



Longcroft Wind Farm Technical Appendix 8.6

Outline Biodiversity Enhancement and Restoration Plan

Renewable Energy Systems (RES)

Prepared by:

SLR Consulting Limited

4/5 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH

SLR Project No.: 405.064.862.00001

31 October 2023

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1	30 October 2023	Beth Hanlon, Hannah Rowding	Ida Bailey	Nicola Tyrell

Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) was commissioned by Renewable Energy Systems (RES) (the applicant) to produce an outline Biodiversity Enhancement and Restoration Plan (BERP) to accompany the Environmental Impact Assessment (EIA) for the proposed Longcroft Wind Farm (the proposed development), located in the Scottish Borders.

1.1 Site Description

The site is located north-east of the A697, approximately 8.5km north-north-east of Lauder in the Scottish Borders. The site is within the administrative boundary of Scottish Borders Council.

The topography of the site is undulating, ranging from approximately 215 metres (m) Above Ordnance Data (AOD) within the river valley at the site entrance, to approximately 490m AOD near the summit of Hunt Law within the north-west of the site. Landscape within the site is defined by two main watercourses and associated river valleys - the Soonhope Burn and Whalplaw Burn, which intersect in a north-east to south-west direction. Upland areas within the site are managed primarily as active grouse moor, while lower elevations are managed largely for sheep grazing.

The habitats are predominantly upland heath and grassland with wet heath/ blanket bog on carbon rich soils (peat <50cm) and small pockets of blanket bog on deeper peat (>50cm).

1.2 Details of the Proposed Development

The proposed development is for:

- up to 19 three-bladed horizontal axis wind turbines of up to 220m tip height. The wind turbines would be nominally rated at 6.6MW;
- at each wind turbine, associated low to medium voltage transformers and related switchgear;
- wind turbine foundations;
- hardstand areas for erection cranes at each wind turbine location;
- a network of access tracks including watercourse crossings, passing places, turning heads and site entrance from the public road network;
- borrow pits (dependent on availability of stone within the site);
- a substation compound containing electrical infrastructure, control building, welfare facilities and a communications mast;
- a battery energy storage system (BESS), rated at 50MW and associated compound;
- a transfer station;
- public road widening of the D124;
- a network of buried electrical and communication cables;
- temporary construction compounds;
- signage; and
- habitat management and biodiversity enhancement (as described in this outline BERP).

The proposed development is expected to operate for up to 50 years following which decommissioning of the wind turbines and other infrastructure would be undertaken as required.

1.3 Purpose and Scope of this Document

The BERP fulfils two main objectives:



Firstly, it outlines the habitat restoration, management and monitoring measures proposed to compensate for the direct and indirect loss of sensitive natural/semi-natural habitats, including Annex I habitat (i.e. blanket bog and heath), and to mitigate for potential impacts to protected and notable species as a result of construction and operation of the proposed development.

Secondly, it functions as a plan for the delivery biodiversity enhancement as required by national planning policy, the National Planning Framework 4 (NPF4)¹.

This outline BERP is intended as a precursor to a more detailed Biodiversity Enhancement and Restoration Plan, which would be produced and agreed with the Local Planning Authority (i.e. Scottish Borders Council) and other key stakeholders including the landowners prior to commencement of construction.

The BERP will be a live document in place throughout the lifetime of the proposed development (anticipated to be 50 years), with monitoring results and unexpected developments adapting the plan to ensure the enhancement of habitats and species on the site.

1.4 Evidence of Technical Competence

The outline BERP has been written by Beth Hanlon, Senior Ecologist at SLR Consulting Ltd. with support from Ida Bailey, Principal Ecologist at SLR Consulting Ltd., who has provided technical review of this document and other advice throughout.

Beth Hanlon MSc, BSc (Hons), ACIEEM

Beth is a Senior Ecologist at SLR, who wrote this document has over five years' experience as a professional ecological consultant and is an Associate member of Chartered Institute of Ecology and Environmental Management (CIEEM). Beth holds a BSc (Hons) in Ecological and Environmental Science from the University of Edinburgh and an MSc in Species Identification and Survey Skills from the University of Reading. She has worked in Scotland and England in the following sectors: onshore wind, solar, built environment, and infrastructure, and has written several habitat management plans.

Ida Bailey, PhD., BSc (Hons), ACIEEM, Prince2, CERPIT

Ida is a Principal Ecologist based in Stirling. She joined SLR in September 2019. With over a decade spent in consultancy and research she has a broad ecological knowledge and commercial experience. In addition, she is a qualified project manager (PRINCE2 Practitioner), an associate member of CIEEM, and a certified restoration practitioner in training (CERPIT) with the Society for Ecological Restoration. Within the past four years Ida has managed the ecological aspects of over 50 projects in Scotland, England, Wales and the USA in the following sectors: onshore wind (feasibility, EIA, pre-construction, construction and operational phases), grid, forestry, floating solar, conservation, hydroelectric, solar projects, waste/landfill and AA Screening for projects and plans on both green and brownfield sites. Ida has a particular interest in habitat assessment and restoration.

¹ The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers on 13 February 2023. Further information and documentation is available online at <https://www.gov.scot/publications/national-planning-framework-4/>.



1.5 Planning Policy

Planning Policy of relevance to this outline BERP are listed below.

1.5.1 National Planning Policy

National Planning Framework 4

The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers on 13 February 2023. In order to accord with the biodiversity provisions of NPF4, development proposals should demonstrate that they contribute to the enhancement of biodiversity. Of particular relevance to this project, Policy 3 of NPF4 states:

3a) Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

...

c) Development proposals for national or major development, or for development that requires an EIA will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used. Proposals within these categories will demonstrate how they have met all of the following criteria:

i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;

ii. wherever feasible, nature-based solutions have been integrated and made best use of;

iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;

iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and

v. local community benefits of the biodiversity and/or nature networks have been considered.

d) Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design. This will take into account the need to reverse biodiversity loss, safeguard the ecosystem services that the natural environment provides, and build resilience by enhancing nature networks and maximising the potential for restoration.

Local Planning Policy

The Scottish Borders Local Development Plan (LDP) was adopted on 12 May 2016 and sets out policies on development and land use within the Scottish Borders up to 2025. Policies of relevance to this Appraisal are defined within 'Environmental Promotion and Protection' (EP) and include:

- EP1 – International Nature Conservation Sites and Protected Species;
- EP2 – National Nature Conservation and Protected Species;
- EP3 – Local Biodiversity; and
- EP13 – Trees, Woodlands and Hedgerows.



In addition to the Scottish Borders LDP, the Scottish Borders Local Biodiversity Action Plan (LBAP)² details information regarding biodiversity which should be considered by developers at an early stage. This includes examining opportunities to enhance biodiversity, such as restoring degraded habitats and improving habitat connectivity, as part of proposed developments.

Of particular relevance to the proposed development, it sets out priority objectives and actions in relation to:

- Ecosystem restoration;
- Natural Capital;
- Wildlife and Habitats; and
- Sustainable land management and Freshwater Management

2.0 Methodology

This outline BERP has been prepared with reference to relevant HMP, peatland restoration guidance (NatureScot, 2016; Gilbert & Anderson, 1998) including the International standards for Habitat Restoration (Society for Ecological Restoration, 2019).

The aim of the outline BERP is to establish the key objectives and principles by which parts of the site would be restored and managed to the benefit of biodiversity, which would then form the basis for the more detailed BERP, post consent. It is not the intention for this document to provide full details of proposed management, much of which cannot be determined fully at this stage.

