Longcroft Wind Farm

Technical Appendix 3.2

Outline Borrow Pit Management Plan

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Date	03.10.23
Ref	04728-6213636

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1 Introduction

1.1.1 This outline Borrow Pit Management Plan (BPMP) is submitted by the applicant. The principal objective of this document is to provide details of the proposed borrow pit management arrangements during the construction of the proposed development.

1.1.2 As the outline BPMP is being prepared as part of the planning application, the applicant is yet to appoint a contractor to undertake the civil engineering works. It is proposed that the contractor appointed to construct the proposed development will refine this outline BPMP prior to construction to ensure it is fit for purpose.

1.1.3 The Figures referenced within the outline BPMP have been produced for the Longcroft Wind Farm Environmental Impact Assessment Report (EIAR) and to avoid unnecessary duplication they have not been reproduced in this document but signpost to the relevant location within the EIA Report.

1.1.4 The borrow pits are proposed as a potential source of locally won rock for use primarily in the construction of tracks, hardstand areas and foundations in the proposed development. It is estimated that the proposed development will require approximately 91,275m^3 of stone however this requirement is yet to be finalised through detailed design.

1.1.5 Utilising approximately 8% of the proposed borrow pit search areas (see Figure 1.3 for locations of the proposed borrow pit search areas) it is expected to yield sufficient material suitable for the construction of the proposed development.

2 Methods of Working

2.1 Location of Borrow Pits

2.1.1 The southern proposed borrow pit search area (BP1) is located north-east of T1.

2.1.2 The eastern proposed borrow pit search area (BP2) is located between T5 and T6.

2.1.3 The northern proposed borrow pit search area (BP3) is located between T15 and T16.

2.1.4 The borrow pit search areas in total cover an area of approximately 16ha.

2.2 Programme of Implementation

2.2.1 An approximate sequence of works is outlined below:

Table 1. Outline Programme of Implementation

Stage of Construction	Considerations
Set out the borrow pit phases with the use of suitable survey equipment i.e. GPS (RTK) equipment.	The contractor shall ensure that markers which are to be used for setting out purposes are not harmful to the environment i.e. untreated wooden pegs or similar. Where possible, paints or other manmade materials will be limited.
Prior to commencement of extraction works, fence off area with temporary stock proof fencing.	Access and egress points will be provided for pedestrian access.
Set out and install SuDS features, initially the surrounding cut-off drains and associated SuDS works as appropriate within the proposed borrow pit areas.	SuDS will ensure that any suspended solids generated during construction are effectively mitigated and that down-catchment areas are not deprived of water supply.
Remove the top layer of vegetated material. Store the minimal topsoil deposits for later restoration of the areas.	This material will be removed and re-used to cover and promote natural re-vegetation of the reinstated borrow pits.
Excavate to rock head level and utilise non-structural overburden to form a surface water diversion bund adjacent to the cut-off drain. Additional overburden will be stockpiled within the proposed borrow pit areas.	If suitable, this material will be re-used as for partial backfill of the borrow pit.
Ripping may occur in the weathered zone of bedrock. Where rock becomes more competent, establish a first line blast to form a productive face. Utilise pattern blasting to loosen rock where required to extend the borrow pit in the desired formation.	Typically, face height will not exceed 15m or 70° slope angle and will generally follow HSE The Quarry Regulations.1999 guidance where appropriate. The peak of the existing land formation will not be removed.
Crushing/screening/grading of extracted rock prior to temporary stockpiling for removal and utilisation	Control of noise and dust emissions
Stockpiles of aggregate or overburden, where present, will remain below 5m in elevation beyond existing topography and will rest at their natural angle of repose.	Suspended sediment in surface run-off will be diverted to either the sump at the back of the areas or the rock filled drain at the entrance.
Extraction of stone and formation of steeply graded 1.5m high faces and 0.5 m wide benches to sloping base of the pit. Additionally, formation of 'roll-over' slopes along the more elevated parts the pit.	To mitigate potential effects of the extraction on visual amenity a 'roll-over' slope would be formed along the more elevated parts of the pit. This slope would be in keeping with existing topography in the vicinity and would be restored to dry heath and acid grassland to ensure its assimilation into the adjoining landscape.
Restoration will take place, initially using overburden materials but also local peat	Reinstatement to mimic adjacent land forms, geology and hydrogeology as far as practicable.

