Drummarnock Wind Farm – Additional Information

Appendix 3: Outline Habitat Management Plan

Drummarnock Wind Farm Limited

November 2025

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List of Acronyms

Acronym	Full Term
AI	Additional Information
CEMP	Construction Environmental Management Plan
CSGN	Central Scotland Green Network
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EnvCoW	Environmental Clerk of Works
m	Metres
NVC	National Vegetation Classification
HMG	Habitat Management Group
HMP	Habitat Management Plan
PMP	Peat Management Plan
SEPA	Scottish Environment Protection Agency
SG	Scottish Government
SQE	Suitably Qualified Ecologist.

1 Introduction

1.1 Terms of Reference

This updated Outline Habitat Management Plan (HMP) has been prepared in tandem with an Additional Information Report ('AI Report') associated with the submitted Planning Application for Drummarnock Wind Farm (The Proposed Development, Ref. No. 24/00494/FUL).

This HMP contains revisions to habitat restoration and creation proposals based on changes to the project design as described in the AI Report. Both the revised HMP and AI Report supplement Chapter 6 of the EIA Report and associated EIA Technical Appendices.

This report replaces the Outline HMP submitted as part of the Environmental Impact Assessment (EIA) Report accompanying the above Application (Technical Appendix 6-5).

As with the HMP submitted with the EIA Report; this updated HMP should be read in conjunction with the following:

- Chapter 6: Ecology of the EIA Report;
- Additional Information Report;
- Appendix 6-1: Extended Phase 1 Habitat Survey
- Appendix 6-2: NVC Survey
- Appendix 6-3: Bat Surveys
- Appendix 6-4: Protected Species Survey
- Appendix 2: Peat Management Plan
- Appendix 15-1: Construction Environmental Management Plan (CEMP).

This updated HMP takes account of the following changes to the Proposed Development:

- Reduction of the number of borrow pits from four to three and alterations to the footprints of the remaining borrow pits; and
- An increase in the proposed biodiversity compensation and enhancement, including Priority Peatland and non-Priority Peatland types.

1.2 Objectives

The outline HMP has the following objectives:

- Compensate for the loss of priority peatland habitats by enhancing existing features, blanket bog which is in a degraded condition. Priority peatland habitats present on the Proposed Development Site are:
  - M19 Calluna vulgaris – Eriophorum vaginatum blanket mire.
  - M20 Eriophorum vaginatum blanket and raised mire.
  - M25 Molinia caerulea – Potentilla erecta mire (on peat depth ≥ 50 cm).

- Heathland enhancement to reinforce the existing Central Scotland Green Network (CSGN) and enhance the Site for Short-eared owl *Asio flammeus*. See the *CSGN Habitat connectivity – Bog and heathland opportunity areas for* more information[1]
- Wet grassland development to enhance the Site for upland waders.
- Enhance roosting opportunities for bats.

These objectives will be achieved through a programme of detailed habitat management prescriptions on identified HMP areas as shown on Figure 6-7.

1.3 Scope of the Outline Habitat Management Plan

The outline HMP - hereon referred to as the HMP - is an iterative document which will be revised, updated, and re-issued throughout the construction and operational phases of the Proposed Development. In this way, the HMP, through an agreed monitoring programme, will take account of the successes and failures of the proposed management measures and modifications to the management regime can then be proposed as necessary. The HMP will be reported and updated in consultation with a Habitat Management Group (HMG).

The HMP considers the specific features of the site, the local area, existing and future land use, and the Proposed Development in making recommendations based on best information currently available. If aspects relating to the Proposed Development Site are altered, or new ecological information emerges, then the HMP will be required to be adapted accordingly.

The HMP considers the management of the habitats and species over the expected 40-year lifespan of the Proposed Development.

The reader should note that the management and monitoring of any ecological impacts associated with the construction of the Proposed Development, and any immediate re-instatement of habitats post-construction, will also be covered within the CEMP. The CEMP will be in accordance with SEPA guidance[2] and include site-specific measures to avoid risk of impacts on habitats and species identified on the Proposed Development.

[1] https://snh.maps.arcgis.com/apps/webappviewer/index.html?id=75dbd52f8b634df0b6bb73fc082de63d (Accessed July 14th 2025).

[2] https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/ (Accessed April 2024).

1.4 Roles and Responsibilities

The Applicant is ultimately responsible for meeting the commitments made in this HMP. The implementation of the HMP would be implemented (subject to the HMP being approved by the planning authority) via planning condition, overseen by a suitably qualified person or persons, appointed by the Applicant. All management tasks defined within the HMP would be carried out by suitably experienced contractors and all monitoring would be conducted by suitably qualified and experienced ecologists and/or hydrologists. A proposed Habitat Management Group (HMG) will feed into these structures as an oversight mechanism and to provide peer feedback.

2 Ecological Features on Site

The background information presented in this section has been sourced from the EIA Report chapters on Ecology, Ornithology and Hydrology and associated appendices and relates to features relevant to the HMP Objectives specifically. Information on other receptors, not pertinent to these objectives, are not included here.

2.1 Habitats

2.1.1 Overview

A National Vegetation Classification (NVC) survey was undertaken in April 2023 and previously in September 2020.

