Berry Burn Wind Farm Extension Borrow Pits

on behalf of BB2 Wind Farm Limited

Ecological Appraisal Report

avian ecology

Report Verification and Declaration of Compliance

This report has been prepared with reference to best practice guidelines for Ecological Impact Assessment in the UK and Ireland, as defined by CIEEM (2018) and is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of practice for planning and development and BS 8683:2021 Process for Designing and Implementing Biodiversity Net Gain - Specification.

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1 INTRODUCTION

1.1 Background

1.1.1 Avian Ecology Limited (AEL) was commissioned by BB2 Wind Farm Limited (the 'Applicant') to undertake an Ecological Appraisal in relation to proposals to work two borrow pits (the 'Proposed Development') to win aggregate to help facilitate construction of the consented Berry Burn Wind Farm Extension (ECU Reference: ECU00000718). The Proposed Development is located on land located approximately 12 kilometres (km) south of Forres, on the Altyre Estate, West Moray (the 'Site'), as illustrated on the Site Location Plan (**Figure 1**).

1.1.2 The following terminology is used throughout this report:

- 'Proposed Development' – the proposed borrow pits;
- 'Berry Burn Wind Farm Area' - the wider wind farm site within which both the consented Berry Burn Wind Farm Extension and the operational Berry Burn Wind Farms are located (see **Figure 1**); and,

1.1.3 'Site' - the location of the Proposed Development within the Berry Burn Wind Farm Area. As shown on **Figure 1**, the Site comprise two distinct land parcels which form the proposed borrow pit (BP) search areas. The north-western land parcel, BP 1, and the south-eastern land parcel, BP 2a.

1.1.4 This report provides baseline information and an assessment of potential ecological effects of the Proposed Development.

1.1.5 The objectives of this Ecological Appraisal are to:

- Provide baseline information on the current habitats and ecological features both within the Site and in the immediately surrounding area;
- Identify the proximity of any designated sites for nature conservation interest and provide an assessment of any potential effects the Proposed Development may have on these;
- Identify the presence or potential presence of any protected species or habitats and provide an assessment of any potential effects the Proposed Development may have on these; and,
- Provide recommendations for further pre-construction checks and/or mitigation measures, if required as well as providing an outline of proposed habitat enhancements.

1.1.6 Consideration has been given to the potential presence of rare, protected, or notable habitats and species, and the location of nearby features including designated sites for nature conservation. Consideration has also been included for the satisfaction of Policy 3 of the National Planning Framework (NPF) 4.

1.1.7 Throughout this report, common names for species are favoured over scientific names unless there is potential for confusion and in which case scientific names are also presented.

1.1.8 This Ecological Appraisal Report should be read in conjunction with **Figures 1** to **7, Appendix 1.**

1.2 Site Overview and Context

1.2.1 The Site, as illustrated by the red-line boundary shown on **Figure 1**, comprises two distinct land parcels which form the proposed borrow pit (BP) search areas. The north-western land parcel (BP 1) is 5.01ha, whilst the south-eastern land parcel (BP 2a[1]) is 9.01ha.

1.2.2 In the spring of 2019, a wildfire spread from the south through much of the Berry Burn Wind Farm Area within which the Site is located. This led to widespread losses of open moorland and woodland habitats within the area, including those beneath the footprint of the Proposed Development and the wider Berry Burn Wind Farm Area.

1.3 Legislative Framework, Planning Policy and Guidance

Legislation, Policy and Guidance

1.3.1 Reference has been made to the following key pieces of legislation, policy and guidance, listed in **Table 1.1.**

Table 1.1: Key legislation, policy and guidance.