2.1 Terminology

The following terms have been taken from guidance produced by Society for Ecological Restoration (2019) and have been used to structure this outline BERP:

- The **Scope** is the broad geographic or thematic focus of the proposed development.
- The **Vision** is a general summary of the desired condition one is trying to achieve through the work of the proposed development.
- The **Targets** identify the native ecosystems to be restored at a site as informed by a reference model, along with any social outcomes or constraints expected of the proposed development.
- **Goals** are formal statements of the medium to long-term desired ecological or social condition, including the level of recovery sought. Goals must be clearly linked to targets, measurable, time-limited, and specific.
- **Objectives** are formal statements of the interim outcomes along the trajectory of recovery. Objectives must be clearly linked to targets and goals, and be measurable, time-limited, and specific.
- **Indicators** are specific, quantifiable measures of attributes that directly connect longer-term goals and shorter-term objectives. Ecological indicators are variables that are measured to assess changes in the physical (e.g., turbidity units), chemical (e.g., nutrient concentration), or biotic (e.g., species abundance) ecosystem attributes as guided by the reference model. Social-ecological or cultural indicators measure changes in human wellbeing such as participation in traditional practices, governance, language and education.

² https://www.scotborders.gov.uk/downloads/file/928/local_biodiversity_action_plan



2.2 Baseline Data Collection

This outline BERP has been informed through baseline data collected during ecological studies carried out to inform the Environmental Impact Assessment (EIA) for the proposed development, for details of survey methodology and results see:

- Technical Appendix 8.1: Longcroft Wind Farm Ecological Desk Study Report.
- Technical Appendix 8.2: Longcroft Wind Farm Vegetation Survey and Habitat Mapping Report.
- Technical Appendix 8.3: Longcroft Wind Farm Protected Mammal Survey Report.
- Technical Appendix 8.4: Longcroft Wind Farm Bat Survey Report.
- Technical Appendix 8.5: Longcroft Wind Farm Fish Habitat Assessment.
- Technical Appendix 8.7: Habitats Regulations Appraisal Shadow Stage 1 Screening Report.
- Technical Appendix 9.1 and 9.2: Longcroft Wind Farm Breeding Bird Survey 2022 and 2023.
- Technical Appendix 9.3 and 9.4: Longcroft Wind Farm Wintering Bird Survey 2022 and 2023.

3.0 Baseline Data Summary

The baseline information summarised in this section focuses on information of particular relevance to the outline BERP. Full details relating to baseline data can be found Chapter 8: Ecology and Chapter 9: Ornithology of the EIA Report and associated technical appendices (as listed in Section 2.2 of this document).

3.1 Designated Sites

3.1.1 Statutory Sites

The following watercourses associated with River Tweed Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) are present with the site:

- Soonhope Burn; and
- Whaplaw Burn.

Jocks Burn, a tributary of the Earnscleugh Water, of which also forms part of the River Tweed SAC, intersects the eastern boundary of the site.

While no significant impacts to this the River Tweed SAC have been predicted within Chapter 8 of the EIA, opportunities for enhancing ecological features associated with the SAC are addressed within this document.

Non-statutory Sites

Two non-statutory designated nature conservation sites, and one provisional nature conservation site, are present within the site itself:

- Soonhope Burn Upper, The Howe – Local Biodiversity Site (LBS)
- Soonhope Burn, Lower – provisional Local Biodiversity Site (pLBS)
- Whaplaw Burn, Upper – LBS

While no significant impacts to these sites have been predicted within Chapter 8 of the EIA, opportunities for enhancing ecological features associated with these sites are addressed within this document.



3.2 Protected and Notable Mammal Species

Protected and/or notable mammal species recorded during 2023 field surveys, of which are considered to be of at least local importance, are displayed in **Table 3-1**.

While no significant impacts have been predicted for any species listed within **Table 3-1** as a result of the proposed development, opportunities for enhancing habitats that may support such species have been considered within this document.

Table 3-1 Protected and/or notable species recorded during 2023 field surveys

Species	Protection/ Conservation Status
Mammals	
Eurasian otter <i>Lutra lutra</i>	HabRegs2, HSD2, HSD4, WCA5, SBL, SB LBAP
Common pipistrelle bat <i>Pipistrellus pipistrellus</i>	HabRegs2, SBL, SB LBAP
Soprano pipistrelle bat <i>Pipistrellus pygmaeus</i>	
Brown long-eared bat <i>Plecotus auritus</i>	
Daubentons bat <i>Myotis Daubentonii</i>	
Natterer's bat <i>Myotis nattereri</i>	
Noctule bat <i>Nyctalus noctula</i>	
Leisler's bat	
Mountain hare <i>Lepus timidus</i>	SBL, SB LBAP
Reptiles	
Adder <i>Vipera berus</i>	SBL, WCA5, SB LBAP
Common lizard <i>Zootoca vivipara</i>	SBL, WCA5
Insects	
Violet oil beetle <i>Meloe violaceus</i>	SBL
Fish	
Atlantic salmon <i>Salmo salar</i>	HabRegs3, HSD2, OSPAR, SBL, SFFA, SB LBAP
Brown trout <i>Salmo trutta</i>	SBL, SFFA
River lamprey <i>Lampetra fluviatilis</i>	SFFA, SBL, SB LBAP
Table notes: HSD2 – Species listed in Annex II of Council Directive Habitats Directive 92/43/EEC on the conservation of natural habitats of wild fauna and flora (The Habitats Directive); HSD4 – Annex IV of the Habitats Directive; HabRegs2 - Schedule 2 of the Habitat Regulations; HabRegs3 - Schedule 3 of the Habitat Regulations; SBL – Scottish Biodiversity List; SB LBAP – Scottish Borders Local Biodiversity Action Plan; WCA9 – Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (non-native species); OSPAR – The Convention for the Protection of the Marine Environment of the North-East Atlantic; SFFA – Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.	

3.3 Protected and Notable Bird Species

Key bird species identified by NatureScot as being at potential risk of impact from wind farms included three species breeding within the potential disturbance zone: greylag goose (30 pairs), golden plover (15 pairs), lapwing (21 pairs), curlew (34 pairs), merlin (1 pair) and short-eared owl (1 pair, 2022 only).

Key species recorded using the potential disturbance zone outside the breeding season included red kite, hen harrier, goshawk, golden eagle, golden plover, lapwing, curlew, peregrine and merlin.

Key species recorded at risk of collision (i.e. flying through the site at rotor height) included whooper swan, pink-footed goose, greylag goose, red kite, marsh harrier, goshawk, golden eagle, curlew, golden plover, lapwing, peregrine and merlin.

Overall, there are not likely to be any significant impacts on ornithology resulting from the proposed development, assuming that the mitigation measures referred to within Chapter 9: Ornithology, are adopted.



3.4 Habitats

The site is comprised predominantly of upland heathland and blanket bog (corresponding to Annex I habitats H4030 European dry heath and H7130 blanket mire), with large areas of acid grassland and bracken also present. The blanket bog is largely on carbon rich soil rather than deep peat and is degraded due to a history of heather burning for grouse management. Small areas of conifer plantation and upland birchwood are also present as are areas of scrub, purple moor grass and rush pasture, flushes, and calcareous and neutral grassland. Rivers, including two which are part of the River Tweed SAC, are also present within the site.

In accordance with the EIA, habitats considered to be of local importance or greater, for which opportunities for biodiversity restoration and enhancement have been considered within this outline BERP are:

- Upland acid grassland;
- Upland calcareous grassland;
- Upland birchwoods;
- Upland heathland;
- Blanket bog;
- Purple moor grass and rush pasture;
- Upland fens, flushes and swamps; and
- Rivers and streams.

Habitat loss calculations are provided in **Table 4-1**. Without the compensation measures set out within the BERP, significant impacts on these habitats in particular heath and blanket bog could result from the construction of the proposed development (see **Chapter 8: Terrestrial Ecology**).