where appropriate, to backfill local depressions to near ground level.	
Vegetated material will be placed in areas where excavation faces are exposed.	It is important that this is undertaken promptly after borrow pit operations cease to speed up the re-vegetation process.

2.3 Operational (Extraction) Activities

2.3.1 The work at the borrow pit identified comprises the extraction of suitable material for reuse as aggregate for tracks, hardstand areas and foundations on the proposed development.

2.3.2 Key extraction activities at the borrow pit include rock breaking/blasting, crushing, screening/grading, stockpiling and haulage away from the borrow pit.

2.3.3 Once works on-site have begun it is estimated that the duration of extraction from the borrow pits is approximately 12 months. The daily operation and management of the borrow pit will be the responsibility of the contractor, however, in general the methodology set out below for careful management of the borrow pit will be adhered to minimise potential environmental impact.

2.3.4 In order to make the above possible, it will be necessary to implement a method which ensures that provisions are in place to manage topsoil or peaty topsoil removal and re-use for restoration and overburden removal and storage. Provisions for the control of surface run-off during and post construction and the re-vegetating of working faces post construction are also included. Further details on these issues are provided in the following sections.

2.3.5 Blasting can give rise to both ground-borne vibration and airborne pressure waves, referred to as air overpressure. Blast-generated air overpressure levels are not anticipated to be high at residential locations due to the separation distances involved. The levels of vibration due to blasting are expected to be below the satisfactory magnitude of 6mm/s defined in BS 6472-2: 2008 ‘Guide to evaluation of human exposure to vibration in buildings, Part 2: Blast-induced vibration’ for daytime periods at residential locations. Considering this, it is proposed that the following mitigation measures are implemented:

- Good practice on blasting, as recommended by Planning Advice Note (PAN) 50 'Controlling the environmental effects of surface mineral workings', shall be followed;
- The vibration and air overpressure reduction methods outlined in Section 8.6.9.2 of BS 5228-2: 2009+A1:2014 shall be adhered to where appropriate;
- Advance warning shall be given to nearby residents;
- Blasting should only occur between the hours of 0800-1800 on Mondays and 0800-1300 on Saturdays; and
- No more than three blasts per day should occur.

2.3.6 As a worst case, it is anticipated that blasting may occur up to 2-3 times a week for the duration of the construction works.

2.3.7 Once operations are sufficiently underway, restoration will take place progressively behind the working areas to encourage re-vegetation. This will minimise any impact to the surrounding environment by minimising the working areas at any point.

2.3.8 General site best practice will be applied through operation activities including:

- Use of fuel will be controlled to the minimum practicable by adequate management systems;
- Vehicle engines will be switched off when not in use;
- All vehicles will be properly maintained;
- Staff will be briefed on fire risk from cigarettes etc in dry conditions. Designated safe smoking areas will be located away from the temporary mineral working, with the finalised locations to be confirmed prior to site works commencing; and
- No fires to be lit on-site.

2.4 Soil & Peat Material Handling

2.4.1 A geotechnical site investigation has yet to be carried out for the proposed development therefore a detailed description of the type of soils and rock to be extracted from the borrow pit, including details of the existing water table and volumes of de-watering cannot be confirmed.

2.4.2 The Technical Appendix 10.2 - PLHRA compiled by Natural Power indicates that peaty soil and peat deposits cover parts of the site and overlying

glacial till. Superficial deposits are absent from hill tops and local deposits of alluvium are mapped associated with the watercourses on-site.