Legislation
• The Wildlife and Countryside Act 1981[2]; • The Wildlife and Natural Environment (Scotland) Act 2011[3]; • The Nature Conservation (Scotland) Act 2004[4]; • The Conservation of Habitats and Species Regulations 2017 as amended in Scotland by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the Habitats Regulations)[5]; • The Protection of Badgers Act 1992[6]; • Wild Mammals (Protection) Act 1996[7]; and, • The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003[8].
Policy
• Scottish Government (2023) 'National Planning Framework 4' (NPF4)[9];

[1] This borrow pit is named "BP 2a" in order to distinguish it from "BP 2", a previous iteration of borrow pit design which was described in the consented Berry Burn Wind Farm Extension assessment.
[2] Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents. Accessed on 05/12/24
[3] Available at: https://www.legislation.gov.uk/asp/2011/6/contents/scotland. Accessed on 05/12/24
[4] Available at: https://www.legislation.gov.uk/asp/2004/6/contents. Accessed on 05/12/24
[5] Available at: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations. Accessed on 05/12/24
[6] Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents. Accessed on 05/12/24
[7] https://www.legislation.gov.uk/ukpga/1996/3/contents Accessed on 05/12/2024
[8] Available at: https://www.legislation.gov.uk/asp/2003/15/contents. Accessed on 05/12/24
[9] Available at: https://www.gov.scot/publications/national-planning-framework-4/. Accessed on 05/12/24

- Scottish Government (2024) 'The Scottish Biodiversity Strategy to 2045'[10];
- Scottish Government (2008) 'Scottish Government Planning Advice Note 60: Planning for Natural Heritage'[11]; and,
- Moray Council (2020) 'Local Development Plan (LDP)'[12].

Guidance

- CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine'[13];
- NatureScot (2018) 'Environmental Impact Assessment Handbook';
- NatureScot (2016) 'Carbon and Peatland map'[14];
- NatureScot (2017). "Recommended bird survey methods to inform impact assessment of onshore wind farms."[15]
- NatureScot (2024) 'Standard Advice for Planning Consultants: Protected Species'[16];
- NatureScot (2023). 'Advising on peatland, carbon-rich soils and priority peatland habitats in development management'[17];
- Marine Scotland Science (2021) 'Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines'[18];
- Scottish Government (2020) 'The Scottish Biodiversity List' (SBL)[19];
- NatureScot (2024) Good Practice During Wind Farm Construction'[20];

[10] Available at: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland-2/. Accessed on 05/12/24
[11] Available at: https://www.gov.scot/publications/pan-60-natural-heritage/. Accessed on 05/12/24
[12] Available at: http://www.moray.gov.uk/moray_standard/page_133431.html Accessed on 05/12/24
[13] CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine' https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf Accessed on 05/12/24
[14] NatureScot (2016). Carbon and Peatland 2016 Map. Available at Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map. Accessed on 05/12/2024
[15] SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage (SNH), Inverness.
[16] NatureScot (2024) Standard Advice for Planning Consultants: Protected Species. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species. Accessed on 26/09/2024. Replacing 2023 guidance which was also referred to for initial surveys
[17] NatureScot (2023). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. NatureScot, Inverness.
[18] Marine Scotland Science (2021) Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines. Available at: https://www.gov.scot/publications/freshwater-and-diadromous-fish-and-fisheries-associated-with-onshore-wind-farm-and-transmission-line-developments-generic-scoping-guidelines. Accessed on 05/12/2024
[19] Scottish Government (2020) Scottish Biodiversity List. Available at: Available at: https://www.nature.scot/scottish-biodiversity-list. Accessed on 05/12/2024
[20] NatureScot (2024). Available at: ttps://www.nature.scot/doc/good-practice-during-wind-farm-construction. Accessed on 05/12/24

- Scottish Environment Protection Agency (SEPA) (2017) 'Land Use Planning System Guidance Note 4: Planning Guidance on On-shore Windfarm Developments'.[21]; and
- SEPA (2017) 'Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Groundwater Abstractions and Groundwater Dependant Terrestrial Ecosystems'.[22].
- SEPA (2014) Land use planning system SEPA guidance Note 31[23];
- NatureScot (2023a) Developing with Nature guidance. Guidance on securing positive effects for biodiversity from local development to support NPF4 policy 3(c)[24].
- Birds of Conservation Concern 5 (Stanbury *et al*., 2021)[25];
- North East Scotland Biodiversity Partnership: 3 Year Strategic Plan 2022-2025[26]; and,
- Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th edition (Collins, 2023) [27].

