

APPENDIX 8.2: HABITAT MANAGEMENT PLAN

1.1	Introduction	2
1.2	The Gordonbush Estate Habitat Management Plan	3
1.3	Gordonbush Extension Habitat Management Plan	4
1.4	Overall Aims of the HMP	5
1.5	Objective 1 – Restoration of 20ha of Degraded Blanket Bog Habitat	5
1.6	Objective 2 – Enhancement for Golden Eagle: Monitoring of Breeding Success	8

Figures

Figure 8.3 of 2015 ES – 2010 HMP Phase 1 Habitat Survey of Gordonbush Estate

Figure 8.5 of 2015 ES – 2010 Sward Structure Assessment

1.1 Introduction

- 1.1.1 This document is provided as an Appendix to the Gordonbush Extension Wind Farm Environment Impact Assessment (EIA) Report and the associated Ecology Chapter. Whilst no significant effects to Important Ecological Features (IEF) were identified during the impact assessment for the Proposed Varied Development, SSE as a responsible developer are committed to providing enhancement to the biodiversity of the development site and surrounding landscape. This Habitat Management Plan (HMP) aims to provide this enhancement, tying into the existing Gordonbush Estate Habitat Management Plan (GEHMP) provided in association with the Gordonbush Wind Farm.

Background – Existing Consent

- 1.1.2 The Gordonbush Extension Wind Farm was granted s.36 consent under the Electricity Act 1989 (as amended) in September 2017. A condition of the relevant s.36 consent for the development was the provision of a Habitat Management Plan (HMP) to monitor, manage and protect habitats, otters, water voles, pine marten, breeding birds and deer. The Condition is provided below for reference:

Condition 25: Habitat Management Plan

There shall be no Commencement of Development unless a habitat management plan has been submitted to and approved in writing by the Planning Authority in consultation with SNH and SEPA. The habitat management plan shall set out proposed habitat management of the wind farm site during the period of construction, operation, decommissioning, restoration and aftercare of the site, and shall provide for the maintenance, monitoring and reporting of any deer, breeding birds, otter, pine marten and water vole habitat on site.

The approved habitat management plan will include provision for regular monitoring and review to be undertaken to consider whether amendments are needed to better meet the habitat plan objectives. In particular, the approved habitat management plan will be updated to reflect ground condition surveys undertaken following construction and prior to the date of Final Commissioning and submitted to the Planning Authority for written approval in consultation with SNH and SEPA.

Unless otherwise agreed in advance in writing with the Planning Authority, the approved habitat management plan shall be implemented in full.

Reason: In the interests of good land management and the protection of habitats.

- 1.1.3 It is proposed to vary this condition to increase clarity of the HMP's objectives and to help ensure it focusses on mitigating the significant predicted effects. The proposed varied condition is provided below for reference:

Prior to Commissioning of the Development the draft habitat management plan shall be amended, as necessary, and submitted to and approved in writing by the Planning Authority in consultation with SNH. The habitat management plan shall set out proposed habitat management measures during the operational period of the site to mitigate significant environmental impacts identified in the EIA Report.

The Applicant should investigate the opportunity to align and consolidate the Gordonbush Estate HMP and any proposed HMP for the Proposed Varied Development.

Unless otherwise agreed in advance in writing with the Planning Authority, the approved habitat management plan shall be implemented in full.

Reason: In the interests of good land management and the protection of habitats.

- 1.1.4 No significant impacts were noted to IEFs in the EIA Report for the Proposed Varied Development. It is acknowledged that the construction of the development will cause a degree of loss and change to blanket bog habitats (although assessed as not significant) and a reduction in the land available to the Gordonbush Estate Habitat Management Plan. Although these effects are minor,

consideration has been given to these and how to integrate this HMP with the GEHMP to provide enhancement to the overall landscape of the Gordonbush Estate.

- 1.1.5 In addition to the above the Gordonbush Estate has an active Deer Management Plan to which any findings from this HMP or the existing GEHMP and the surveys associated with this, will be fed into. A Species Protection Plan for Otter (see Appendix 8.1 of the EIA Report) has been provided which details the proposed survey schedule to monitor the species during the Construction phase of the Proposed Varied Development. Effects to pine marten and water vole were found to be not significant in the 2015 ES or the Proposed Varied Development's EIA Report and so are not considered in this HMP. Consequently, these species are not included within this document.
- 1.1.6 No significant effects from either the Gordonbush Wind Farm (2015 ES) or the Proposed Varied Development to golden eagles have been identified. However, in keeping with SSE's aims to provide enhancement to the Gordonbush Estate and integration with the GEHMP, additional monitoring of golden eagles will be implemented.
- 1.1.7 The scope therefore of this HMP will be on restoring blanket bog habitats to enhance the blanket bog resource within the Gordonbush Estate and increasing monitoring of golden eagle populations in proximity to the Proposed Varied Development.

