

Volume 5: Appendix 3.3 - Outline Site Restoration Plan

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1 OUTLINE SITE RESTORATION PLAN

1.1 Introduction

Purpose of the Outline Site Restoration Plan

1.1.1 This Outline Site Restoration Plan provides an overview of the restoration procedures which are to be adhered to during the pre-construction, construction and reinstatement of the Proposed Development. The overall aim of these procedures is to facilitate the restoration of landform, habitats, vegetation and forestry which have the potential to be disturbed as a result of the proposed works. The nature of the restoration plans can be separated into the following areas:

- the restoration of landform to reflect the adjacent areas, accommodate new permanent features and minimise the visual appearance of these features where possible;
- the restoration and, where possible, enhancement of pre-construction habitat types with the aim of achieving a net gain for biodiversity; and
- across all disturbed areas, the restoration of vegetation types reflective of existing conditions and avoidance of unstable bare ground where erosion could occur.

1.1.2 It is intended that the general principles outlined in this document will act as a basis for more detailed plans to be developed during the post-consent and pre-construction phase of the Proposed Development, including site-specific restoration plans and the Biodiversity Enhancement Plan.

Associated Documents

1.1.3 This Outline Site Restoration Plan should be read in conjunction with the following associated appendices of the EIAR:

- Volume 5, Appendix 3.2: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs);
- Volume 5, Appendix 3.4: Outline Construction Environmental Management Plan (CEMP);
- Volume 5, Appendix 9.6: Outline Landscape Mitigation Design Guide;
- Volume 5, Appendix 11.2: Habitat and Vegetation Survey Report;
- Volume 5, Appendix 11.5 : Outline Biodiversity Enhancement Plan;
- Volume 5, Appendix 13.2: Private Water Supply and Groundwater Abstraction Assessment;
- Volume 5, Appendix 13.4: Outline Peat Management Plan (PMP); and
- Volume 5, Appendix 13.6: Peat Landslide Hazard Risk Assessment (PLHRA).

1.2 General Principles of Site Restoration

1.2.1 The restoration of landscape areas and habitats would be considered through four phases as follows:

- pre-construction phase;
- construction phase;
- post-construction reinstatement phase; and
- post-reinstatement monitoring.

1.2.2 The above phases would be applied in a flexible manner across the project depending on the planned construction programme. The general principles for each phase are summarised below. These general principles will be expanded on during the pre-construction phase where a planned construction programme will be developed with site-specific plans.

Pre-construction Phase

1.2.3 Prior to construction commencing, planning will take place for each area that is likely to be disturbed, considering the following aspects:

- identification of any areas to be protected, including important ecological features, water environment features, cultural heritage features or significant landscape features;
- identification of any notable features which should be restored; and
- provision of sufficient and suitable space for the separate storage of turves/topsoil, peat and or subsoils.

Construction Phase

1.2.4 During the construction phase, disturbed peat, soils or sub-grade materials need to be carefully extracted and stored in order to facilitate successful restoration. In order to achieve this the following steps and principals should be adhered to:

- identification and separation of topsoil/vegetated 'acrotelmic' peat, from subsoil/lower 'catotelmic' peat, and other sub-grade material;
- storage of separate stockpiles, identified within the pre-construction phase. Soil would be stored within the working area for each element of the work during construction;
- excavation of whole, intact turves where possible and storage with the vegetated side facing up;
- avoidance of double handling of materials where possible;
- stockpiles should be no greater than 2 m in height to prevent compaction;
- protection of stockpiles from construction plant or contaminants, and from runoff;
- monitoring of stored materials to ensure that they do not dry out and watering where necessary; and
- avoidance of work during unsuitable weather conditions including heavy rain, strong winds or periods of frozen ground.

1.2.5 Further details are provided in **Volume 5, Appendix 3.4: Outline Construction Environmental Management Plan (CEMP)**.