2.4.3 Peat depth probing surveys have been undertaken across the site and indicate that the borrow pit search area is located in largely shallow (<1m deep) peat with an exception of the southern borrow pit. where there are some areas of peat greater than 1m depth.

2.4.4 The borrow pit search area has been positioned where rock is likely to be close to the surface and also in an area where peat slide risk rating is deemed negligible to low. On removal of the peat from the borrow pit area, the risk from peat movement will be mitigated through removing material from the higher areas down to avoid undermining or surcharging any peat materials. Peat arising from borrow pit activities will not be stored for any prolonged period and will be utilised in the restoration of the borrow pit areas.

2.4.5 Overburden will be temporarily stockpiled within a suitable area of the proposed borrow pit until the restoration phase commences. Where relevant, overburden will remain separate from peat deposits and will sit at an angle no greater than its natural angle of repose, not protrude beyond 5m in height above the existing topography and will be laid in layers of not more than 1m thick. Where possible, stockpiles will be placed to the side and on the flattest accessible areas and will avoid any placement on peat deposits.

2.4.6 Other overburden sub-soils will be utilised for the construction of a surface water diversion bund up topographic gradient, where practical.

2.5 Aggregate Material Handling

2.5.1 Where appropriate, stockpiles of aggregate will be temporarily stored in proximity to the crusher. To minimise environmental impact, the borrow pit is to be worked in discrete cells. As such, the location of the processed material stockpiles will be transient according to the working phases, however, all of these locations will be at least 100m from the nearest watercourse.

2.5.2 Aggregate stockpiles will be formed to a maximum height of 5m above surrounding topography. They will be shaped as it is being built to shed water and sit at an angle no greater than its natural angle of repose.

2.6 Welfare Provision

2.6.1 Welfare facilities for the borrow pit will be located at the temporary construction compound (within the proposed development).

2.7 Security

2.7.1 Security arrangements at the borrow pit area will be agreed through consultation with the selected contractor and landowner. It is envisaged that the borrow pit area will be delineated by post and wire fencing to prevent access.

2.7.2 If deemed necessary, security measures may take the form of locking of the areas, CCTV and/or security personnel.

2.8 Safety

2.8.1 Training/induction will be undertaken for all site staff prior to working on-site. Method statements will be communicated to all relevant personnel through activity plans including:

- Provision of ongoing training and review of relevant procedures with site staff throughout the contract, including through the use of toolbox talks;
- Provision of ongoing monitoring of the effectiveness of mitigation and procedures and update as required;
- Provision of ongoing monitoring, review and update of environmental control measures in method statements.

2.9 Environmental Inspections and Geotechnical Assessments

2.9.1 During operation, an on-going system of formalised assessment will be completed by a suitably qualified Geotechnical Engineer. They will be responsible for monitoring site workings and responding to changing ground conditions accordingly.

2.9.2 Environmental inspections are to be carried out by personnel based at the borrow pit and by the Environmental Clerk of Works (ECoW).

2.10 Working Hours

2.10.1 Construction traffic will adhere to programmed activities and agreed working hours specified for the proposed development (Monday to Saturday from 0700 to 1900 with no working permitted on Sundays or public holidays). No construction traffic will undertake works beyond the agreed activities and hours unless by prior agreement.

3 Environmental and Hydrological Aspects

3.1 Access and Traffic Management

3.1.1 Traffic associated with the borrow pit will be contained within the proposed development except for the delivery of plant to extract and transport material around the proposed development.

3.1.2 During the operation of the borrow pit, vehicles accessing the areas will be limited to the vehicles used by persons working at the site, site visitors and the HGVs required to deliver plant and materials or transport the aggregate from the temporary mineral working to the construction working areas.