The following habitats of relevance to the HMP, which include priority peatlands as defined in NatureScot (2023), were recorded, as shown on Figure 8-4. Overall, priority peatlands were in poor condition because there were no near natural features and on-Site peat is classified as either class 3 or class 5 (Scotland's Soils, 2024).

In addition, much of the Proposed Development Site is modified by burning and historic burning, and grouse shooting is understood to occur. As a result of these conditions, an indirect loss buffer of 10m is considered appropriate in relation to priority peatland loss.

All direct loss values include earthworks.

There are minor discrepancies in totals due to rounding.

2.1.2 Communities Relevant to Habitat Enhancement

M19 *Calluna vulgaris – Eriophorum vaginatum* blanket mire

This habitat is dominated by large swathes of *Calluna vulgaris, Eriophorum vaginatum* and sparse but regular shoots of *Eriophorum angustifolium*. Bryophytes are dominated by common pleurocarpous mosses including *Hylocomium splendens, Pleurozium schreberi, Rhytidiadelphus loreus* and *Hypnum jutlandicum*. Sphagnum species are not as well represented in this community as either M17 or M18 *Erica tetralix – Sphagnum papillosum* blanket mires. *S. capillifolium* is the most common *Sphagnum* species, though *S. papillosum* and *S. tenellum* were also present in small amounts.

9.78ha of M19 will be lost, comprising 5.35ha direct loss to infrastructure and 4.42ha indirect loss based on a 10m buffer from infrastructure.

M20 *Eriophorum vaginatum* Blanket and raised mire

This is a community where *Eriophorum vaginatum* is overwhelmingly dominant and contains thick tussocks that allows few other species to compete. The habitat is found in a wide variety of locations throughout the Proposed Development Site, but mainly derived from degraded blanket bog communities.

This is a habitat which is characteristic of ombrogenous peatland habitats that have been negatively affected by long term grazing and burning management regimes. These practices render the habitats floristically species poor and are often found adjacent to erosion channels which will have also contributed to water loss from the peatland surface further degrading the habitat.

0.43ha of M20 will be lost, comprising 0.19ha direct loss to infrastructure and 0.23ha indirect loss.

***M25 Molinia caerulea – Potentilla erecta* mire**

This community occurs on moderately wet, shallow peat and is found where there is a transition from the areas of deeper peat (M19 + M20 communities) and the more improved marshy grasslands or heath. *Molinia caerulea* is the most dominant species within this community and can form large conspicuous tussocks. Bryophyte diversity is poor and restricted to robust common pleurocarpous mosses such as *Hylocomium splendens*, *Pleurozium schreberi* and *Hypnum jutlandicum*. It is commonly indicative of degraded peatlands with Molinia dominating at the expense of less robust species.

The M25 loss considered here is M25 on 50cm or more, and therefore Priority Peatland. Of the total 0.2ha, 0.08ha is direct loss and 0.12ha, indirect loss.

U4 Festuca ovina-Agrostis capillaris-Galium saxatile grassland

This habitat is shown on Figure 8-4, two areas of which are in the west of the Site. These are allocated as 'Heathland creation' totalling 25.5ha as shown on Figure 6-7. It is a species poor grassland of low conservation interest and for this reason chosen to develop to heathland. It was valued as less than Local in the EIAR and was therefore not carried through to the assessment. The area is chosen to create a wet heathland type to reinforce the existing CSGN.

2.2 Ornithology

The aim of habitat restoration measures includes increasing suitability for waders and Short-eared owl, with an increase in both nesting and foraging habitat for both. Once construction is complete, the increase in habitat will contribute to mitigation for effects from loss of habitat and disturbance/displacement. Further details are provided in the Bird Protection Plan which will be place (See Ornithology: Chapter 7). The areas below are contiguous with those intended for the CSGN enhancement described in section 2.1, and prescriptions (see sections 3.4 to 3.5) are compatible with both aims.

U4 Festuca ovina-Agrostis capillaris-Galium saxatile grassland

This habitat is allocated as 'Heathland creation' totalling 25.5ha as shown on Figure 6-7. The area is chosen to create a wet heathland type to enhance the Proposed Development Site for Short-eared owl by diversifying from the monocultural habit which dominates the heathland at present. Areas chosen are ≥300m from turbines to avoid increasing mortality/injury by encouraging birds into the turbine area.

U6 Juncus squarrosus – Festuca ovina grassland and MG10 Juncus effusus – Holcus lanatus rush pasture

This grassland and rush pasture is shown on Figure 8-4 in an area in the centreof the Proposed Development Site allocated forWet grassland creation, as is shown on Figure 6-7. Wet grassland will improve habitat suitability for waders. MG10 is generally wet, but the chosen area includes U6 (which is drier). The area is ≥300m from turbines to avoid increasing mortality/injury by encouraging birds into the turbine area.

2.3 Bats

Several bat roost potential ash *Fraxinus excelsior* trees were observed in the south of the Survey Area with an adjacent block-built bridge having fissures capable of housing roosting bats. Bat roost surveys carried out in 2020 and 2021 focused on these areas because at that time they were within 200m plus rotor radius of turbines although no roosts were found during surveys. Whilst the design subsequently changed to remove these potential features from within 200m plus rotor radius of turbines, as they exist within land within the Applicant's control and beyond the potential mortality/injury zone of turbines, their presence presents an enhancement opportunity.