1.3.2 Copies of all UK and Scottish Government legislation, including original, as enacted, and revised versions, are available from the National Archives at https://www.legislation.gov.uk.

1.3.3 The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. Biodiversity priorities in Scotland are set out in the Scottish Biodiversity List (SBL) and in regional BAPs, however the lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report to provide context where relevant.

1.3.4 This report is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of Practice for Planning and Development.

2 METHODOLOGY

2.1.1 Distinct survey areas were established for desk studies and field surveys, to reflect the different elements of the Proposed Development, ecological sensitivities across the Proposed Development and the extent of the Proposed Development's Ecological Zone of Influence (EZoI) for each ecological feature assessed. The CIEEM Ecological Impact Assessment (EcIA) Guidelines (CIEEM, 2018) define the

[21] SEPA (2017) Land Use Planning System Guidance Note 4: Planning Guidance on On-shore Windfarm Developments. Scottish Environment Protection Agency

[22] SEPA (2017) Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Groundwater Abstractions and Groundwater Dependant Terrestrial Ecosystems. Scottish Environment Protection Agency.

23 (2014) Land use planning system SEPA guidance Note 31 https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf Accessed on 05/12/24

[24] Developing with Nature guidance. (NatureScot 2023a) Guidance on securing positive effects for biodiversity from local development to support NPF4 policy 3(c) .https://www.nature.scot/doc/developing-nature-guidance

[25] Stanbury *et al*. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114:723-747. Birds of Conservation Concern https://www.bto.org/our-science/publications/birds-conservation-concern/status-our-bird-populations-fifth-birds,https://www.bto.org/our-science/publications/birds-conservation-concern/status-our-bird-populations-fifth-birds Accessed on 05/12/24

[26]North East Scotland Biodiversity Partnership: 3 Year Strategic Plan 2022-2025 http://www.moray.gov.uk/downloads/file146685.pdf Accessed on 05/12/24

[27] Collins *et al*. (ed) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th edition, BCT: London

EZoI as the area over which ecological features may be subject to significant effects as a result of the Proposed Development; this could extend beyond the footprint of the Proposed Development.

2.1.2 The survey area varies for each ecological feature due to the varying mobility range of the feature being appraised as well as the connectivity between the feature and the Proposed Development. For example, the effect of the EZoI on mobile species, such as otter and bird species, will be greater than those on static features such as habitats. Detailed understanding of the habitat communities and vegetation present, and the presence or likely presence of protected and notable faunal species, have been derived from field surveys.

2.2 Desk Study

2.2.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within an EZoI to the Site as follows:

- Statutory Designated Sites for Nature Conservation, within 5km of the Site;
- Non-statutory designated sites for nature conservation within 2km of the Site; and,
- Existing records of priority habitats and protected and notable faunal species (dated within the last 10 years), within 2km of the Site.

2.2.2 A number of data sources have been used to inform the baseline characterisation; the main sources are detailed below:

- The Multi Agency Geographic Information for the Countryside (MAGIC) website[28];
- NatureScot's Sitelink website;
- North East Scotland Biological Records Centre (NESBReC);
- Environmental Impact Assessment (EIA) documentation for the consented Berry Burn Wind Farm Extension (2020)[29], noting that only novel bat surveys were undertaken to inform the assessment for the wind farm extension due to the damage and reduced habitat suitability caused by the 2019 wildfire;
- EIA documentation for the operational Berry Burn Wind Farm (2004)[30], the consented Clash Gour Wind Farm (2019)[31] located immediately to the southwest, north and east adjacent of the operational Berry Burn Wind Farm, and, Paul's Hill II Wind Farm (2017)[32] which lies 2.91km south east of the Site at its nearest point.

2.2.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area, including potential ponds and watercourses.

2.2.4 Additional peer reviewed literature and industry guidance has also been reviewed and is referred to where relevant.