3.5 Notable Plants

Three notable plant species were identified during the habitat and vegetation survey conducted during May 2023 (Technical Appendix 8.2), for which opportunities for biodiversity restoration and enhancement have been considered within this document:

- Common juniper *Juniperus communis*;
- Wild pansy *Viola tricolour*; and
- Rock rose *Helianthemum nummularium*.

4.0 Habitat Loss

Direct Habitat Loss

Where existing habitat would be replaced by civil infrastructure associated with the proposed development, it would be permanently lost from the site at least for the duration of the operation of the proposed development. This includes habitats present under the footprint of the proposed development and areas that would be subject to cut and fill, grading and excavation for cables.

Indirect Habitat Loss

Indirect loss has been calculated for habitats with a surface peat layer more than >50cm deep that lie within 30m of the direct habitat loss areas (as per guidance outlined in NatureScot, 2023); this is



to allow for drying effects and hydrological and vegetation changes as a result of excavation and installation of infrastructure during construction³.

For soils with a shallower peat layer (<50cm deep) and other wetland habitats, hydrological impacts are anticipated to extend a smaller distance from works and we have therefore applied a buffer distance of 10m.

For all other habitats, an allowance for indirect loss of 5m has been included to allow for temporary loss resulting from damage during construction and the potential for increased drought vulnerability.

For the purposes of assessment, a precautionary approach has been taken which assumes that direct and indirect loss represents a permanent, irreversible negative effect, although in practice some areas indirectly affected may be able to be restored, e.g. during reinstatement following construction. Temporary loss of heath habitat caused during construction, for example by vehicles driving around the construction footprint and storage of materials, is anticipated to recover following reinstatement works within 5 years (Gilbert & Anderson, 1998).

4.1.1 Summary of Predicted Habitat Loss

Direct and indirect habitat loss calculations for all natural and semi-natural habitats of local or greater value are shown in

In summary:

- Total loss of blanket bog (peat > 50cm) is **1.62ha**.
- Total loss of peatland vegetation on carbon rich soil (peat < 50cm) and other wetland (purple moor grass and rush pasture) is: **18.24ha**.
- Total loss of open dry habitats (grassland and heath) is: **30.34 ha**.
- The loss of rivers and streams (natural stream bed only) in a worst-case scenario is estimated at: (**<0.001 ha**) 28m².
- Loss (direct and indirect) of habitats of less than local value includes bracken (4.54 / 0.99ha) largely due to borrow pits, other neutral grassland (0.64 / 0.74ha), modified grassland (0.59 / 0.88 ha) and arable land (8.77 / 0.32 ha) due to off-site facilities, direct/ indirect loss. In total: **17.47 ha**.

³ <https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-05/3%20Drainage%20final%20-%205th%20November%202014.pdf>



Table 4-1.

It should be noted that due to the complex mosaic of vegetation communities present on site (as recorded during the National Vegetation Classification survey – Technical Appendix 8.2). Habitat loss calculations have been based on the NVC data and where this includes mosaics the dominant habitat has been used (e.g. M19-M20 mosaics are included as M19).

Loss of priority and degraded peatland is based on NatureScot, 2023 guidance. Of the habitats on site only M19 is on the list of habitats considered likely to be priority peatland. M20 and M25 (only where M25 is on deep peat) are considered to represent degraded peatland.

Calculations are separated to reflect blanket bog communities (those on deep peat >50cm) and habitats supporting blanket bog vegetation on carbon-rich soils that could alternatively be classified as wet heath (h1b6) based on peat depth (<50cm).

In summary:

- Total loss of blanket bog (peat > 50cm) is **1.62ha**.
- Total loss of peatland vegetation on carbon rich soil (peat < 50cm) and other wetland (purple moor grass and rush pasture) is: **18.24ha**.
- Total loss of open dry habitats (grassland and heath) is: **30.34 ha**.
- The loss of rivers and streams (natural stream bed only) in a worst-case scenario is estimated at: (**<0.001 ha**) 28m².
- Loss (direct and indirect) of habitats of less than local value includes bracken (4.54 / 0.99ha) largely due to borrow pits, other neutral grassland (0.64 / 0.74ha), modified grassland (0.59 / 0.88 ha) and arable land (8.77 / 0.32 ha) due to off-site facilities, direct/ indirect loss. In total: **17.47 ha**.



Table 4-1: Habitat Loss Calculations (For habitats with > local value).

UK Hab Type	Evaluation/ value	Direct Loss (ha)	Infrastructure causing Loss	Indirect/ Temporary Loss (ha)	Total Loss (ha)
Upland acid grassland	Local	0.62	Hardstands, Tracks	1.58	2.2
Upland calcareous grassland	Regional	none	n/a	none	0
Upland birchwoods	Local	none	n/a	none	0
Upland dry heath	Local	17.02	Borrow Pits Search Areas , Hardstands, Tracks, Temporary Concrete Batching Plant, Wind Turbine Foundations	11.12	28.14
Blanket bog (priority peatland) - Peat >50cm (M19 and M19/M20 mosaic)	National	0.12	BESS Compound, Tracks, Hardstands	1.21	1.33
Blanket bog (non-priority peatland) - Peat >50cm (M20 and M25)	Regional	0.03		0.26	0.29
Wet heath/ Blanket bog (priority peatland) - Peat <50cm (M19 and M19/M20 mosaic)	Regional	2.25	Hardstands, Tracks, Wind Turbine Foundations, BESS Compound, Substation Compound	3.73	5.98
Wet heath/ Blanket bog (non-priority peatland) - Peat <50cm (M20)	National	4.94	Hardstands, Tracks, Wind Turbine Foundations, BESS Compound, Substation Compound, Borrow Pits Search Areas	5.48	10.42
Purple moor grass and rush pasture (M23 and M25 on peat <0.5m)	Local	0.5	Hardstands, Tracks, Wind Turbine Foundations	1.34	1.84
Upland flushes, fens and swamps	Local	none	n/a	none	0
Rivers and streams*	National	< 0.001*	n/a	none	< 0.001*

* The design of the new watercourse crossings is to be fully determined by the Contractor. For the purposes of this assessment, a worst-case scenario is taken forward as a precautionary approach, in that the design will be mainly closed culverts and some bridges (e.g., WC11) with the natural watercourse bed lost for the full crossing width (estimated at 7m). The watercourses are narrow or dry in these areas so we have used a precautionary watercourse width of 50cm (equivalent to 7m x 0.5m x 8 new crossings = 28m², < 0.001 ha. Water flow and up-down stream connectivity for wildlife will be maintained.



5.0 BERP Working Group

A group of key stakeholders would be invited to form a BERP working group. Their role would be to provide input into and comment on the detailed BERP and subsequent revisions to the BERP during the lifetime of the proposed development.

It is envisaged that the working group may include the following stakeholders:

- The operator of the proposed development and their ecologist(s);
- The landowners;
- Scottish Borders Council;
- The Local Fisheries Trust;
- SEPA; and
- NatureScot.

Further details, including terms of reference for the BERP working group, would be provided in the detailed BERP, post consent.

The BERP will be reviewed and amended appropriately on a regular basis to enable assessment of progress toward achieving goals and objectives and to inform active management.

6.0 Outline BERP

6.1 Vision

To enhance the extent and condition of target habitats and protected and/or notable species within the site.

6.2 Targets

This section details target species and habitats (features) recorded within the site that require compensation, mitigation or monitoring via the BERP based on the assessment in the EIA Report.

Additional targets have been selected based on opportunities for biodiversity enhancement in line with NFP4 in particular for features of at least local nature conservation importance for which restoration and/or enhancement measures would serve to improve overall conditions within the site. Targets features are listed in Table 6-1 with an accompanying rationale.