There are high, medium, and low potential bat features around the farmyard in the east of the Proposed Development Site consisting of trees and damaged buildings. Whilst they are outwith the potential Zone of Influence of the Proposed Development Site, the buildings themselves offer potential bat roost features for the buildings are open and the presence of livestock means a substantial invertebrate prey resource, and therefore optimal habitat overall for enhancement.

3 Outline HMP

3.1 Outline HMP Area

HMP Areas are shown on Figure 6-7. The Proposed Development Site has been a challenge within which to develop an HMP that provides large-scale, 'joined-up' enhancements for the following reasons:

1. There are few erosion features of which to develop (e.g. the extent of all drains is shown on Figure 6-7.
2. Most habitats are modified from grazing and/or historic burning - for priority peatlands (see NatureScot 2023 for definition) cessation of these activities does not count towards restoration targets.
3. Space is limited due to proposed infrastructure, existing farm operations and a Forestry Grant Scheme (the latter covering some drains which would otherwise be included for restoration).
4. Habitat development must not encourage avian species into conflict with turbines and appropriate buffers are applied to avoid it.

In order to address NatureScot comments regarding biodiversity enhancements on the EIA application, which is considered to refer to both priority peat and 'non-priority peat' aspects, the same habitat measures as described in the EIA are intended in the HMP but with extents increased as per Table 1.

Table 1: On site - Priority Peatland and Non Priority Peatland Enhancement Update Between EIA and AI Reports (in Hectares)

Measure	Total Gain (EIA) (Ha)	Total Gain (AI Report) (Ha)
Priority peat (10m buffer on drains)	7.1	7.1
Bog restoration/creation	8.8	14.4
Heathland creation	6.2	25.5
Wetland creation	6.6	15.8
TOTAL	**28.7**	**62.8**

15.9ha was intended for restoration as target Blanket Bog habitat in the EIA. Given the limited opportunities for onsite restoration a small additional area of 5.6ha has been subsequently identified upon which to improve the existing impoverished blanket bog (M19/M25 mosaic); by thinning *Molinia caerulea* purple moor-grass and adding grips to rewet. This is shown in Figure 6.7. **As a result, 21.5ha is intended as target Blanket Bog habitat in the AI, a ratio of 1:2.06 under the NatureScot (2023) guidance.**

In relation to habitat enhancement for bats, areas in the trees and a bridge adjacent the southern boundary of the Proposed Development Site, and around the farm have been identified as suitable for bat box installation. While the recorded bat activity was minimal and dominated by low numbers of common species of bats (*Pipistrellus spp.)* installing bat boxes increases the number of potential roost sites away from the Proposed Development Site and helps to keep bats away from wind turbines, reducing collision risk and barometric trauma.

3.2 Outline HMP Heads of Terms

With consideration of the habitats and species present and the aim for significant biodiversity gain as per enhancement requirements under Policy 3 of NPF4 (SG, 2023) the following broad heads of terms are identified at this stage. Outline prescriptions are allocated a unique identifier in the following text, consisting of the text 'Drumm' followed by the prescription number. Outline prescriptions are summarised in Table 2.

3.3 Reduce Peatland Degradation

3.3.1 Aim

To increase the extent and quality of blanket bog habitat in areas where suitable hydrological regimes can be created to support bog habitat. The aim is to increase the blanket bog extent and provide opportunities for expansion of peatland floral species.

3.3.2 Background and Justification

Blanket bog is a priority habitat under Annex I of the EU Habitats Directive and listed on the Scottish Biodiversity List as a habitat in significant decline / unfavourable condition where conservation effort is needed (NatureScot, 2022).

M20 *Eriophorum vaginatum* Blanket and raised mire is a degraded form of blanket bog present throughout the Proposed Development Site, but mainly derived from degraded blanket bog communities. The history of burning coupled with current grazing suits a reversion of wetter bog types to M20 as hardier, more competitive species, dominant in this context. A range of measures will be undertaken to wet this area, develop the extent, abundance and diversity of sphagnum and other species indicative of blanket bog, such as bog asphodel *Narthecium ossifragum*. The area available sits partially on existing M20 and within artificial drains spread across the Proposed Development Site (Figure 8-4). The total area available for restoration on the Proposed Development is 21.5ha.

3.3.3 Outline Prescriptions

Drumm1: Peatland restoration through increasing water levels in existing ditches and Enhancement of M20 degraded blanket bog

Peatland restoration on site will be achieved through utilisation of methods including ditch blocking using peat and artificial dams. Erosion channels identified in the M20 bog will be used as a starting point for enhancements in that habitat. The number and type of dams installed and intervals between them will be dependent upon the ditch gradient, width, depth, flow, best practice guidance[3] and the professional judgement of the experienced staff who undertake the work. It should be noted that understanding of best practice peatland restoration techniques continues to evolve and as such best practice guidance at the time of work being carried out will be taken into account.

Throughout the process, hydrological management techniques will be assessed for their effectiveness through water table monitoring and, if required, strategies may be redesigned to increase rate and / or coverage of water table recovery.