1.2 The Gordonbush Estate Habitat Management Plan

- 1.2.1 The Gordonbush Wind Farm, commissioned in 2011, has an existing Habitat Management Plan (Gordonbush Estate Habitat Management Plan (GEHMP), 2009). The primary objectives of the GEHMP are to mitigate the potential (none significant) effects of the wind farm upon golden eagle, merlin and golden plover. Secondly, the GEHMP will enhance peatland and native woodland habitats and species, and promote black grouse habitat. The existing GEHMP has four primary Land Management Areas in which the following actions are completed across the estate:
 - Forestry removal and moorland restoration;
 - Heather management and drain blocking;
 - Native woodland restoration; and
 - Small-scale agricultural activities.
- 1.2.2 Locations where the above actions are being completed are provided in Figure 8.3 (sourced from the 2015 ES) with the Phase 1 Habitat map provided for reference. In addition, bracken control and deer management are undertaken across the entire estate in conjunction with the regional Deer Management Group. The GEHMP is supplemented by the Gordonbush Estate Deer Management Plan (2009 – 2014) which seeks to control red deer numbers, reducing their impacts to key habitats, and directing their grazing to areas within the estate where they can actively contribute to sward management. This is in keeping with the aims of the GEHMP.
- 1.2.3 The Gordonbush Extension Wind Farm is located within Land Management Area (LMA) 4 of the GEHMP (Figure 8.3). Within this area ongoing management actions comprise of:
 - diversification of sward structure by grazing management; and
 - restoration of degraded bog by ditch blocking.
- 1.2.4 Details of actions completed in the first five years of Habitat Management Activities for the GEHMP are provided in Northern Ecological Services' 2015 report¹.
- 1.2.5 It is acknowledged that the construction of the Gordonbush Extension Wind Farm in LMA 4 will cause a small reduction in the area under management through the GEHMP. This will total the footprint of the development equating to approximately 7ha. Surveys completed in 2010 found

¹ Northern Ecological Services (2015) Gordonbush Wind Farm Habitat Management Plan Five Year Review: Summary Report

LMA 4 to be the most diverse of the four management areas in terms of sward height and structure with a more even spread of height classes and a greater proportion of areas with varied sward structure (Figure 8.5 sourced from the 2015 ES). Consequently, enhanced management in this area is considered to be less effective than if completed in LMA 1 or 2.

- 1.2.6 Blanket bog restoration activities have been completed across LMA 3 and 4 of the GEHMP. These activities and their success will not be affected by the construction or operation of the Proposed Varied Development. Additional blanket bog restoration activities completed in associated with this HMP will aim to supplement those already undertaken within the Gordonbush Estate.
- 1.2.7 In addition, research completed through the Gordonbush Eagle Ridge Model (GERM) found that relatively little 'preferred' habitat for golden eagles was encompassed by the operational Gordonbush Wind Farm or the Gordonbush Extension Wind Farm, including 500m buffers of these. As stated in the summary of Whitfield & Fielding (2018)² for the Gordonbush Extension Wind Farm:
- "Golden Eagle Ridge Model (GERM) modelling also revealed that predicted habitat losses via a displacement effect were negligible due to the Gordonbush Wind Farm and Gordonbush Extension Wind Farm."*
- 1.2.8 Consequently, it is concluded that the Gordonbush Extension Wind Farm would not have a significant effect on the foraging behaviour of golden eagles or reduce the effectiveness of the GEHMP in meeting its objectives with regards to this species.
- 1.2.9 Outside of the Gordonbush Extension Wind Farm site boundary other GEHMP management activities are being undertaken. Those on ground immediately adjacent to the Gordonbush Extension Wind Farm include native woodland restoration, lowland cattle grazing, removal of plantation woodland and bracken control. These activities are also unlikely to be affected by the construction or operation of the Proposed Varied Development.

1.3 **Gordonbush Extension Habitat Management Plan**

Site Description

- 1.3.1 Comprehensive details of the site's physical environment, habitats and land use are given in the 2015 ES and summarised in Chapter 8: Ecology of the EIA Report. Additional data, for example on peat depth, will also become available through Gordonbush Extension Wind Farm Site Investigation (SI) works and this will be used to further inform HMP activities as appropriate. To avoid unnecessary repetition the information is not repeated here, and reference is made to the appropriate documents as required.