Table 6-1 Outline BERP Targets

Feature	Rationale
Peatlands	<p>Construction of the proposed development with result in direct and indirect loss of blanket bog.</p> <p>Intact blanket bog (M19) is considered a priority peatland type of national importance. Degraded blanket bog (M20 and M25) is not considered priority peatland, however is listed as a priority habitat within the SBL and are valuable in terms of maintaining connectivity with blanket bog habitat in the wider area. As such degraded blanket bog within the site has been assessed as regional importance. Peatlands are on peat <50cm deep and are considered of regional to local importance.</p> <p>In additional these peatlands are valuable to nesting waders including: Merlin, golden plover, greenshank, curlew, dunlin and snipe.</p>
Upland heathland	Construction of the proposed development with result in direct and indirect loss of upland heathland and acid grassland.



Feature	Rationale
	Upland heathland is an SLB priority habitat and a European Annex I habitat. The examples of this habitat on site are species poor and significantly modified from their more species rich state, and ground condition dependant on distribution of grazing and burning.
Wild pansy	<p>Upland acid grassland (NVC U4) within the site has been found to support wild pansy <i>Viola tricolor</i>, of which is a SBL and Scottish Borders LBAP species.</p> <p>Construction of the proposed development with result in direct and indirect loss of U4 upland acid grassland, with potential additional losses resulting from bracken encroachment.</p> <p>Opportunities for restoration of this habitat and enhancement of conditions for supporting wild pansy should therefore be considered.</p>
Northern brown argus butterfly habitat	<p>Northern Brown Argus Butterfly, a SBL and LBAP species. It's food plant is rockrose. Rockrose occurs in linear stand of upland calcareous grassland exists on sloping ground immediately west of the existing access track within the site. Rockrose is typically prefers short, open, calcareous habitats such as calcareous grassland.</p> <p>Butterfly Conservation have confirmed that the area of calcareous grassland mapped on site is a known area of habitat for Northern Brown Argus Butterfly. They have additionally noted that areas of potential habitat for this species occur elsewhere on site however the habitat data collected for the EIA indicate that this area is currently predominantly bracken.</p> <p>No calcareous grassland or rockrose are expected to be lost due to the development however the site present opportunities to enhance rockrose populations within calcareous areas for the benefit of norther brown argus butterfly.</p>
Juniper	<p>Juniper is (SBL and Scottish Borders LBAP species). It is also a qualifying feature of the nearby by (800m north) Lammer Law SSSI. On-site juniper recorded as scattered occurrences along the banks of Whaplaw Burn within the south of the site.</p> <p>No impacts on juniper are anticipated however opportunities to enhance the population of this species on-site and potentially to provide stepping stone type connectivity with the Lammer Law SSSI population.</p>
Native and riparian woodland	<p>Native woodland (upland birch woodland - an SBL priority habitat) occurs as two small stands on-site. Such woodland was likely more extensive in the past having been replaced by heath and grassland following felling and grazing.</p> <p>While construction and operation of the proposed development is unlikely to impact existing stands of native woodland, opportunities for creation and expansion of native woodland habitat exist within the site. This in turn would serve to enhance the biodiversity value and carbon sequestration ability of the site.</p> <p>In addition, when planted in riparian zones trees can benefit fish by shading and cooling the water. They also provide shelter for protected species such as otter. Salmon and otter are qualifying species of the nearby Tweed SAC and therefore habitat enhancement on-site may benefit the SAC populations of these species.</p>
Breeding birds	<p>The site supports a range of breeding birds of conservation importance including red list species such as curlew e.g. Merlin, golden plover, greenshank, curlew, dunlin and snipe.</p> <p>Although no significant impacts are anticipated on these species, the site presents opportunities to enhance their habitat.</p>
Otter	<p>Otter are a qualifying feature of the nearby Tweed SAC breed on-site. Although no significant impacts are anticipated on otter, the site presents opportunities to enhance their habitat.</p>
Mountain hare	<p>Mountain hare were recorded on-site. Although no significant impacts are anticipated to mountain hare, the site presents opportunities to enhance their habitat. These areas will be out with a 500m buffer for golden eagle and increase in the mountain hare population in these areas may provide foraging opportunities for golden eagle.</p>
Bats	<p>Seven species of bat (common and soprano pipistrelle, brown long-eared, Daubenton's, Natterer's, Leisler's and noctule), have been recorded within the site. No significant impacts on bat populations are anticipated however some collision mortality is possible and curtailment of turbines at certain times of year and in certain weather conditions is recommended in the EIA to mitigate this along with bat activity and carcass searching to monitor and inform mitigation</p>



Feature	Rationale
	require . Limited foraging habitat impact is expected due to lack of foraging features within 200m of the wind turbines, however, and the site presents opportunities to enhance bat habitat away from wind turbines.
Fish	A fish monitoring plan will be developed as per the EIA in collaboration with the local fisheries trust. Fish including Atlantic salmon a qualifying feature of the nearby Tweed SAC breed on site. Although no significant impacts are anticipated on these species, the site presents opportunities to enhance their habitat.

6.3 Goals and Objectives

The goals associated with restoration and biodiversity enhancement for the site are:

- Goal 1: Re-wetting of degraded peatland habitats.
- Goal 2: Restoration of heathland and other open up-land habitats.
- Goal 3: Enhancement of existing woodland and creation of riparian woodland and juniper scrub.
- Goal 4: Maintain or enhance the population of wild pansy on site.
- Goal 5: Enhancement the northern brown argus butterfly habitat.
- Goal 6: Provision of breeding and resting sites for protected and notable species.
- Goal 7: Monitor collision mortality of bats.

The goals and objectives of the outline BERP are set out in **Table 5-3**. These have been designed as SMART targets (specific, measurable, achievable, relevant and timebound) to facilitate monitoring of BERP progress.

6.3.1 The Extent of Habitats to be Restored

The total area of each habitat type to be restored (target habits), have been based on relevant guidance and professional judgement such that they are considered to be proportionate to predicted impacts from the proposed development and the biodiversity enhancement requirement of NFP4.

Blanket bog and Other Peatland Vegetation

Compensation for loss of blanket bog on deep peat follows recent NatureScot guidance. In June 2023 NatureScot published new guidance on expected compensation extents for impacts to peatland (NatureScot, 2023). This guidance includes that:

"... outline HMP, should be sufficiently detailed and should identify restoration areas for offsetting and enhancement, using site survey data to demonstrate the areas are appropriate and are likely to result in the outcomes proposed. Our current recommendation is that restoration to achieve offsetting (i.e. compensation rather than biodiversity enhancement) would be in the order of 1:10 (lost: restored), i.e. 1ha loss of peatland should result in measures to restore 10ha of peatland, using the same buffer to assess loss and restored areas (e.g. 30m)...."

"A significant level of enhancement is required in relation to developments considered under NPF4.... For priority peatland habitats, this would mean that additional restoration measures beyond those required to achieve the 1:10 offsetting ratio (lost: restored) are required for enhancement. We would expect this to be in the region of an additional 10%..."

Loss of blanket bog (Peat >50cm) will therefore be compensated for at a ratio of 1:10 +10% (area lost directly and indirectly: area restored). This large ratio is in part due to the difficulty and time requirements of restoring the hydrology of these ecosystems. The buffer used for indirect loss was 30m. This equals: $1.62 \times 10 = 16.20 \text{ ha}$



Other wetland areas including wet heath/ peatland on carbon rich soil (peat <50cm), are considered to be less valuable in terms of carbon stocks and other ecosystem services than similar habitats on deep peat. A loss to restoration ratio of 1:3 is recommended for these habitats. This is the same ratio suggested by Scottish Borders Council during consultation for the loss of trees. This equals $18.24 \times 3 = 54.72$ ha

The total area of peatland restoration required in compensation for the loss of these habitats is considered to be: 70.92 ha.