Ditch blocking

Ditch blocking will be utilised to encourage rewetting of the drained areas of peatland.

This will comprise blocking of drainage ditches to slow down the seepage of water from the peat mass, encourage rewetting, and to encourage restoration of the peatland habitats. The blocking must start from the highest point of the peatland and work successively downwards. Distance between blocks should be kept as minimal as practicable to allow more effective retention of water and to decrease the flow at each block or dam.

5. For drain blocking, each restoration location will be assessed individually on the ground by the (Environmental Clerk of Works) EnvCoW and Peat Specialist.
6. Toe protection measures will be required to hold in the peat (where creep of peat is possible, stone dams will be used in preference over peat dams, sheet piles, coir rolls or heather bales). This will be determined on a case-by-case basis between the EnvCoW/Suitably Qualified Ecologist (SQE) and Contractors.
7. Catotelmic peat will be placed first within the artificial drain, followed by acrotelm turves.
8. The difference in water levels downstream and upstream should be limited to less than 30cm to reduce pressure and keep the water table sufficiently high.

The need for surface protection such as biodegradable geotextile materials or the spreading of heather rich brash will be reviewed on site.

For this rewetting to be successful, the water flow must be dispersed over a large area, not concentrated and vegetation needs to be reestablished on bare peat surfaces.

[3] www.nature.scot/climate-change/taking-action/peatland-action/peatland-action-project-resources and www.nature.scot/sites/default/files/2019-03/Guidance-Peatland-Action-installing-peat-dams.pdf

Backfilling

Backfilling is an alternative to the dam / blocking process described above. Backfilling involves entirely filling in a ditch or watercourse instead of blocking or creating dams at certain points. It is the most effective method for rewetting peatland but should only be done in areas of significant drying. The best methodology to complete an entire ditch backfill is to use a large quantity of peat and lay turves on top.

Backfilling or gully blocking can also be used in areas of eroded peat to slow down and stop further erosions.

Peatland Turve Reuse

Peatland habitats on the Proposed Development Site will be affected by the Proposed development through direct loss under the Proposed Development footprint and through potential for indirect disturbance within 10m of permanent infrastructure. Habitats will be either permanently lost (buried under floating infrastructure), removed from under non-floating permanent infrastructure and used for reinstatement elsewhere on the Proposed Development Site or removed from under temporary infrastructure, stored locally and reinstated following construction. A Peat Management Plan (PMP) has been prepared to support the proposed development (Technical Appendix 2). The PMP provides detailed information on avoidance of peat through design, excavation of peat and reuse of peat in relation to the amended development. This PMP has identified peat cuttings which are suitable for restoration and this activity also forms part of the requirements of this HMP to facilitate retention of blanket bog vegetation for reuse in peat cutting restoration.

In order to retain important peatland habitat features wherever possible on the Proposed Development Site, the following measures will be undertaken to facilitate restoration of peat cuttings:

- Further survey of vegetation within infrastructure micro siting allowances will be undertaken prior to construction in order to identify and if possible, avoid areas of sensitive habitat and sensitive plant species.
- Where it is not possible to avoid areas of sensitive habitat and sensitive plant species then vegetation from these areas will be translocated for use in restoration of peat cuttings on Site as identified in the PMP.
- A translocation methodology will be produced as part of the detailed HMP which will draw on the measures detailed in the PMP and best practice information available at the time. This will include, but not be limited to the following outline steps:
  - A minimum thickness of 300mm of acrotelmic peat or turved organic soil should be excavated where sufficient soil is present; where less than 300mm is present, the full depth of soil and surface vegetation should be excavated.
  - Methods of material and vegetation storage prior to reinstatement at receptor sites, ensuring the minimum time for storage and that conditions appropriate to viability of translocated material are in place.
  - Actions to prepare the receptor site to receive translocated vegetation.

Peat turve cutting and translocation should only be used on bare peat, to encourage establishment of vegetated peat.

Several fixed monitoring locations will be established within blanket bog communities within the HMP Area, including within restored peat cuttings, with the aim being to monitor the long-term condition of the Site through a programme of annual fixed-point photography and quadrat monitoring.

This prescription method is counted as reinstatement instead of restoration but is still an essential prescription for this HMP as the methods of enhancing or restoring peatlands without existing peatland turves are limited and generally less successful.

Further information on methods to excavate and store peat are provided in sections 5.2 - 5.3 of the PMP.

Peat Reuse / Reinstatement Methodology

Peat reuse will be undertaken in the correct sequence to recreate the in-situ peat stratigraphy, with acrotelmic peat placed on top of catotelmic peat. Where excavated levels require, catotelmic peat will be placed first to form a surface lower than the proposed final ground level to accord with the thickness of turves available.

The acrotelm turves will then be placed, with their edges butted together to avoid bare peat sections. Protruding edges will be levelled, ensuring that the vegetation recovered with the turves forms a continuous surface.

The excavator forks will be used to press the turves into place to minimise the potential for voids to remain under the turves.

Following completion of turf replacement any gaps between turf edges will be filled with acrotelm peat which has been dislodged from the base of turves in storage areas and or vehicles. This will be undertaken by hand to avoid the need for placed turves to be tracked over.