3.2 Ecology

General

3.2.1 The borrow pit location and extents have been selected to minimise impacts on any ecologically sensitive areas. To discourage site staff from potentially impacting upon the surrounding environment, the working areas, associated tracks and storage areas will be marked by a fence or marker posts at all times during the operation of the borrow pit. No excursion beyond the delineated boundary will be permitted without authorisation. The proposed development ECoW will undertake pre-construction surveys and will monitor the construction works in accordance with the approves scope of works submitted to the local authority.

Ornithology

3.2.2 Ornithological commitments apply to the proposed development as a whole and are relevant but not specific to the borrow pit area. Should any

evidence of nesting be discovered, a buffer (10m) will be established and clearly delineated around the nest and works in that area stopped until the birds either fledge or the nesting attempt ends, e.g. as the result of nest predation.

3.2.3 All contractors will be required to comply with all relevant ornithological commitments set out above.

Flora and Fauna

3.2.4 Protected species commitments apply to the proposed development as a whole and are relevant but not specific to the borrow pit area. Notwithstanding the above, should any evidence of a protected species having colonised the location since the walkover be discovered (e.g. a badger sett) an appropriate buffer (e.g. 30m for badger) will be established and clearly delineated around the identified feature and works in that areas stopped and the ECoW contacted to organise how to proceed.

3.2.5 In order to ensure that no reptiles are affected during the establishment of borrow pit, all vegetation on the borrow pit area will be cut short in the week before any vegetation removal. Site contractors will be made aware of the species that could be present and to cease works if any reptiles are seen whilst the advice of the ECoW is sought.

3.2.6 No particular floral recommendations apply to the location. Floral mitigation is focussed on ensuring no impacts on surrounding habitats, as set out above.

3.2.7 All contractors will be required to comply with all relevant flora and fauna commitments set out above.

3.3 Archaeology

3.3.1 The proposed extraction of aggregate from the borrow pit will not affect any known archaeological or cultural heritage sites. Furthermore, given the small scale and temporary nature of the proposed works, it is considered that the proposed development will not give rise to any significant indirect impacts upon archaeological or cultural heritage receptors in the vicinity of the site. Although considered unlikely, the potential for unidentified remains being present is a possibility. Therefore, site staff will be briefed on the nature of common archaeological finds including:

- Brick or tile fragments;
- Coins or pottery;
- Bone fragments or skeletons;
- Timber joists or post holes;
- Brick or stone foundations;
- In-filled ditches.

3.3.2 If any other suspected archaeological features are uncovered during excavation of spoil, excavation activities will cease and the Construction Site Manager informed immediately.

3.4 Drainage and Surface Water Management

3.4.1 The borrow pit location has been selected away from watercourses and beyond a 100m buffer area defined for site selection.

3.4.2 Cut-off drainage and or face crest bunding will divert surface flow around the operational areas and leave only incident rainfall to collect in the borrow pit. All cut-off drains will be constructed in advance of any operations occurring within the site.

3.4.3 Borrow pit floor level will slope gently down to the rear of the area forming a natural pool to retain any surface water and enable suspended sediments to settle out. Water collected in a sump in the low point of the borrow pit will then be pumped to a SuDS settlement lagoon (located within the proposed borrow pit area, out of the rock extraction area) sequence prior to natural drainage. Diverted surface flow will also be retained and treated through a SuDS settlement lagoon sequence. No water from excavations and dewatering activities will be allowed to enter surface waters directly.

3.4.4 Staff will be briefed on the location of these features and importance of preventing water run-off from exiting the borrow pit and will be given regular toolbox talks about the risks of working near water and the potential to cause pollution.

3.4.5 Stockpiles (of superficial deposits and aggregate) will be located in suitable locations to ensure that there is no risk of material washing out and contaminating watercourses.

3.4.6 No refuse or debris will be stored at the borrow pit, however, it will be gathered daily and stored in secure skips located at the temporary

construction compound (within the proposed development), prior to regular removal to avoid risk of polluting watercourses.