NatureScot require an additional 10% in enhancement giving total restoration area objective of: **78.01 ha**.

Other Habitats

Loss of other habitats of local or above value such as heathland should be compensated for at least on a 1:1 basis, preferably taking to total to include for loss of habitats of less than local value = $30.34\text{ha} + 17.47\text{ha}$ (**47.81ha**). Habitat restoration should focus on habitat of similar or higher biodiversity value specifically heathland and peatlands.

Loss of natural watercourse bottom should be avoided where practical. In particular watercourse crossing 12 should be bottomless to prevent loss on bog pool communities.

6.3.2 Site Constraints

For the protection of golden eagle, the ornithology chapter recommends that no restoration of potential golden eagle foraging habitat (open upland habitats) occurs within 500m of wind turbines.

Tree planting may increase predation risk to ground nesting birds within 500m including red listed waders such curlew which breed on site. Care should also be taken not to attract bats into areas which would increase their collision risk. Therefore, tree planting must be designed in collaboration with a suitably experienced ornithologist and bat specialist.



Table 6-2: Outline BERP Goals and Objectives

Goal	Objective	Target feature(s)	Recommended Quantity (ha)	Location	Timescales	Indicators
1. Rewetting of peatland	1.1 re-wet degraded peatland to raise its water table and condition	Peatlands and Breeding birds	70.92 ha	TBC Must be outwith the 500m eagle buffer May be off site	Implementation as soon as possible, but at least within 3 years of completion of construction. With maintenance and monitoring as required for the lifetime of the proposed development.	Increase in water table. Increase in the distribution and abundance of mire forming species.
	1.2 avoid loss of bog pools, via watercourse crossing design	Peatland	N/a	Watercourse crossing x 12	During construction	Bog pool hydrology and extent is unaffected by the new watercourse crossing
2. Restoration of heathland and other open up-land habitats	2.1 Cessation of moor burning within agreed land areas to improve condition of heathland habitat	Heathland Peatland Breeding birds Bats Mountain hare	At minimum 30.34ha to 47.81ha	Must be outwith the 500m eagle buffer Indicative areas are illustrated on Figure 8.6.1 (total ha = 53.96 ha). To be refined in agreement with the landowner and other stakeholders	Implementation as soon as possible, but at least within 3 years of completion of construction. With monitoring and adaptive management as required for the lifetime of the proposed development.	No signs of moor burning in these areas. Habitat condition improved. Extent of higher value habitats bog and heath is maintained or increased
	2.3 Implementation of a grazing management scheme within agreed land parcels to improve habitat condition					Grazing impacts reduced compared to baseline. Habitat condition improved.
3. Enhance northern brown argus butterfly habitat	3.1 Seeding of calcareous grassland with rock rose for northern brown argus	Northern brown argus habitat/ rockrose	To be confirmed in final BERP	Calcareous grassland habitat within the site		Rockrose population increased in existing calcareous grassland. Breeding population of NBA in these areas (monitor only– no specific objective)



Goal	Objective	Target feature(s)	Recommended Quantity (ha)	Location	Timescales	Indicators
	3.2 Bracken control in calcareous grassland / potential calcareous grassland areas to facilitate rockrose seeding/ regeneration			Potential areas of calcareous grassland within the site		Total area of calcareous grassland on site Bracken cover and condition in treated areas Rockrose population in newly created calcareous grassland Breeding population of NBA in these areas (monitor only– no specific objective)
4. Maintain or enhance the population of wild pansy on site	4.1 Seed locally sourced wild pansy in to reinstatement areas and other areas as appropriate	Wild pansy	TBC	U4 acid grassland and other suitable soils	During construction and on-going as appropriate	The population of wild pansy is stable or increasing within areas of relocation and seeding.
	4.2 Rescue and relocate wild pansy ahead of construction where appropriate		TBC	Where present within potential habitat loss areas to suitable areas of reinstatement/ no impact	Prior to and during construction and on-going as appropriate	
5. Enhancement of existing woodland and creation of riparian woodland and juniper scrub	5.1 Plant areas of native riparian woodland to shade watercourses (see ⁴).	Riparian woodland Fish Birds	TBC	TBC - In blocks along riparian corridors on site (avoiding areas within 100m of peatland habitats and calcareous grassland). To be refined in agreement with the landowner and other stakeholders	Implementation as soon as possible, but at least within 3 years of completion of construction. With monitoring and adaptive management as required for the lifetime of the proposed development.	Establishment of native riparian woodland parcels within the site. Ha new woodland. Woodland condition. Water temperature.
	5.2 Include juniper in riparian planting	Juniper Birds	TBC	Within at least some of the riparian planting areas -TBC		Population of juniper on site

⁴ <https://marinescotland.atkinsgeospatial.com/nmpi/default.aspx?layers=1901>



Goal	Objective	Target feature(s)	Recommended Quantity (ha)	Location	Timescales	Indicators
	5.3 Create a native woodland ecotone around coniferous shelterbelt plantation	Native woodland Birds	TBC	Around one or more sides of existing coniferous shelterbelt plantation		
6. Provision of breeding and resting sites for protected and notable species	6.1 Creation of artificial otter holts/ couches	Otter	At least 3	Artificial otter features to be created at the edge of watercourses e.g. along the Whalplaw Burn and Soonhope Burn. To be refined in agreement with the landowner and other stakeholders		Signs that artificial couches/ holts are in use by otter
	6.2 Install owl and small bird nest boxes	Hole nesting breeding birds including tits, barn owl and tawny owl	At least 1 x barn owl box 1 x tawny owl box 3 x small bird nest boxes	TBC in suitable habitat		Occupation of nest boxes by birds
	6.3 Install bat boxes suitable for the species recorded on site	Bats	At least 3 x bat boxes			Occupation of bat boxes by bats
7. Monitor bat activity and collision mortality	Undertake bat activity carcass search surveys	Bats	NA	Around six wind turbine locations	Annually – July-September (see Section 6.4.7)	Monitoring completed and reported



6.4 Outline Implementation Methods

This section sets out high-level methodology for the implementation of objectives where additional information is considered useful to supplement that in **Table 6-2**. For indicative locations where appropriate see **Figure 8.6.1**.

6.4.1 Goal 1: Rewetting of peatland

Objective 1.1 Re-wet degraded peatland to raise its water table and condition

The methods for rewetting peatland should follow the guidance provided by Peatland Action. Which methods are suitable will depend on the nature of degradation and opportunities for re-wetting and the restoration site which has not yet been identified. The approach should be discussed with key stakeholders including NatureScot and the chosen contractor. The agreed approach would be set out in detail in the finalised BERP post-consent.

The area for peat re-wetting may be fully or partially off-site due to lack of sufficient, suitable bog restoration opportunities within the site boundary. Enhancement of bog condition via reduced grazing and burning is specifically excluded within NatureScot 2023 guidelines as an acceptable approach to compensating for loss of bog habitats, only methods that improve bog hydrology/ result in re-wetting are acceptable.

Control Area

A control plot of good condition blanket bog that the habitats within the bog restoration area could reasonably be expected to revert to following re-wetting should be identified within the wider landscape nearby and monitored to aid in monitoring bog restoration success and the setting of site-specific vegetation targets for bog habitats (e.g., % cover of sphagnum etc.).

6.4.2 Goal 2: Restoration of heathland and other open up-land habitats

Objective 2.1: Stop moor burning to increase heathland habitat

Cessation of moor burning at key locations on site would allow heathland, peatland and other open habitats to recover to a higher condition. The areas indicated for restoration on Drawing 8.6.1, have been selected as they include some of the few areas of deep peat on site as well as good coverage of heathland and peatland habitat.