For recreated slopes, peat will be restored to form a surface that interacts with the groundwater in a similar way to adjacent in situ peat by not being significantly raised above adjacent surfaces.

Reinstatement of vegetation will be focused on natural regeneration utilising vegetated turves and the existing seed bank. In the event that the quantity of excavated vegetated acrotelm turves is not sufficient, seed from locally growing grass and rush species will be spread over on these areas as a nurse crop.

Seeds will be gathered between May and July when they are most abundant. Alternatively local providence seed will be purchased.

Seed will be spread manually where the areas are small or through the use of spreaders mounted on all-terrain vehicles (ATVs) as agreed with the EnvCoW.

It is likely that a biodegradable geotextile will be required to stabilise the bare peat surface and allow the seeds to geminate and establish. GeoJute or similar material will be used.

Purple moor-grass management

A combination of flailing and windrowing will be used on the mosaics which include Molinia within the additional 5.6ha identified to that identified in the EIA. This will help less dominant species characteristic of bog to flourish and curtail drying out effects. The EnvCoW will monitor this area and record markers of peatland condition during post-construction and operational phases, for a period to be agreed with the Habitat Management Group.

3.4 Heathland Enhancement

3.4.1 Aim

To increase suitable nesting and foraging habitat for breeding Short-eared owl by increasing the extent of heathland within the Central Scotland Green Network designation which passes through the Proposed Development Site.

3.4.2 Background and Justification

Short-eared owl is listed on Annex I[4] and is of medium conservation concern due to fluctuations in the availability of suitable habitat caused by a lack of suitable heathland and maturation of commercial conifer plantations. One pair is considered to use the Proposed Development Site.

3.4.3 Outline Prescriptions

Drumm2: Provide and maintain an area of 25.5ha of suitable breeding habitat for Short-eared owl in an area away from the influence of the wind turbines and the land management practices of the surrounding area

Securing enhancement locations

If site clearance and construction activities are required to take place during the main breeding bird season, between mid-March to August inclusive, pre-commencement survey work would be undertaken to ensure no nest destruction and disturbance to sensitive species. Nest searches will also be completed on a rolling programme by the ECoW/SQE to provide the most up-to-date information in all areas where development works are being undertaken that could impact on nesting birds.

Prior to construction, Heras fencing should be erected to ensure works nor grazing occurs within the area, in order to facilitate ericoid establishment. Fencing should remain in place for the entire construction period or for at least 1 year (should construction be completed in under a year) and then removed. As it is understood grouse shooting occurs on the land the decision to enhance parts of the Proposed Development Site will be communicated to those holding the shooting rights. This is particularly important as this land management may be at odds with how it would be managed if managed solely for grouse shooting. As a result, a representative of the shooting rights holder will be invited to participate in the HMG process (section 3.11).

Habitat manipulation

Short-eared owl require extensive tracts of open land and an adequate small mammal population, particularly vole species (Hardey *et al*, 2013). Prior to/during construction areas will be scraped prior to the breeding season and heath turves removed for construction from adjacent areas will be placed on the scraped areas. Should there not be enough turves, or that turves are in poor condition supplementary seeding will occur, the exact areas to be seeded to be advised by the Environmental Clerk of Works (EnvCoW) following an inspection of the area. Seeding should occur during the

[4] of the Birds Directive (Directive 2009/147/EC).

early spring, before the start of the breeding season in mid-March and . Planning and timing is crucial so that heath turves and seed are available in the mid-February to mid-March period. The EnvCoW/SQE will work closely with the Applicant/Contractors in this respect.

To facilitate vole expansion, ericoid shrub seed should be gathered from the Proposed Development Site in the year proceeding works to advance grassland to heathland areas.

Heathland species should normally start to appear within 1 to 3 years. The heathland areas in this option will develop a diverse mosaic structure and composition, including undisturbed bare ground and varied vegetation of different ages[5].

Undesirable species, such as thistles, willowherbs, purple moor-grass, bramble and bracken should be removed by hand, or, pending a check to ensure no nesting birds are present by the EnvCoW/SQE. The purpose of removal is to avoid these species outcompeting young ericoids. Muirburn should not occur in the allocated area.

Establishment success will be measured by a programme of fixed-point photography and quadrat monitoring in years 1, 3 and 5.

Grazing/Farmland operations

Fencing can be removed following construction, or after 1 year (whichever is greater) to allow managed grazing in the areas. Sheep density should be lowered, in these areas, to benefit owl populations by increasing the populations of their small mammal prey (PDNPA, 2024).

High stocking densities have the potential to impact upon small mammal populations through the direct removal of vegetation by creating a lower mean sward height. Small mammals form a major part of the diet of Short-eared owl, and there is therefore a potential for over-stocking to further limit habitat suitability for these species. The timing of grazing can also have a significant impact on the quality of habitats for the focal bird species or their prey. For example, grazing in the winter months can be particularly deleterious to some bog and heath vegetation and result in compositional change in the plant community, especially at high stocking rates. For the areas identified for heathland restoration (identified in Figure 6-7), the stocking rate of sheep in the western part of the Proposed Development Site should not exceed 0.075–0.22 Livestock Unit per hectare[6].