Reinstatement Phase

1.2.6 The general principles for reinstatement involve the replacement of the excavated subsoil, then topsoil in the correct order in which they were excavated. This would ideally involve the re-placement of fully intact turves on the surface. The following principals would be observed during this phase:

- reinstatement is to occur as soon after excavation works as possible, in order to minimise the storage period, which could result in the drying out of materials;
- reforming of the sub-grade material to reflect landform and patterns of adjacent areas, prior to the replacement of peat or topsoil;
- as far as possible, the creation of slopes at gradients suitable for the placement of soils/peat and where necessary, suitable slope stabilisation measures to assist revegetation and prevent erosion;
- where there are insufficient turves, the ground will be required to vegetate naturally;
- replacement of soils/peat in the correct horizons, as close as possible to the area of excavation;
- avoidance of compaction of soil or peat;
- replacement of peat, limited to areas disturbed during the works;
- adoption of a phased approach to avoid tracking back or disturbing areas previously reinstated; and
- a preference for natural regeneration of vegetation wherever possible, however some seeding may be required to stabilise sites and prevent erosion, or where landowner requirements dictate otherwise.

Post-reinstatement Monitoring Phase

1.2.7 To ensure success of vegetation restoration and to monitor the effectiveness of habitat reinstatement or enhancement measures, monitoring would occur over an agreed timeframe, particularly focused within sensitive or protected areas. A programme for monitoring visits will be agreed between the Applicant and NatureScot.

Tree Works and Planting

- 1.2.8 Any required tree felling works within commercial forest areas and areas of semi-natural woodland will be carried out by an appropriately qualified and experienced woodland consultant and future replacement or compensatory replanting would be undertaken separately to the Proposed Development.
- 1.2.9 Any planting outwith forest areas for habitat or landscape mitigation purposes would be undertaken subsequent to ground vegetation restoration. Protection from grazing animals would be installed where necessary to aid establishment. There would be a preference towards the use of local provenance stock as far as possible.

Restoration of Key Features of the Proposed Development

- 1.2.10 The following provides a summary of how the techniques outlined above would be applied to the main features of the Proposed Development:

Permanent Access Tracks

- 1.2.11 Access tracks to be permanently retained are generally anticipated to be narrowed to around 4.5 m in width. Narrowing of access tracks would involve the replacement of excavated peat/soil along the edge of the access track to reduce the running width. Track drainage features would remain in place or would be modified if necessary. Where possible, intact, vegetated turves would be used to form the verge of the track, bedded down to ensure that the exposed edges were not vulnerable to wind erosion. Cuttings and embankments would, where possible, be created at a gradient suitable for the replacement of soils/peat to allow revegetation. However, where this would not be possible, appropriate bio-engineering techniques would be used to assist the re-establishment of vegetation, with the exception of solid rock cuttings. These may include products such as jute matting.

Floating tracks

- 1.2.12 Where the existing ground does not provide appropriate bearing capacities and/or where peat is located, the new accesses would likely be floated on top of the soft ground, circumnavigating the requirement for deep excavations and disturbance to the peat. This involves the construction of the track on top of the intact vegetated ground, using a supportive geogrid. Where materials were available, turves or soils may be used to help repair and vegetate and integrate the verges of floating tracks with the adjacent landscape. However, this would be limited to situations where there was not a risk of wind erosion or drying of turves. No peat would be spread over adjacent vegetated landscape areas.

Tracks to be Upgraded

- 1.2.13 Upgrading works would be dependent on the requirements of the individual tracks involved. Where this would involve widening the running width of the track, and as far as possible turves and soils would be removed, separated and stored to be used for restoration of the new track verges. However, depending on the construction methods used for the original tracks, there may be some instances where these materials are scarce. In these cases, the potential to bring in materials from other nearby locations would be explored, with advice sought from the relevant technical specialists, although this may not always be possible.
- 1.2.14 Where, additional cuttings or embankments were required, where possible, these would be created at a gradient suitable for the replacement of soils/peat to allow revegetation, or other techniques used as appropriate, as described for new, permanent access tracks in **paragraph 1.2.11**, above.