The Nature of this Document

- 1.3.2 This HMP is a working document and is therefore intentionally kept short; this will aid in implementing actions and updating the document should the need arise. For details on wind farm layout, site characteristics, birds, habitats, protected species present, and predicted ecological and ornithological impacts reference should be made to the relevant sections of the EIA Report for the Proposed Varied Development.

The Timeframe for the Gordonbush Extension Wind Farm

- 1.3.3 It is anticipated that construction of the Proposed Varied Development would take approximately 13 months. The consent for the wind farm is 25 years from the date of final commissioning, at which point decommissioning would be anticipated and likely to take approximately 12 months.

² Whitfield, D.P., Fielding, A.H. (2018) Potential effects of the proposed Gordonbush Extension Wind Farm on golden eagles

1.3.4 The Applicant is committed to implement and fund HMP works for the life of the Proposed Varied Development. This includes monitoring which will be used to inform progress with restoration and to assess its outcomes. Once the HMP is approved, works will commence following final commissioning of the development. A Gantt Chart is provided in Table 1 (see Section 1.5) providing an indication of when HMP activities would be undertaken.

1.4 Overall Aims of the HMP

1.4.1 This HMP is required to satisfy Condition 25 (HMP) of the relevant s.36 consent, but in doing so is designed to integrate with the existing actions of the GEHMP as detailed above. A revised condition has been proposed and is included in Section 1.1.3 of this document. The EIA Report for the Proposed Varied Development predicts no significantly adverse impacts to Important Ecological Features during the Construction or the Operational Phases of the development. Similarly the Proposed Varied Development will not affect the effectiveness of the GEHMP as detailed in Section 1.2.

1.4.2 However, it is predicted that c.6ha of blanket bog habitat will be permanently lost with an additional c.11ha indirectly affected and altered during the lifespan of the Proposed Varied Development. Although these effects are not predicted to be significant, as a responsible developer SSE aims to enhance the overall landscape of the Gordonbush Estate during the Operational phases of its developments. The Gordonbush Extension Wind Farm will be constructed in LMA 4 of the GEHMP and blanket bog restoration activities have been completed across this LMA. Construction of the Proposed Varied Development is not predicted to inhibit those restoration activities already implemented within LMA 4. Indeed this HMP will aim to restore c.20ha of blanket bog habitat, a greater area than that which is predicted to be effected by the Proposed Varied Development, providing enhancement to the surrounding landscape whilst tying in where possible to the existing blanket bog restoration activities.

1.5 Objective 1 – Restoration of 20ha of Degraded Blanket Bog Habitat

Restoration Ground Truthing

1.5.1 North Ecological Services (NES) 2010 report³ provides the locations which blanket bog restoration was proposed to be implemented within LMA 4 of the GEHMP. The report details the priority drains to be blocked.

1.5.2 To aid in planning for further restoration of blanket bog habitat associated with the Gordonbush Extension Wind Farm, ground truthing of the existing restoration activities will be completed to allow an update of the quantity of ground under current management. This will then allow suitable additional areas to be identified for blanket bog restoration. Through this ground truthing process approximately 20ha of additional blanket bog will be identified. Ground truthing methods will follow those as outlined in NES (2010) for consistency across all areas.

Restoration Methods

1.5.3 Methods of restoration will follow best practice guidance as outlined in the Yorkshire Peat Partnerships (2014) handbook for peatland restoration⁴. However, restoration techniques are constantly improving with novel methods developed as our understanding improves of how peatland habitats respond to various management methods. As such, the most appropriate and up to date methods will be used across the proposed restoration area dependent on the feature to be restored.

³ Northern Ecological Services (2010) Gordonbush Wind Farm Habitat Management Plan: Report of survey to identify ditches for blocking.

⁴ Brooks, S., Stoneman, R., Hanlon, A., Thom, T. (2014) Conserving Bogs: The Management Handbook. Yorkshire Peat Partnership.

- 1.5.4 Dams to block drainage features can be constructed from a variety of materials depending upon the size of the drains, access, labour and availability. It is likely that peat would be the most suitable material on the Gordonbush Estate given the small scale hill grips which predominately drain the area.