Predator Control

The following principles represent the predator control policy for the 25.5ha area.

- No predator control will be carried out as standard unless considered necessary, as a matter of principle;

[5] https://www.gov.uk/countryside-stewardship-grants/creation-of-heathland-from-arable-or-improved-grassland-lh3 (Accessed June 2024).

[6] https://www.ruralpayments.org/topics/all-schemes/agri-environment-climate-scheme/management-options-and-capital-items/moorland-management/guidance-for-moorland-management/ (Accessed June 2024).

- Ornithological monitoring will determine whether any ground nesting raptor species, have started nesting in the area;
- Should ground nesting raptors successfully fledge chicks, predator control is not deemed necessary;
- Should ongoing survey work show that ground nesting raptors fail at egg or chick stage, this may indicate the need for predator control; and
- Any remains at a nest site will be carefully assessed by an experienced ornithologist to identify the likely cause for the failure of breeding, should this be possible. If clear evidence for predation is identified, this should be recorded and photographed. The Applicant should be informed as soon as possible to allow for an early implementation of predator control measures.

It should be noted that the area of heathland creation has been increased from 6.2ha to 25.5ha (see Figure 6-7) from that included in the HMP submitted with the Additional Information Report.

3.5 Wet Grassland Creation

3.6 Aim

To improve the Site for waders through habitat manipulation and grazing/farmland operations management.

3.7 Background and Justification

Breeding pairs of Curlew *Numenius arquata*, Lapwing *Vanellus vanellus* and Snipe *Gallinago gallinago* were identified in ornithological surveys which included breeding territories for three pairs of each of these species (Ornithology EIAR Chapter 7). Curlew and Lapwing are of high conservation concern and Snipe is considered of medium concern and all three are listed on the Scottish Biodiversity List. There is concern for this species resulting from habitat loss and degradation including the drainage of wet grasslands.

3.8 Outline Prescriptions

Drumm3: Provide and maintain an area of 15.8ha of wet grassland as breeding habitat for waders in an area away from the influence of the wind turbines and the land management practices of the surrounding area

A wet grassland enhancement comprising of 15.8ha has been proposed to encourage wader species assessed in the Ornithology EIAR (Chapter 7), namely Curlew, Lapwing and Snipe.

Prescriptions are based on the following guidance and on knowledge of working on similar projects in the locality:

- FAS (2017). Farm Advisory Service (2017). Conservation Grazing for Semi-Natural Habitats. Technical Note: TN 686 (September 2017)[7].
- RSPB (n.d). Scrape creation for waders. Farming and crofting for wildlife.
- RSPB (2017). Land management for wildlife. Curlew (*Numenius Arquata*).
- RSPB (2017). Land management for wildlife. Snipe (*Gallinago gallinago*)[8].

Prescriptions will be managed by the EnvCoW or SQE.

Exclusion

Prior to the start of the wader breeding season in April the EnvCoW, in tandem with the Applicant, will enter negotiations with the farmer with the aim of removing grazing livestock for the period April to late August from the 15.8ha of wet grassland Removal of livestock will facilitate the wetting operations described below. The area will be marked out and, should it not be possible to exclude livestock through use of existing gates/boundaries, the exclusion area will be fenced. Fencing should be in place for the construction period or for 1 year (whichever is greater), after which time it should be removed.

Wetting

During the September to February period habitat manipulation to wet the existing grassland will be undertaken. Works should be completed at the very latest by late February to minimise disturbance to birds which may use the area in the subsequent breeding season. A network of scrapes each 20-40m^2 will be installed to hold water to an approximate 45cm depth from at least March to late June. The location of scrapes will be predisposed to wetter areas on impermeable soils (preferentially less peaty areas) and the area chosen includes drains which may be blocked to help wet the area. To not conflict with farming operations this will be agreed with the farmer/Applicant. Drains would be blocked to create pools behind.

The proposed area extends from the eastern flank of Drummarnock hill heading east to lower ground and on shallow slopes scrapes will be created with bunds placed beneath (from the excavated material) the scrape to retain water, with the bund aligned with existing contours. Where practicable (i.e. depending on how wet the ground is in a certain area) scrapes will be in a linear arrangement to maximise the edge which is the optimal feeding area.

Grazing/Farmland operations

On completion of construction, and outwith the period of April to late August - Snipe tend to nest later than the Curlew and Lapwing hence the extension into August, managed mowing will be undertaken to create and patchwork of rushes and open

[7] https://www.fas.scot/downloads/tn686-conservation-grazing-semi-natural-habitats/ (Accessed June 2024).

[8] https://www.ruralpayments.org/topics/all-schemes/agri-environment-climate-scheme/management-options-and-capital-items/wader-grazed-grassland/ (Accessed June 2024) and https://www.ruralpayments.org/topics/all-schemes/agri-environment-climate-scheme/management-options-and-capital-items/wader-and-wildlife-mown-grassland/guidance-for-wader-and-wildlife-mown-grassland/ (Accessed June 2024).

areas. Rush vegetation will ideally be around 10-30cm tall with rushes cut from mid-August onwards. Arisings will be removed and there will be no muck-spreading in the identified area at any time of year.