3.4.7 The source of any water used to suppress dust will be in accordance with legal requirements and if doubt exists about what is permissible consultation with SEPA will occur.

3.4.8 All plant and equipment will be maintained appropriately including checking for leaks and cleaning/removing visible oil.

3.4.9 Any contaminated soil will be disposed of to a licensed waste disposal site in accordance with legal requirements.

3.4.10 There will be no sewage discharges from the borrow pit.

3.4.11 Following completion of the interim site restoration, the sites will be inspected by suitably qualified personnel, to ensure that any drainage features retained within the sites are functioning properly and that the sites are in good condition.

3.5 Waste Management

3.5.1 There is no waste developed by works at the borrow pit anticipated, natural soils will be either utilised as dressing material or stockpiled for restoration.

3.5.2 No facilities will be present within the borrow pit, no hydrocarbon storage will take place. A diesel-powered pump will be situated on a drip tray. Regular inspections will take place to check for leaks and drips. The drip tray will have the capacity to safely store at least 110% of total fuel capacity of the pump.

3.6 Noise and Vibration

3.6.1 Construction noise and vibration control measures will be included within the Construction Environmental Management Plan (CEMP). The CEMP will include an assessment of the construction noise for the borrow pit and associated construction of infrastructure for the proposed development. The CEMP assesses the noise and vibration impact upon the most acoustically sensitive residential properties during the construction period.

3.6.2 Primary activities for which noise arises during the construction period are from the excavation of borrow pit and the construction of tracks and

hardstands. Noise from vehicles on tracks will also arise due to the transportation of aggregate.

3.6.3 For all activities, measures shall be taken to reduce noise levels with due regard to practicality and cost as per the concept of 'best practicable means' as defined in Section 72 of the Control of Pollution Act 1974.

3.7 Dust and Air Pollution Management

3.7.1 The main activities on the proposed development that may cause dust emissions include the following:

- Excavation and movement of site won material;
- HGV movement on borrow pit haul roads;
- Crushing of site won material;
- Stockpiles.

3.7.2 The potential issue of dust creation during the works will be weather and season dependant, therefore detailed dust management methods will be subject to the works programme and contractor working methods.

3.7.3 Dust management will be carried out at all times in accordance with industry best practice measures to ensure that any local sensitive receptors are not affected by nuisance levels of dust from the works.

3.7.4 The Construction Site Manager will be responsible for undertaking and recording the following daily checks to manage dust emissions.

3.7.5 The following methods of dust suppression will be implemented during the construction phase of the borrow pit:

- Tracks to be damped down using bowser or other suitable system;
- Speed limits to be put in place to ensure low vehicle speeds;
- Damping of dry excavations and cutting/crushing activities which generate dust; and
- Programming of works to minimise the time that materials are exposed.

3.8 Responding to Environmental Incidents

3.8.1 Environmental controls will be implemented through 'Safety and Environmental Requirements of Contractors – 01059R00038', as provided by the applicant, and should any incidents occur contracts will comply

with the 'Emergency Procedure in the Event of a Contaminant Spillage'. These documents will be detailed in the CEMP prior to construction.

3.9 Daily Check Management

3.9.1 A daily management check will be implemented and will generally follow the example in Table 3 below.

Table 3. Daily Checks

Daily Check	Description
Weather forecast	Check the local weather forecast at start of working day to identify likely daily weather conditions.
Sensitive receptor	Identify which sensitive receptors may be affected by dust pollution from the site.
Dry weather	Apply water bowsers to excavations, haul roads and soil storage areas regularly throughout the day.
	Undertake regular visual checks throughout the day to ensure dust at the above locations is being suppressed.
Wind	Cover open skips and stockpiles containing loose fines.
	In the event that dust is being blown off-site, cease dust generating activities until wind conditions improve or dust is suitably managed
On-site activities	Undertake regular visual checks throughout the day of dust management during excavation, crushing and regular movement of HGVs on haul roads.
	Focus water bowsers on areas where dust is being generated.
Neighbour notification	In the event that there is a risk of dust being transported off-site despite the above management measures being put in place, inform neighbours in advance of risk and what management measures have been put in place.
	Actively monitor dust management and where dust pollution is likely to affect neighbours, cease all activities until suitable management procedures can be implemented.
Complaints	A record will be kept on-site of all dust related complaints and remedial actions taken.
	If required, staff will be briefed on changes required to working practices to ensure the incident is not repeated.