Temporary Access Tracks and Working Areas

- 1.2.15 The reinstatement of temporary tracks and working areas would be undertaken in accordance with the phases and general principles outlined above. The separation and storage of soils during construction would be key to ensuring the re-establishment of vegetation and habitats following reinstatement.
- 1.2.16 Once construction works were complete, excavated subgrade material would be used to reform any notable landscape features such as ridges or hummocks cut through by the works, and otherwise to reflect the adjacent landform. Where permanent, above ground features of the Proposed Development would be present, the landform would be placed to smoothly integrate these features into the adjacent landscape and reduce the visual appearance where possible.

- 1.2.17 The area would then be reinstated with the appropriate layers of soils/peat and turves. Where a shortage of turves exists, these would be placed in a chequerboard pattern, set flush to adjacent ground to prevent wind erosion and drying out.
- 1.2.18 If necessary, rocks would be replaced across the area to be reinstated to reflect adjacent patterns in the landscape. Rocks would be placed in sequence with soils/peat or turves.
- 1.2.19 Where permanent, above ground features would be retained within the area to be reinstated, additional rocks or turves would be placed to help reduce their visibility, if materials were available.
- 1.2.20 Where a floating construction is used for temporary access tracks, the rock and geogrid materials would be carefully pulled back to avoid damage to the supporting peat layer underneath. The excavator would work backwards from the track, and tracking over the vegetated peat would be avoided as far as possible.

1.3 Monitoring during Construction and Reinstatement

- 1.3.1 Monitoring by environmental professionals would occur throughout the site restoration phases to assist in the application of the site restoration plan and method statements. This would include input by the following professionals:
- Advisory Environmental Clerk of Works (ECoW)¹
 - ECoWs would provide ecological advice on the planning of working areas, and would monitor site stripping, material storage, and habitat restoration works throughout the Proposed Development, providing advice where necessary.
 - Landscape Clerk of Works (LCoW)
 - The LCoW would provide advice on the restoration of landform features, and the integration of the permanent elements of the Proposed Development into the restored landscape, including tracks, tower foundations, fencing and compounds. The input of the LCoW would be focussed within sensitive landscape areas including designated areas (including Dee Valley Special Landscape Area (SLA) and River South Esk Local Landscape Area (LLA))
- 1.3.2 Further advice and monitoring would be sought from other technical specialists, such as water environment, cultural heritage and geotechnical specialists, if required.

1.4 Outline Schedule of Site Restoration Requirements

- 1.4.1 **Table 3.3.1: Outline Schedule of Site Restoration Requirements** provides a high-level summary of reinstatement requirements anticipated for the Proposed Development which would be developed pre construction.

Table 3.3.1: Outline Schedule of Site Restoration Requirements

Areas Requiring Restoration	Key Issues to be Addressed in Method Statements
• full restoration of temporary access tracks; • full restoration of temporary working areas; and • restoration of landform and vegetation around towers.	• monitoring by ECoW; • presence of areas of peat within Durris Forest; and • access track watercourse crossings.

1.5 Associated Best Practice Guidance

- 1.5.1 The following list identifies (but is not limited to) guidance documents which would be referenced in the preparation of site-specific method statements for site restoration, as appropriate:
- *Good practice during Wind Farm construction, 4th Edition* (Scottish Natural Heritage (SNH) (now NatureScot), 2019);
 - *Constructed Tracks in the Scottish Uplands* (SNH, 2015);

¹ Environmental Clerk of Works (ECoW) as defined by The Association of Environmental Clerks of Works (AEnvCoW) available at:
<https://associationofenvcows.org/the-role-of-an-environmental-clerks-of-worksdownload/download/6-the-role-of-an-environmental-clerks-of-works>

- *Floating Roads on Peat* (SNH, Forestry Commission, Scotland (now Scottish Forestry)), August 2010;
- *Conserving Bogs* (The Management Handbook) (2019) Tim Thom, Astrid Hanlon, Richard Lindsay, Joanna Richards, Rob Stoneman & Stuart Brooks;
- *Engineering in the Water Environment – Good Practice Guide: River Crossings*. Second Edition. Scottish Environmental Protection Agency (SEPA), November 2010;
- *Engineering in the Water Environment – Good Practice Guide: Temporary Construction Methods*. First Edition. SEPA and Scottish Government, March 2009; and
- *Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste*. Version .1, Scottish Renewables and SEPA, January 2012.