High stocking rates (>c.0.3LU/ha) should be avoided during the breeding season as advised by the FAS (2017). Given the extended period to cover Snipe this is regarded as April to late August in the areas identified on Figure 6-7. Grazing should be avoided in the late autumn and winter periods due to the risk of over-trampling the vegetation and waterlogging of livestock.

Predator Control

The principles outlined under 'Drumm2' apply to this prescription. In addition, the area has been designed to be at least 100m from woodlands, including the Forestry Grant Scheme (see Figure 6-7) or hedgerows to thereby minimise the risk from predators afforded by tree cover.

It should be noted that the area of wetland creation has been increased from 6.6ha to 15.8ha from that included in the HMP submitted with the Additional Information Report (see Figure 6-7).

3.9 Habitat Enhancement for Bats

3.9.1 Aim

Increase local bat populations away from the proposed development and ensure no increase in mortality/injury risk.

3.9.2 Background and Justification

As per requirements under NPF4 (SG, 2023) to include appropriate measures to conserve, restore and enhance biodiversity in relation to opportunities for species.

3.9.3 Outline Prescriptions

Drumm4: Increase in roosting opportunities through bat-box provision.

The following specification for bat boxes will be placed at a total of 10 suitable locations to cover both the farm in the east of the Proposed Development Site (approx. NS 75534 87167) and at trees in the south (NS 73773 86691).

Ten Schwegler 1FF or 2F wall or tree-mounted boxes will be installed at across both the farm complex and trees in the south. These specifications are most suitable for both common pipistrelle species (BCT, 2021, p.72) but may also be suitable for natterer's bat, as these are known to favour voids within building infrastructure[9].

For all boxes BCT guidance will be followed in terms of siting and maintenance (BCT, n.d.).

[9] https://www.bats.org.uk/about-bats/what-are-bats/uk-bats/natterers-bat

3.10 Monitoring the effect of the Proposed Development

3.10.1 Aim

To ensure the effect of the Proposed Development Site is measured and that prescriptions in this plan, and any subsequent, relevant planning conditions, are adhered to.

3.10.2 Outline Prescriptions

Drumm5: Monitoring during construction to operation to document habitat restoration and Short-eared owl and wader population growth

During construction, monitoring should be undertaken in any areas where peat is stored, as follows:

Habitats

- Regular visual inspection of the outer peat surface of any stored peat to identify any evidence for drying or cracking.
- Regular coring of stored peat to log the moisture content of stored peat (using the von Post scale to monitor changes in moisture content for peat on the outside and within the peat mound).
- Clear specification of an action plan in response to these observations, including modifications to coverings, implementation of watering, or construction of temporary berms to retain water in the storage footprint.
- Acceleration of reuse for vulnerable stores if so identified.
- Key to the success of the strategy for peat management will be careful monitoring of the post-construction works and any reinstatement activities. A monitoring programme should be initiated once peat reinstatement works have been completed, and should include:
  - Review of % vegetation cover and vegetation composition in areas of bare peat that have been reinstated or in any areas that have been seeded (due to a lack of available turved material); and
  - Review of stability of deposits in their new locations.
- If required, mitigation recommendations should follow from the monitoring and include:
  - Specification of seeding appropriate to the target vegetation or stabilisation with geotextile if revegetation is not occurring naturally (which will assist re-wetting and retention of moisture contents); and
  - Construction of wood or mineral dams (or equivalent) if any creep of peat soils is evident at any reinstated location.

In order to assess the effectiveness of the habitat restoration post construction, with the aim being to monitor the long-term condition of the Proposed Development Site, a programme of fixed-point photography and quadrat monitoring in years 1, 3 and 5 will be in place. The monitoring will be used to assess the effectiveness of the HMP, which can be updated to reflect this survey data. Following year 5 it will be agreed with the Habitat Management Group (HMG) the frequency of surveys, which will be dependent

on factors including how successful establishment has been and other land-use pressures, such as grazing densities. Surveys will target the areas of peatland restoration. Habitat monitoring will apply to 'drains' (i.e. bog), bog restoration/creation and heathland creation areas as shown on Figure 6-7.

Monitoring of the actual peatland restoration features will also be undertaken to check the integrity of the features and record any issues of further work requirements. If features are not performing correctly, remedial measures may be required e.g. increasing dam frequency, applying different brash / seed mix / plug planting where revegetation techniques are not successful, additional measures if there are issues with grazing levels etc. A commitment from the landowner will be secured through the Applicant that no muirburn will be undertaken in restoration areas.

Fauna

Birds

During operation, Breeding bird surveys with four surveys being carried out between April – July, using an amended Brown and Shepherd methodology as outlined in SNH 2017, will be undertaken across the Proposed Development Site with a focus on the wet grassland areas intended for waders. Given the difficulty of surveying for Short-eared owl (Hardey *et al* 2013), as their numbers fluctuate significantly between low and high vole years, and the temporal period they are active over, this approach also be used for that species, with a focus on the intended heathland to be restored. Surveys would be repeated in years 1, 2, 3, 5 post-construction, with any further requirement to be determined via the HMG.

Bats

In terms of monitoring the bat boxes, non-invasive checks can be done without needing a licence. However, prior to the interior of the box being checked, if field signs (dropping, staining, prey remains) indicate presence, or if bats are found within the box (no field signs observed beforehand) an SQE with a bat licence will be required to perform the check.