[28] https://magic.defra.gov.uk/MagicMap.aspx Accessed on 05/12/24
[29] Statkraft (2020). Berry Burn Wind Farm Extension EIA Report (Chapter 9 - Ornithology and Chapter 10 - Ecology).
[30] Entec UK Ltd. (2004) Berry Burn Wind Farm Environmental Statement (ES) - Chapter 9 'Ecology'
[31] SLR (2019) Clash Gour Wind Farm EIA Report – Chapter 8 'Ecology'
[32] Natural Power (2017) Paul's Hill II Wind Farm ES - Chapter 7 'Ecology Assessment'

2.2.5 Records of protected and notable species within 2km of the Site were obtained from NESBReC. For other data sources the search area varied in accordance with the availability and extent of data.

2.3 Field Surveys

2.3.1 The following field surveys have been completed:

- Extended Phase 1 habitat survey;
- National Vegetation Classification (NVC) survey;
- Terrestrial mammal and protected species survey;
- Preliminary ground level roost assessment for bats; and,
- Ornithology surveys.

2.3.2 All field surveys have been undertaken within the most recently available two-year survey window prior to submission of the planning application, in accordance with current NatureScot guidance (2024)[33].

Habitat Survey

2.3.3 An extended Phase 1 habitat survey was undertaken in September 2024 and collected data from within the Site and land out to 250m from the Site as shown in **Figures 2a** and **2b**. The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) phase 1 habitat methodology (JNCC, 2010) which was extended to include the additional recording of specific features indicating the presence or likely presence of, or suitable habitat for, protected species (including potential bat roost features), invasive species and other species of conservation significance.

2.3.4 A National Vegetation Classification (NVC) survey was also undertaken in September 2024, with the survey area shown in **Figures 3a** and **3b**. The survey was undertaken to further classify any noteworthy or wetland habitats and identified their potential Ground Water Dependent Terrestrial Ecosystems (GWDTE) status (as per SNIFFER guidance, 2009[34]) for subsequent consideration and assessment by a suitably experienced hydrologist.

Bird Surveys

2.3.5 Target species for desk and field studies were drawn from the following lists adopting a precautionary approach and with reference to NatureScot's bird survey guidance for onshore wind farms (NatureScot, 2017)[15]:

- Annex 1 of the 'Birds Directive';
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); and,
- Red-listed Birds of Conservation Concern (Stanbury *et al*. 2021)[25].

[33] NatureScot (2024) NatureScot pre-application guidance for onshore wind farms, https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms#:~:text=The%20service%20that%20NatureScot%20provides,expect%20during%20the%20planning%20process. Accessed on 05/12/24

[34] SNIFFER (2009) WFD95: A Functional Wetland Typology for Scotland - Project Report. ISBN: 978-1-906934-21-7 https://www.sniffer.org.uk/Handlers/Download.ashx?IDMF=a6579282-8428-4282-bfc7-17c7e6027601 Accessed on 12/12/24

2.3.6 Target species also included qualifying interests associated with designated sites for nature conservation with ornithological interests (i.e. Special Protection Areas (SPAs), Wetlands of international Importance (Ramsar Sites) or Sites of Special Scientific Interest (SSSI's)), as identified in **Table 3.1**.

2.3.7 In keeping with the approach adopted for other aspects of wind farm development, passerine species were not treated as target species for survey and were not recorded.

2.3.8 Commoner raptor species including buzzard, kestrel and sparrowhawk, were also not identified as target species given their general widespread number and abundance.

2.3.9 A programme of ornithological surveys was undertaken in 2024 to update the baseline conditions to inform the Construction Breeding Bird Protection Plan (CBBPP) required to meet Planning Condition 17 of the Berry Burn Wind Farm Extension consent. These surveys incorporated the Site of the Proposed Development and have been used here to inform the associated ornithological baseline conditions.