Objective 2.3: Implement grazing management to improve habitat condition

Fencing of open moorland areas at key locations on site to allow regulation of grazing by sheep in line with good practice guidance for moorland and heathland conservation may be necessary⁵.

6.4.3 Goal 3: Enhance northern brown argus habitat.

Objective 3.1: Seeding of calcareous grassland with rock rose for northern brown argus

Rock rose *Helianthemum nummularium* is the larval food plant for the Northern Brown Argus *Aricia artaxerxes* butterfly (a SBL species and vulnerable on IUCN red list), and has been recorded in a small area of calcareous grassland in the northwest of the Site, near a known population of the butterfly. It thrives in dry grazed meadows, short grassland, banks and rocky places.

Rock rose is not listed on the SBL but, because of its importance to northern brown argus populations, it has been classified at the same level of value as northern brown argus on the assumption that the plants on site support a population of these butterflies. Northern brown argus is

⁵ <https://www.nature.scot/doc/peatland-action-peatland-management-guidance-grazing-and-muirburn>



listed on the SBL as 'avoid negative impacts' and is listed as vulnerable on the ICUN red list, desk study data indicate it is present at only two locations within 2km of the site.

Rockrose require some grazing to prevent grass domination and allow their growth. The areas where this species is present should not be subject to any change in material changes in grazing pressure to reduce risk of over or under grazing. Monitoring of grazing impacts would allow for evidence based grazing management.

Seeding of rockrose in to disturbed areas or ground or plug planting should be undertaken to supplement the population.

Objective 3.2: Bracken control in calcareous grassland / potential calcareous grassland

Butterfly conservation have provided evidence of potential norther brown argus butterfly habitat to the southeast of the site which is associated with two records of this butterfly. The UKHab maps for the site indicate that there is bracken in this area. Surveys to assess the potential for converting some of these bracken areas to calcareous grassland with associated management, supplementation of the rockrose population area advised. Priority areas for bracken control and rockrose management areas should be agreed with relevant stakeholders.

The Asulox which has historically been used for bracken control, has not been authorised for use this season, 2023 (Scottish Government, 2023). Therefore, non-chemical approaches to control of bracken such as cutting may be required if an alternative herbicide is not readily available. The approach to bracken control would be set out in the detailed BERP, taking into consideration availability of appropriate herbicides at that time and would be agreed in consultation with key stakeholders including NatureScot. Particular care would be taken if herbicides are to be used near watercourses.

6.4.4 Goal 4: Maintain or enhance the population of wild pansy on site

Objective 4.1: Seed locally sourced wild pansy into reinstatement areas and other areas as appropriate

Wild pansy is an SBL and Scottish Borders LBAP species that has been recorded within upland acid grassland in several locations within the Site.

On-site seed collection for use in re-seeding wild pansy along access track edges, or in areas where soil conditions are suitable for growth of such species, is therefore recommended. Wild pansy prefers sandy, stony and infertile soils, pH range 5–7⁶.

Objective 4.2: Rescue and relocate wild pansy ahead of construction where appropriate

To mitigate and compensate for the loss of any wild pansy plants during construction, plant rescue and relocation should be carried out prior to construction. Translocation should follow best practice including methods for rescue, storing, planting site selection, timing of re-planting, plant care and aftercare e.g. watering. Ideally, this will be carried out early or late in the growing season to avoid time of peak plant growth/ stress and likely periods of drought.

6.4.5 Goal 5: Enhancement of existing woodland and creation of riparian woodland and juniper scrub

Objective 5.1: Plant areas of native riparian woodland to shade watercourses (see⁷).

The term 'riparian' refers to the interface between a waterbody and adjacent land. Riparian habitats serve as natural filtration systems, protecting aquatic environments from sedimentation or pollution events, while root systems act to reduce erosion through binding soil together. They also provide

⁶ <https://ahdb.org.uk/knowledge-library/distribution-and-biology-of-wild-pansy-in-the-uk>

⁷ <https://marinescotland.atkinsgeospatial.com/nmpi/default.aspx?layers=1901>



shelter and foraging opportunities for a range of protected mammal species, such as otter, birds and bats, and provide suitable conditions populations of invertebrates to flourish. Furthermore, riparian trees act to regulate instream temperatures through shading effects, thereby improving conditions for fish species.

Opportunities for creation of native riparian habitat exist along the two main watercourses present within the Site (the Whaplaw Burn and Soonhope Burn) and associated tributaries, the details of which are discussed below.

Tree planting design should be informed by suitable bat and ornithological specialists to avoid unintended negative impacts on bats and ground nesting birds (see Section 6.3.2). No tree planting should be undertaken within 100m of peatland habitats to avoid potential de-watering of peat.

Trees would be planted in small compartments, and each would be fenced off to prevent grazing impacts by herbivores. Fencing each area would in turn allow for marginal wetland species (in damp riparian areas at lower elevations), and heathland species (along slopes of tributaries on steeper gradients) to recover in the absence of grazing. Where necessary, trees should also be supported using biodegradable tree tubes and stakes, attached with adjustable tree ties.

Potential areas within which tree planting compartments could be located are illustrated on Drawing 8.6.1.

Areas of native woodland plantation, and associated tree species, should be selected based on suitability of soil and ground conditions for tree growth and the potential of tree planting in the area to cool water (typically greater in the headwaters), and suitability of the watercourse for supporting fish.

Compartments shall be planted at a moderate density with native species and allowed to naturally regenerate. Trees for Life⁸ should be consulted on regionally appropriate tree planting practices and native species mix for the Site, however species likely to be included (dependant on ground conditions) are birch *Betula sp.*, rowan *Sorbus aucuparia*, sessile oak *Quercus petraea*, alder *Alnus glutinosa*, holly *Ilex aquifolium*, and juniper *Juniperus communis*.

Where suitable aspen should be included in the planting mix in relation to LBAP objective ER2.3.

A programme of bracken monitoring and management may also be required in order to limit the bracken regeneration in areas of woodland plantation.

If field drains are present within proposed tree planting compartments, blocking or breaking these may facilitate the creation of wet woodland which is of particularly high biodiversity value.

Objective 5.2: Include juniper in riparian planting.

Juniper is a SBL and Scottish Borders LBAP species and has been recorded on site on steep slopes where there is limited/no grazing. Juniper should be planted in new areas of woodland within the site, with a suitable buffer from other newly planted trees to prevent overshadowing, and in areas protected from grazing herbivores.

Objective 5.3: Create a native woodland ecotone around coniferous shelterbelt plantation.

Several stands of coniferous shelterbelt plantation exist within the site. Development of 'ecotone' edge habitat around these stands would in turn create transitional vegetation that better connects stands of coniferous woodland with the wider landscape. This could be achieved through planting scattered broadleaved trees (such as oak *Quercus sp.*, rowan and birch) along the perimeter of coniferous woodland stands, interspersed with native scrub and shrub species (such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and hazel *Corylus avellana*).

⁸ Trees for Life is a registered Scottish charity – number SC021303. A company limited by guarantee, registered in Scotland – company No. SC143304, with registered offices at The Park, Findhorn Bay, Forres, Moray, IV36 3TH. VAT No. GB369350669



The development of ecotone edge habitat would not only enhance the visual amenity of existing stands of coniferous woodland within the site but would also provide increased commuting and foraging opportunities for bat species that utilise the site, suitable habitat for breeding bird species, and enhanced cover for a range of other protected species.