The outline monitoring scheme should be reviewed on a 5-yearly basis. Ongoing monitoring commitments will be reviewed and, if necessary, any adjustments to the HMP will be carried out.

3.11 Habitat Management Group

3.11.1 Aim

Provision of oversight mechanism and peer review opportunities to discuss the need for corrective actions (e.g. changes to current measures), how and when to implement them.

3.11.2 Background and Justification

Once consent has been granted it is proposed that a Habitat Management Group (HMG) is established,

The HMG would be responsible for reviewing the findings of the habitat management programme and for refining the implementation of the plan if required. The developer or operator of the wind farm would be responsible for its funding and implementation.

3.11.3 Outline Prescriptions

Drumm6: Establishment of a Habitat Management Group

An EnvCoW will oversee all operations and facilitate the creation of a Habitat Management Group which would include representatives from SC, NS (should they wish to be present), the Applicant, the farmer/s and those holding shooting rights.

In accordance with good land management practice, a register of management works undertaken on the Proposed Development Site will be maintained to monitor that such works are consistent with the agreed objectives of the HMP. A technical report will be produced at the end of each year in which habitat management prescriptions have been undertaken. This will be submitted to the HMG for review.

It is proposed that once the amended development is granted consent, a suitably worded condition will be attached requiring the development of a full HMP in consultation with an HMG made up of landowners and stakeholders prior to construction commencing.

The HMG will be established by the Applicant prior to construction and will ensure that prescriptions are enacted in a timely manner and the results communicated back to all stakeholders. The HMG will be responsible for reviewing the findings of all prescribed monitoring as part of the habitat management programme and for refining the implementation of the plan if required. The Applicant or operator of the Proposed Development will be responsible for its funding and implementation. Ad hoc communication with the HMG including the distribution of any interim or monthly reports would be undertaken by email.

The HMG will meet annually for the first 5 years to ensure that the aims are progressing and to assess if any other factors have had an adverse or positive effect on the Site that were not considered. The minutes of these meetings will be communicated back to all stakeholders. After the initial 5-year period, results from monitoring which may be undertaken in years 10 and 15[10] will be communicated to the HMG.

3.12 Outline Prescription Summary

Table 2 summarises the outline prescriptions and proposed monitoring schedules.

Table 2: Outline Prescriptions and Proposed Monitoring Schedules

ID	Target Feature	Survey Type	Timing	Programme	Responsibility
Drumm1	Peatland generation	Fixed point photography and quadrat monitoring/Plot monitoring	Summer	Throughout lifespan of project	Applicant / Suitably Qualified Ecologist
Drumm1	Restoration of peatland habitats	Plot Monitoring	Summer	During construction	Applicant / Suitably Qualified

[10] Surveys would be repeated in years 1, 2, 3, 5 post-construction, with any further requirement to be determined via the HMG.

ID	Target Feature	Survey Type	Timing	Programme	Responsibility
					Ecologist
Drumm2	Heathland generation	Fixed point photography and quadrat monitoring/Plot monitoring	Summer	Throughout lifespan of project	Applicant / Suitably Qualified Ecologist
Drumm3	Wetland generation	Fixed point photography and quadrat monitoring/Plot monitoring	Summer	Throughout lifespan of project	Applicant / Suitably Qualified Ecologist
Drumm4	Bat roost boxes	Checks to verify use	Winter	Throughout lifespan of project	Applicant / Suitably Qualified Ecologist
Drumm5	Across site and 500m buffer	Breeding birds (Brown and Shepherd)	April - July	Years 1, 2, 3, and 5 (frequency of subsequent monitoring dependent on initial monitoring results and determined by HMG)	Applicant / Suitably Qualified Ecologist

3.13 Management

In accordance with good land management practice, a register of management works undertaken on the Proposed Development Site will be maintained to monitor that such works are consistent with the agreed objectives of the HMP. A technical report will be produced at the end of each year in which habitat management prescriptions have been undertaken. This will be submitted to the HMG for review.

3.14 Development and Implementation of Final HMP

It is proposed that a suitably worded condition would be attached to the planning permission requiring the development of a full HMP in consultation with an HMG made up of landowners and stakeholders (SC and NatureScot) prior to construction commencing.

The HMG will be established by the Applicant prior to construction and will ensure that prescriptions are enacted in a timely manner and the results communicated back to all stakeholders. The HMG will be responsible for reviewing the findings of all prescribed monitoring as part of the habitat management programme and for refining the implementation of the plan if required. The Applicant or operator of the amended development will be responsible for its funding and implementation.

The HMG will meet annually for the first 5 years to ensure that the aims are progressing and to assess if any other factors have had an adverse or positive effect on the Site that were not considered. The minutes of these meetings will be communicated back to all stakeholders. After the initial 5-year period, results from monitoring carried out in years 10 and 15 will be communicated to the HMG.

4 Conclusion

In addition to Priority Peatlands of 21.5ha. 41.3ha of heathland and wetland creation will occur on-site.

This is an increase of 28.5ha of these habitats, to the commitment made in the 2024 EIA Report.

5 References

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