2.3.10 The following surveys were undertaken at the Site in 2024:

- Scarce breeding bird surveys involving a combination of searches for black grouse, scarce breeding raptors, and red- and black-throated divers undertaken within the Berry Burn Wind Farm Area as shown on **Figure 1** between April and August with reference to species-specific survey methodologies and timings stipulated in Hardey *et a*l. (2013)[35] for raptors and Gilbert *et al*. (1998)[36] for divers and black grouse; and,
- Moorland breeding bird surveys were undertaken out to 500m from the Site (the Breeding Bird Survey Area on **Figure 5**) extended to encompass the proposed woodland planting area (as per Condition 11 and 26 of the Berry Burn Wind Farm Consent), and around BP 2a employing an adapted Brown & Shepherd (1993) method (as per NatureScot guidance, 2017), with four visits undertaken at least seven days apart between May and early July.

2.3.11 Full details of all survey effort, survey times, field surveyors and weather conditions are presented in **Annex A**.

Protected Species Surveys

2.3.12 A walkover survey of the survey areas for badger, pine marten, water vole, otter, Scottish wildcat and red squirrel was undertaken over two visits in September 2024, where signs of (or potential for) terrestrial mammals were searched for. No survey access was granted to the conifer plantation to the east of BP 2a as it falls under separate ownership and is outside the Berry Burn Wind Farm Area. As a result, surveys for protected species within this area could not be undertaken.

2.3.1 The survey methodology followed industry standard guidance e.g. Chanin (2003), Cresswell *et al*., (2012), Dean *et al*., (2016), Harris *et al*., (1989) and NatureScot (2024).

2.3.2 The relevant Survey Areas for each species are shown on **Figure 6**. These comprised all areas within the Site and, in accordance with NatureScot species-specific guidance (NatureScot, 2024), potentially suitable habitats within the appropriate species-specific survey buffers (ranging from 50 m to 250 m from the Proposed Development) were typically covered, where accessible.

[35] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). Raptors: a field guide to survey and monitoring. Third Edition. The Stationary Office, Edinburgh.
[36] Gilbert, g., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

2.3.3 Any on-site trees were assessed from ground level for their suitability to support roosting bats by way of preliminary roost assessment (PRA) as part of the extended Phase 1 habitat survey. There are no buildings on the Site in which bats could potentially roost. Suitability for roosting bats was classified according to Collins *et al*. (2023)[27].

Field Survey Personnel

2.3.4 All field surveys were completed by experienced, reputable and professional ecologists, fully conversant in established ecology survey methodologies for proposed wind developments.

2.4 Limitations

2.4.1 The habitats present within the Site were found to be substantially modified from historic survey, following the effects of the 2019 wildfire within the Berry Burn Wind Farm Area. This has led to a more complex system of mosaic habitats being recorded during survey as many were not consistent with the NVC and phase 1 habitat classification system. However, it is considered that the surveys were able to accurately record current conditions at the Site.

2.4.2 No survey access was granted to the conifer plantation to the east of BP 2a as it falls under separate ownership and is outside the Berry Burn Wind Farm Area, however, the buffer for this borrow pit was noted to contain some mature conifers and consequently there is the potential that badger setts, pine marten dens, otter holts and red squirrel dreys may be present. The presence of these places of shelter for protected species means that their exposure to disturbance during borrow pit works cannot be precluded. However, the proposed implementation of the Construction Environmental Management Plan (CEMP) and Species Protection Plans (SPPs) to meet Planning Conditions 14 and 15 respectively of the Berry Burn Wind Farm Extension consent is considered to negate and disturbance impacts; further information is presented in Section 4.

2.5 Appraisal Methodology

2.5.1 This Ecological Appraisal focuses on the effects of the winning and working of aggregate from the two borrow pits upon Important Ecological Features (IEFs) aligning with the CIEEM EcIA Guidelines. For clarity, the borrow pits would only be worked during the construction phase of the Berry Burn Wind Farm Extension. They would be restored at the end of the construction period and no aggregate would be extracted during the operational period of the wind farm.

2.5.2 The appraisal methodology described is considered proportionate to the anticipated impacts of the Proposed Development, baseline habitats present and the planning framework (i.e., that Environmental Impact Assessment (EIA) is not required).

