjacent to the River Tweed SAC in the south of the site will benefit ground-nesting bird species, including waders and passerines.

Bats will benefit from the creation of tree-lines and this will improve foraging and commuting opportunities for bats through the site (noting that no planting will be undertaken within an appropriate 'bat buffer' (minimum 97 m) from proposed turbines to minimise risks to bats).

Objective 2: Enhance habitats for black grouse

Black grouse are present at the locality (based on field surveys and desk study records, see Technical Appendix 9.1), although there was no evidence of on-site use by the species (see Technical Appendix 9.1). Tree planting (riparian planting along Rigs Burn, see Aim 4) has potential to benefit black grouse. Tree planting to be prescribed will include both continuous and discontinuous shrub and tree dominated planting. Discontinuous areas of planting will ensure that extensive shading of existing food plants (e.g. grasses, heathers and bilberry (*Vaccinium myrtillus*), where present) for black grouse does not occur, with tree and shrub species planted selected for their preference by black grouse such as (amongst others) birch (*Betula* spp.), juniper (*Juniperus communis*), willow (*Salix* spp.), and rowan (*Sorbus aucuparia*). Such plant species will provide additional food sources for black grouse in the spring and winter, together with suitable cover from predation for both adults and broods. The riparian planting will be >500 m from the proposed turbines so that effects on any black grouse encouraged by the planting will not be adversely affected by the operation of the Proposed Development.

Objective 3: Provide more opportunities for nesting and/ or roosting species

Measures for improving and/ or creating opportunities for other nesting birds will comprise the installation of nest boxes, suitable for a range of species.

A bird nest box plan within the site boundary will be designed by a suitably competent and qualified ecologist for incorporation into the NEMP, with the number, type and location of boxes confirmed in consultation with relevant stakeholders and relevant to the species assemblage at the locality. It is proposed that ten cavity-nesting boxes and ten open-nesting boxes will be installed within the site. The target species will include a variety of bird

species, including the BoCC Red List tree sparrow (*Passer montanus*) and spotted flycatcher (*Muscicapa striata*), which are both also listed as 'Borders 100' species (and thus considered important for the Borders area).

Opportunities for roosting bats will also be increased on-site through the installation of ten bat boxes fixed to appropriate trees (these will be offset from operational turbines). Indicative areas, where there are suitable mature trees to affix the boxes onto, for bat and bird boxes are provided on Figure 8.13.

4.0 Monitoring

The requirement for any updated baseline surveys to act as Year 0 for monitoring purposes will also be identified and undertaken at the appropriate time (such as, within the first year of operation of the Proposed Development and during the main growing/ breeding season March to August, inclusive).

A monitoring programme will be established and agreed in consultation with NatureScot, SBC and other relevant stakeholders. This will check compliance of habitat management measures implemented along with monitoring the effectiveness of such measures. See specific monitoring proposed concerning each aim above.

Monitoring is proposed as part of the NEMP in operational years 3, 5, 10 and 15 (and the requirement for additional monitoring after year 15 determined by monitoring results in year 15) of the Proposed Development and will consist of checks of the habitat enhancement measures detailed in this Technical Appendix. The Applicant will provide a summary of the NEMP activities and monitoring results to NatureScot and SBC each year of monitoring. The frequency of monitoring and reporting thereafter will be agreed with key stakeholders (NatureScot and the SBC).

The NEMP will be intended to remain a live document which will be updated and amended as necessary, based on results of the site investigation works and monitoring. NatureScot and SBC will be kept informed of any proposed changes to the NEMP and their agreement sought as necessary.

5.0 Habitat Management to Deter Raptors and Owls from Key-Holed Areas

Hen harrier and Short-eared Owl Displacement

Chapter 15 details the extent of forestry felling required to facilitate the construction of the Proposed Development, using a key-holing to a windfirm edge approach, with additional advance felling requirements.

Where felling is proposed, replacement tree planting will be undertaken but will maintain up to a 97 m unplanted buffer around each turbine. This is required to prevent potentially significant effects on bats, as outlined in Chapter 8. Note, the only exception to this are areas where peatland restoration is proposed, see Figure 8.12c.

Key-holed areas, however, have the potential to be used by hen harrier (*Circus cyaneus*) and short-eared owl (*Asio flammeus*) primarily for nesting, and although these species were not recorded breeding during baseline surveys, they are active at the locality (as determined from baseline surveys and/ or desk study records). These habitats therefore need to be managed in order to reduce their attractiveness to hen harrier and short-eared owl which may otherwise increase collision mortality risks above those estimated for the Proposed Development.

As recommended in NatureScot guidance (SNH, 2016), retaining a short sward (≤ 30 cm) of vegetation is the main measure to reduce the attractiveness of key-holed areas to nesting and foraging hen harrier and short-eared owl. This will include the cutting back of vegetation including grasses, heather, bracken and rushes which may otherwise encourage nesting birds.

Forestry management measures will also be considered to reduce the attractiveness of key-holed areas to hen harrier and short-eared owl, with all restocked areas out to approximately 500 m of key-holed areas for turbines, re-planted with mixed-stock to increase forest/canopy cover swiftly. The exception being within those areas comprising bog/heathland, and/or those identified for habitat restoration works.

Where possible, this should include the planting of native broad-leaved tree species. This is considered prudent, as forestry becomes unsuitable for hen harrier and short-eared owl as it ages.

6.0 References

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FIGURES