3.9.2 In addition to the above daily checks, the following dust management will be followed:

- All staff will be trained in the importance of dust management procedures;
- Activities on-site will be planned to ensure risk of pollution from wind-blown dust is reduced to minimum;

- Stockpiles (of fines and aggregate) will be no greater than 5 m above surrounding topography. The material will be tipped to ensure that the sides of the stockpiles are stable;
- Only appropriate plant will be used, and all equipment will be regularly maintained;
- No unauthorised burning of materials will be permitted on-site;
- Regularly monitor the performance of dust management procedures at the site.

4 Restoration and Aftercare Plans

4.1.1 All restoration works will be undertaken following consultation with RES, Scottish Borders Council, SEPA and other consultees.

4.2 Restoration Concept

4.2.1 The restoration proposal for the proposed borrow pits are illustrated in Figure 3.16a-c - Indicative Borrow Pit General Arrangements.

4.3 Restoration Landform

4.3.1 The excavation of borrow pits can result in anomalous steep sided voids and rectilinear exposed extraction faces. This can result in loss of visual amenity and ecological interest. In order to avoid this the borrow pit will incorporate a gently graded 'roll-over' slopes consistent with those of the existing landscape and will remove the most elevated and potentially visible faces in each pit. The 'roll-over' slopes will also provide a suitable landform for the replication of previous habitats. Lower faces will be covered by restoration materials placed in the excavation void. However, one exposed face would be retained in each pit and will be subject to restoration blasting and/or mechanical amendment to achieve a more natural and irregular finish which provides for ecological niches.

4.4 Restoration Materials

4.4.1 Initially, the excavation void will be partially filled by selected moisture retentive overburden released from both the borrow pit excavation and, if necessary, from construction works elsewhere from the proposed development. This material will then be topped by a combination of acrotelm and catotelm peat to provide suitable substrate for afforestation

with commercial species. The peat material will be placed at a total maximum thickness of 2m and surfaced with translocated acrotelm peat turfs from the borrow pit excavation and/or from a suitable donor site within the broader proposed development.

4.4.2 Restoration of the final profile will be undertaken by direct translocation of 'in-situ' turf and substrate.

4.4.3 The restoration will be connected hydrologically to with adjoining areas of existing peatland by means of the breaking out of any impermeable barrier between existing peatland habitats and those within the borrow pit.

4.4.4 The borrow pit will be enclosed by suitable stock-proof fencing to prevent incursions.

4.5 Aftercare and Monitoring

4.5.1 The restored site will be subject to a programme of annual aftercare throughout the operational life of the proposed development. Key priorities during the aftercare period will comprise of annual NVC and hydrological monitoring of habitats in the borrow pits.

4.5.2 Hydrological monitoring shall consist of groundwater level measurement and monitoring of peat turves for drying/shrinkage. If necessary (e.g. in the event of a period of drought during the early establishment of the peat habitats) artificial hydration can be initially applied to prevent peat desiccation. If turf shrinkage occurs, remediation shall consist of backfilling gaps between the turves with selected peat materials and limited hydration as appropriate;

5 Borrow Pit Site Plan

5.1.1 As the development of the borrow pit is largely governed by the required aggregate quantities needed for the proposed development construction at any given time an indicative borrow pit general arrangement has been provided in Figure 3.16a-c.

5.1.2 Further development of the site operation plan with the borrow pit contractor (not yet confirmed) will be required before detailed site operation plans can be produced for submission.