6.4.6 Goal 6: Provision of breeding and resting sites for protected and notable species

Objective 7.1: Creation of artificial otter holts/ couches

Watercourses within the main site (Whaplaw burn and Soonhope Burn) form part of the River Tweed SAC, for which otter is a primary feature. Installation of carefully sited artificial resting features (holts) in banksides and riparian areas may in turn encourage an increase in otter activity and populations within the site and surrounding area.

Artificial holts would be placed in an undisturbed area, free from flooding and close to a good food supply, as far away from roads and access tracks as possible. The holts could be developed in a variety of forms, from connecting pipes creating underground tunnel systems or log piles with ample entrance points leading into a secluded cavity, to living holts created in the root systems of scrubs and trees.

Speed limit and otter warning reflectors

While encouraging otter populations to utilise the area would be beneficial to the overall biodiversity of the site, measures to reduce the risk of injury or mortality associated with vehicle collisions would also be required. This could be achieved by implementing a permanent 15 mile per hour (MPH) speed limit within the site and installing low-level wildlife warning reflectors either side of watercourse crossing points along the access track.

Objective 6.3: Install owl and small bird nest boxes.

Barn owl has been recorded within the site. Barn owl can benefit greatly from the installation of suitable nest boxes. The site is surrounded by a farmland landscape that is suited to foraging habitat for owl species. Owl boxes should be placed along the woodland edge and face onto open habitats such as arable or pasture fields.

Other species of hole nesting birds including tits and tawny owl are also likely to benefit from the installation of nest boxes. This will allow them to breed in or near new woodland areas before the woodland mature to an age where natural tree holes are likely to develop.

Objective 6.3: Install bat boxes suitable for the species recorded on site.

The site supports foraging bats however it has a low availability of roosting opportunities. The installation of bat boxes on mature trees that are retained on site is recommended. Boxes should be placed along woodland edges and face onto open clearings or rides. Boxes should be positioned at a variety of aspects, with clear flight lines to the boxes. The installation of bat boxes should be not within 200m plus rotor radius of the wind turbine locations.

6.4.7 Goal 7: Monitor bat activity and collision mortality.

Chapter 8: Terrestrial Ecology of the EIA Report recommends wind turbine curtailment to mitigate bat collision risk, this will apply between 30 minutes post-sunset and 40 minutes pre-sunrise (at certain wind speeds) and will be implemented at each turbine between 1st April – 31st October each year. The mitigation will be implemented for the lifetime of the proposed development, unless monitoring results necessitate a change in curtailment regime.

Monitoring would comprise measurement of bat activity and fatality rates and would be undertaken annually until validation of the initial curtailment parameters and any amendments are established in consultation with NatureScot. Bat activity monitoring would comprise the use of static bat detectors (based at ground level) at six randomly selected wind turbines during July – September



inclusive which is when most fatalities are found to occur. This represents a precautionary approach, because if bat fatality rates are sufficiently low during this period, they are unlikely to be greater at other times of year - if the mitigation is effective during this period, it will also be effective during periods of lower levels of activity. The use of six turbines is considered to provide a representative sample (37.5% of turbines to be sampled) and is coincident with the number of turbines which can reliably be searched by a dog team in a single day.

Carcass searching would be undertaken within a 50m radius at the same six turbines every two weeks from 1st July until end of September i.e., seven searches in total. The estimate of two weeks persistence of corpses, and therefore the intervals between search dates will be further confirmed by undertaking a carcass persistence trial at the site prior to undertaking carcass searching. Carcass searching will be undertaken using dogs, so that an effective observer efficiency rate of 80% or more can be achieved.

Following each annual monitoring period, if the number of bat fatalities is less than two bats per turbine per year, the operator may propose amendments to reduce the curtailment parameters. If the number of bat fatalities is greater than two bats per turbine per year, the operator shall be obligated to propose amendments to strengthen the mitigation. Any changes proposed will be consulted on with NatureScot and implemented the following year with repeated monitoring using the methods described above unless otherwise varied (e.g. to investigate condition in which fatalities are occurring).

7.0 Monitoring

7.1 Indicators and Indicative Monitoring Methods

Indicators are specific, quantifiable measures of attributes that directly connect longer-term goals and shorter-term objectives. Ecological indicators are variables that are measured to assess changes in the physical, chemical, or biotic ecosystem attributes as guided by the reference model.

The indicators in **Table 7-1**, are cited in **Table 6-2** as required to monitor progress toward achieving the outline BERP goals and objectives.

Table 7-1: Indicative Monitoring Methods Summary

Indicator	Monitoring Methods	Indicative Frequency
Increase in water table.	Dipwells	Quarterly pre intervention Repeated in Years, 1, 3 and then 5 yearly.
Increase in the distribution and abundance of mire forming species.	Habitat condition monitoring (CSM or UKHab)	Pre-intervention May to August Repeated in Years, 1, 3 and then 5 yearly.
Bog pool hydrology and extent is unaffected by the new watercourse crossing (WC12)	Habitat mapping (NVC or UKHab) of relevant areas Habitat condition monitoring (CSM or UKHab)	Pre and post installation of WC12
Signs of moor burning moorland restoration areas.	Habitat condition monitoring (CSM)	Pre-intervention May to August Repeated in Years, 1, 3 and then 5 yearly.
Extent of higher value habitats bog and heath is maintained or increased	Habitat mapping (NVC or UKHab) of relevant areas	
Habitat condition improved.	Habitat condition monitoring (CSM or UKHab)	
Grazing impacts reduced compared to baseline.	Grazing Impact Assessment	
Rockrose population increased in existing calcareous grassland.	Species specific plant survey (rockrose) e.g. transects and fixed quadrats	Pre intervention Annually for three years then 5 yearly.



Indicator	Monitoring Methods	Indicative Frequency
Breeding population of NBA in these areas (monitor only– no specific objective)	Butterfly survey	As above
Bracken cover and condition in treated areas	Bracken condition monitoring – to inform treatment requirements	As above
Total area of calcareous grassland on site	Habitat mapping (NVC or UKHab) of relevant areas	As above
The population of wild pansy is stable or increasing within areas of relocation and seeding.	Species specific plant survey (pansy) e.g. transects and fixed quadrats	As above
Establishment of native riparian woodland parcels within the Site - ha new woodland.	Woodland planting mapping	Pre and post implementation
Water temperature	TBC- in stream data loggers	Pre intervention Then 5 yearly.
Woodland condition.	Habitat condition monitoring (CSM)	Annually for 3 years and then 5 yearly.
Population of juniper on site	Species specific plant survey (Juniper) e.g. transects and fixed quadrats Monitoring of any planted individuals	Pre intervention Annually for three years then 5 yearly.
Signs that artificial couches/ holts are in use by otter	Otter survey (artificial holt or couch locations)	Annually for three years then 5 yearly.
Occupation of nest boxes by birds	Nest box checks	Annually for three years then 5 yearly.
Occupation of bat boxes by bats	Bird box checks	Annually for three years then 5 yearly.
Bat monitoring completed and reported	Carcass searches and static acoustic recorders (See Section 6.4.7). Bat monitoring report submitted to client	See Section 6.4.7).

7.2 Ongoing Management and Maintenance

The requirement for on-going management and maintenance will be determined based on survey results. Requirements may include:

- Repair of dams in the peat restoration area;
- Repair of any fencing or tree protection;
- Removal of fencing or tree protection as tree mature if appropriate;
- Additional treatments of bracken in bracken control areas; and
- Any repair or maintenance of nesting boxes.

7.3 External Factors

It is important to note that external factors such as climate change can influence habitat restoration success. Over the lifetime of the proposed development it is possible that climate change will affect the habitats on site and in the surrounding area. This should be taken into account during monitoring and reporting and is another reason why a control site in relation to bog restoration is important.