Time Scales for Restoration

- 1.5.5 Restoration will commence following final commissioning of the Proposed Varied Development with all restoration works completed within the first five years of the Development's Operational Phase. Ground truthing of the current restoration activities and identification of the new proposed restoration areas will determine the methods of restoration most appropriate to the site.
- 1.5.6 Baseline data will be collected prior to restoration activities commencing with vegetation monitoring completed at permanent 2 x 2m quadrats. Monitoring locations will be spaced 100m apart across the restoration area providing approximately 30 monitoring locations.
- 1.5.7 At each quadrat a complete species list will be collected along with the percentage coverage the species occupy. In addition to the species and coverage assessment evidence of herbivore or land management impacts to the blanket bog habitat will be assessed using standardised guidance (MacDonald *et al.*, 1998)⁵. The assessment will consider parameters of both the condition and the current trends associated with impacts to the blanket bog habitats from red deer. Monitoring of these will enable the effectiveness of deer management across the wider area to be examined and to assess if this is influencing the successful restoration of the proposed blanket bog restoration area.

Monitoring Timetable

- 1.5.8 Baseline vegetation monitoring data collection would be completed following commissioning of the Proposed Varied Development, following initial ground truthing of previous restoration works and identification of the 20ha restoration area.
- 1.5.9 Restoration will be phased following baseline data collection with follow up monitoring of the stability of restoration activities undertaken six months after their completion.
- 1.5.10 Additional monitoring of the vegetation communities present and the condition and impacts of deer to the blanket bog habitats will be assessed in years 5, 10, 15 and 25 of the Operational Phase of the wind farm. The restoration process is a slow one and the rate of change will not be discernible if monitoring is completed at a greater frequency. A Gantt Chart outlining the proposed monitoring timetable is provided in Table 1 below.

Reporting

- 1.5.11 Reporting of the activities completed against Objective 1 will follow that of the ground-truthing and prioritisation, restoration, and post-restoration monitoring timetable. This timetable is summarised in the Gantt Chart below. Reporting will be completed in each year in which actions are completed, and in line with the existing HMP.

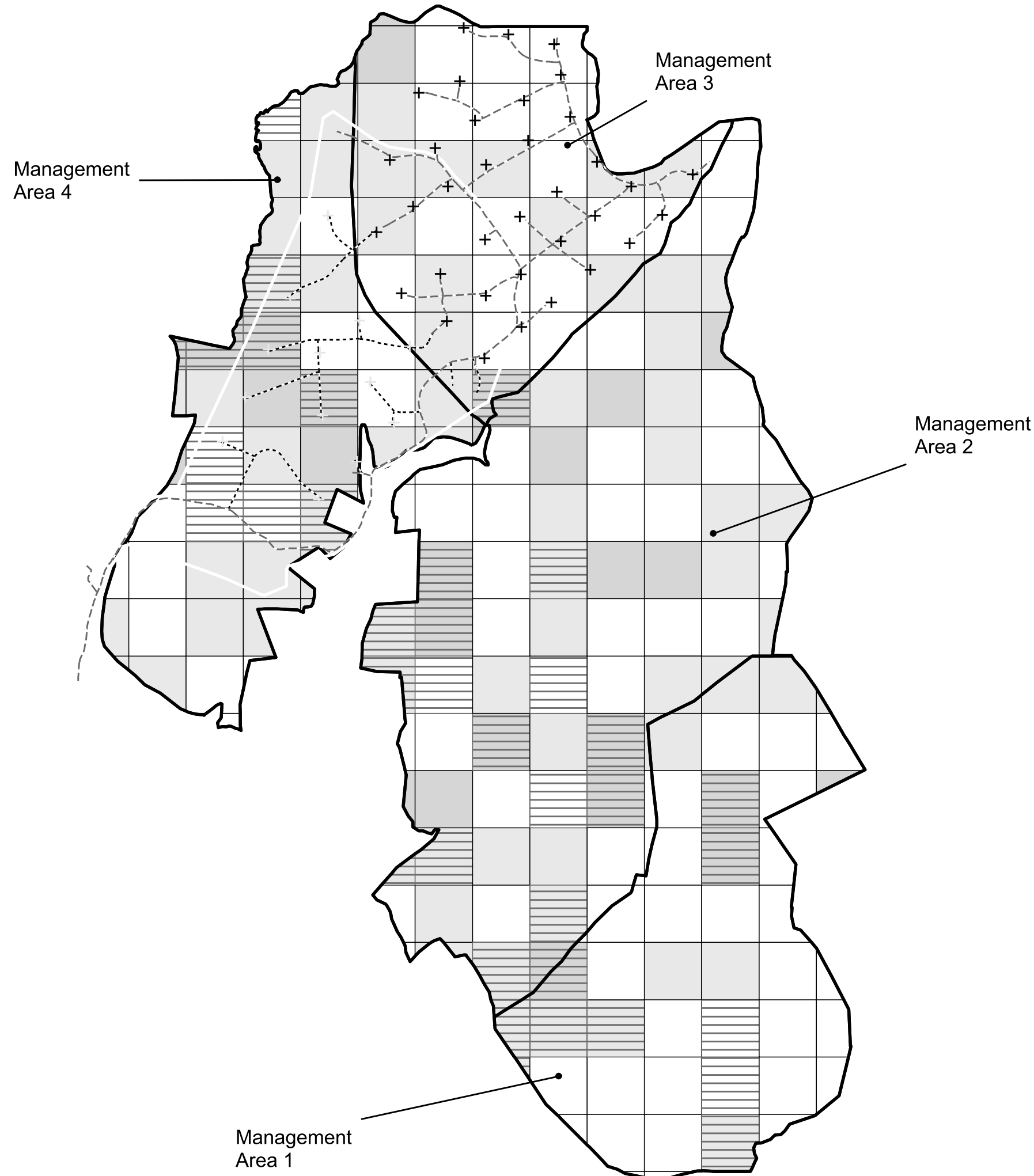
⁵ MacDonald, A., Stevens, P., Armstrong, H., Immirzi, P., Reynolds, P. (1998) A Guidance to Upland Habitats – Surveying Land Management Impacts – Volume 1 and 2

Objective 1 Summary

Table 1– Gantt Chart Showing the Timeline of Blanket Bog Restoration Activities Through the Operational Phase of the Proposed Varied Development									
Wind Farm Phase	Operational Phase Year								
Task	1	2	3	4	5	10	15	20	25
Ground truthing of the GEHMP restoration activities and identification of suitable restoration area(s) for the Gordonbush Extension Wind Farm Habitat Management Plan.									
Baseline data collection which will include: • Baseline data collection of vegetation species and abundance at permanent monitoring quadrats; • Assessment of the condition of blanket bog; and, • An assessment of the impacts of deer to the condition of habitats at permanent monitoring quadrats.									
Implement restoration activities based on the findings of the ground truthing and prioritisation exercise. All restoration activities to be completed within the first five years of commission of the wind farm.									
Monitoring of restoration activities and the stability of dams using in blocking drainage features to be completed six month follow restoration of an area.									
Long term monitoring of vegetation and impacts to blanket bog from deer to be assessed in years 5, 10, 15 and 25 of the Operational Phase of the wind farm.									

1.6 **Objective 2 – Enhancement for Golden Eagle: Monitoring of Breeding Success**

- 1.6.1 The GEHMP states its primary objective is to “mitigate potential adverse effects of the wind farm upon golden eagle, merlin and golden plover”. The GEHMP committed to the management of “Mountain and Moor” habitats to “create a mosaic of upland habitats including blanket bog, wet heath, dry heath, acid flush and acid grassland, with benefits for a range of upland species such as golden plover and red grouse”. Red grouse within the GEHMP are stated as prey species of golden eagle. No potential adverse effects were predicted to golden eagle in the Gordonbush Wind Farm ES and supplementary environmental information (2003, 2004, 2006), the 2015 ES or the EIA Report for the Proposed Varied Development.
- 1.6.2 Section 1.2 of this document details the objectives of the GEHMP and the research completed to inform the assessment that the Gordonbush Extension Wind Farm will not affect the delivery of the GEHMP’s objectives, including those associated with golden eagle.
- 1.6.3 Although no adverse effects are predicted to golden eagle and the GEHMP will continue to deliver enhancement on a landscape scale for the species, SSE are committed to completing additional monitoring of the breeding success of the B/S45 golden eagle pair in the putative boundary of their territory. Additional monitoring will similarly be undertaken of the possible new pair within the area if they are able to successfully establish a territory who’s putative boundary overlaps with the Proposed Varied Development. Such monitoring will contribute to the overall understanding of golden eagle breeding success surrounding the Gordonbush Estate.



Key

- + Proposed turbine location
- + Existing turbine location
- Proposed track layout
- Existing tracks
- _____ Development site boundary
- Upland management area boundaries

Dwarf shrub average height (cm)

- [Hatched] 30, Varied
- [Solid Grey] 30, Uniform
- [Hatched] 25, Varied
- [Solid Grey] 25, Uniform
- [Hatched] 20, Varied
- [White] 20, Uniform
- [Solid Grey] 15, Uniform
- [Hatched] 15, Varied
- [White] 10, Uniform
- [Hatched] 10, Varied

Scale 1:38,000 @ A3

0 0.25 0.5 1 km

Figure 8.5
2010 SWARD STRUCTURE ASSESSMENT
Gordonbush Extension Wind Farm
Environmental Statement