8.0 Summary

The habitat management proposed in this outline BERP, are expected to compensate for losses of habitat due to the construction of the proposed development via bog rewetting and moorland restoration (goals 1 and 2). Goals 1 also includes some enhancement as required by NatureScot 2023 guidance (10%). Depending on the final size of the areas if the whole 53.96 ha indicated on **Figure 8.6.1** or at least more than 47.81 ha is included then this would also be expected to provide enhancement beyond baseline conditions.

Goals 3, 4 (Objective 4.1), 5 and 6 are predominantly designed to provide onsite habitat enhancement focusing on key species on habitats on site including, northern brown argus butterfly, wild pansy, fish, juniper and riparian woodland.

Goal 4 objective 4.2 is in relation to mitigation for potential loss of wild pansy individuals during construction.

Goal 7 is in relation to mitigation for bats.

In terms of connectivity the proposed management is expected to improve connectivity with the integrated habitat network for wetlands and heathland and acid grassland all of which overlap the site to some extent⁹.

The improvement of habitat condition on site is expected to contribute to on-site natural capital (stocks) and ecosystem services including carbon sequestration and storage, and water storage and regulation as well as enhancing biodiversity. This is in line with the objective of the SBC LBAP²:

- Ecosystem restoration;
- Natural Capital;
- Wildlife and Habitats; and
- Sustainable land management and Freshwater Management

In particular it contributes in some way towards LBAP objectives:

- ER2.1 Increase coverage of and improve connectivity between native woodlands to enhance the Forest Habitat Network.
- ER2.2 Develop a strategic approach to restore and create cleuch woodland, juniper and montane / heathland scrub in upland areas.
- ER2.3 Promote integration of aspen into action plans for riparian habitats (and other habitats where appropriate) to help mitigate future loss of ash and enhance the Forest Habitat Network.
- ER5.1 Encourage investment in the restoration and appropriate management of species-rich hedgerows, individual tree planting, riparian margins and farm ponds.
- NC1.3 Establish long-term monitoring projects in both previously restored and existing degraded peatland sites.
- WH2.3 Conduct a survey of the Northern Brown Argus butterfly (UKBAP species) across the Scottish Borders to identify sites or landscape areas for focussing conservation action.
- LF1.3 Work with partners to ensure effective screening of proposed tree-planting areas to avoid damaging important grassland, heathland and wetland sites.
- LF3.3 Continue local participation in the National Stream Temperature monitoring programme organised by Marine Scotland Science (MSS), who will provide map-based information on where riparian tree planting will be most effective in controlling water temperatures.

⁹ <https://map.environment.gov.scot/sewebmap/>



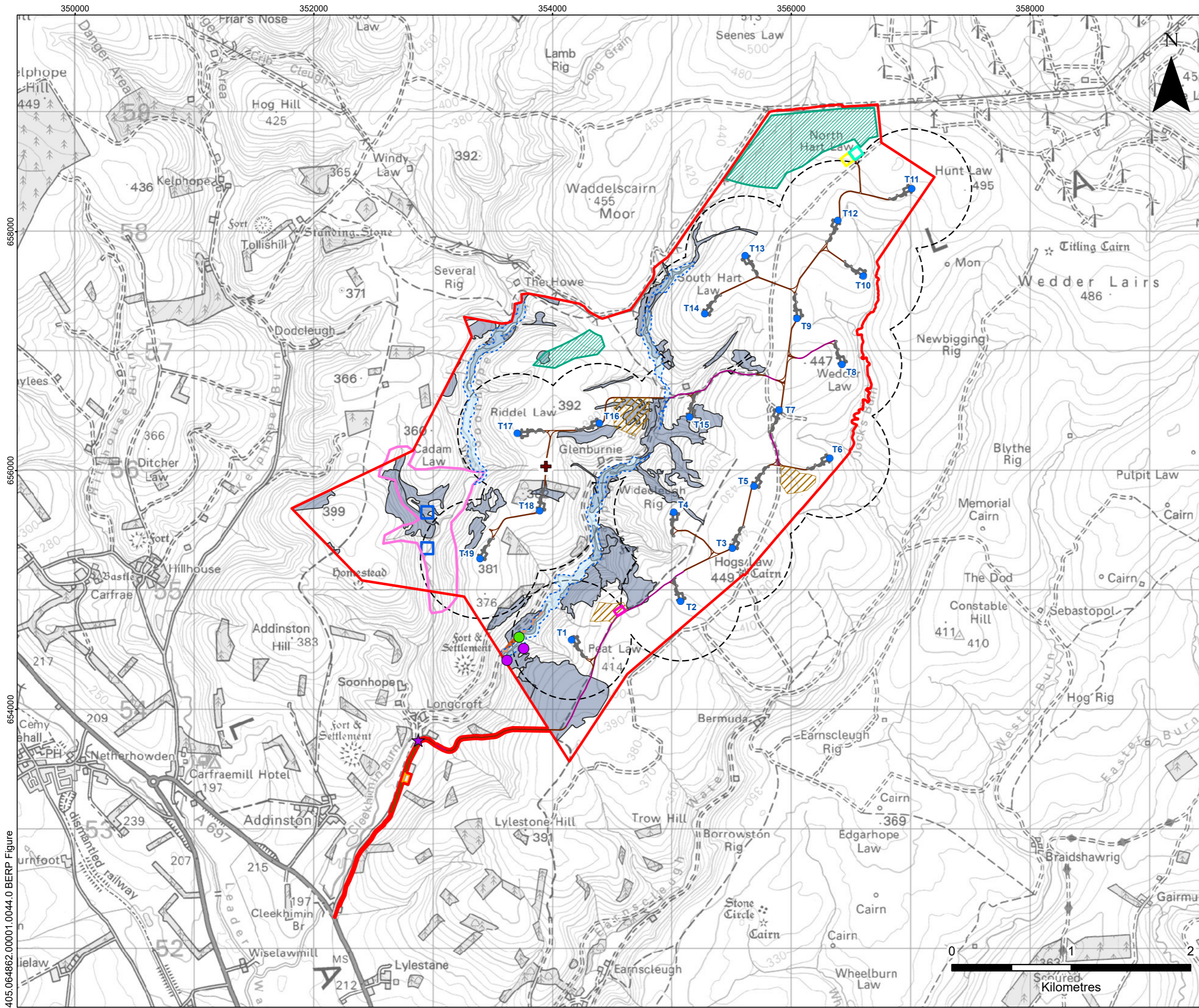
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Drawing 8.6.1: Outline BERP Indicative Management Areas





LEGEND

- ▭ Site Boundary
- Proposed Turbine Location
- ★ Site Entrance
- Hardstanding
- Battery Storage Compound
- Substation Compound
- Temporary Concrete Batching Plant
- Temporary Construction Compound
- Borrow Pit Search Area
- Existing Road
- Proposed Track
- Upgraded Track
- + Bottomless Designed Water Crossing
- Juniper Record
- Rock Rose Record
- Search Area for Locating Riparian Planting (30 m Watercourse Buffer)
- Potential area for Reduced Grazing and Cessation of Muirburn
- Golden Eagle 500 m Turbine Buffer

National Butterfly Association (NBA) Record

- Mapped NBA Habitat
- NBA Record
- NBA Habitat Very Likely To Be Present
- U4 Acid Grassland - Potential Wild Pansy Habitat (Includes U4 Mosaics)

Note
Suitable Riparian Planting Zone is Located Outside a 100 m Buffer of Blanket Bog Habitat



LONGCROFT WIND FARM
BIODIVERSITY ENHANCEMENT AND RESTORATION PLAN
OBERP Indicative Management Areas

FIGURE 8.6.1

Scale 1:30,000 @ A3 Date OCTOBER 2023

405.064862.00001.0044.0 BERP Figure



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