Determining Importance

2.5.3 The appraisal focuses on IEFs of greatest nature conservation importance, as supported by the CIEEM EcIA Guidelines. To inform the scoping of relevant IEFs, each has been evaluated in line with the criteria presented in **Table 2.1.**

2.5.4 Sites, habitats and species that are of less than Local importance (e.g., Site importance) under the below frame of reference are scoped out of this appraisal, with justification provided in **Table 4.2**.

Table 2.1: Geographic scale of ecological feature importance.

Importance	Definition
International	An internationally designated site i.e. Special Protection Area, Special Area of Conservation (SAC) and/or Ramsar site or candidate site (e.g. cSAC). Large areas of priority habitat listed under Annex I of the Habitats Directive, and smaller areas of such a habitat that are essential to maintain the viability of that ecological resource. A regularly occurring, nationally significant population of any internationally important species, listed under Annex II or Annex IV of the Habitats Directive.
National	A nationally designated site e.g. Site of Special Scientific Interest (SSSI), or area meeting criteria for national level designations. Significant extents of a priority habitat identified in the Scottish Biodiversity List (SBL), or smaller areas which are essential to maintain the viability of that ecological resource. A regularly occurring, regionally significant population of any nationally important species listed as a SBL priority species and species listed under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act or Annex II or Annex IV of the Habitats Directive.
Regional	Viable areas of key semi-natural habitat identified in the UKBAP. A regularly occurring, locally significant population of any nationally important species listed on the SBL and species listed under Schedule 5 of the Wildlife and Countryside Act or Annex II or Annex IV of the Habitats Directive. Sites which exceed the local authority-level designations but fall short of SSSI selection guidelines, including extensive areas of semi-natural woodland.
Local	Nature conservation sites selected on local authority criteria. Other species of local conservation, specifically those listed by the North East Scotland Biodiversity Partnership (NESBReC). Areas of habitat or species considered to appreciably enrich the ecological resource within the local context e.g. species-rich flushes.
Site	All other species and habitats that are widespread and common and which are not present in locally, regionally or nationally important numbers or habitats which are considered to be of poor ecological value.

Determining Nature of Change

2.5.5 Impact gravity refers to changes in the extent and integrity of an ecological receptor. A definition of ecological 'integrity' has been approved by the European Commission[37]. It states that "The 'integrity of the site' can be usefully defined as the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated". Although this definition is used specifically regarding European designated sites, it is applied here to wider-countryside habitats as well as the integrity of species' populations.

2.5.6 Detailed consideration of impact gravity is a standard component of EcIA and is incorporated to succinctly describe the scale of individual impacts. In line with the CIEEM EcIA Guidelines, for each IEF, the impacts of construction and operational aspects of the Proposed Development and the resultant effects on IEFs are considered in terms of their:

[37] https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000/managing-and-protecting-natura-2000-sites_en Accessed on 05/12/24

- beneficial (positive) or adverse (negative) nature;
- extent;
- magnitude;
- duration;
- frequency and timing; and,
- reversibility.

2.5.7 As defined above, the weight of change considers more than the scale of change but also its nature. As described within the CIEEM EcIA Guidelines, "For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general". Once the nature of an impact is determined, a geographical scale is assigned to it following the same frame of reference as set out in **Table 2.1**.

3 BASELINE

3.1.1 A summary of the baseline conditions for each identified ecological feature has been included below for the purposes of either evaluating their relative nature conservation importance or scoping them out from further appraisal (see **Table 4.2**) with associated justification.

3.2 Designated Sites for Nature Conservation and Irreplaceable Habitats

3.2.1 This section should be read with reference to **Figure 7**.

3.2.2 The Site does not form part of any designated sites for nature conservation.

3.2.3 **Table 3.1** provides a summary of statutory designated sites with cited ecological and ornithological interests located within 5km of the Site. Distances specified within **Table 3.1** are from the Site to the designation boundary at its nearest point.

Table 3.1: Statutory designated sites.
SSSI: Site of Special Scientific Interests; SAC: Special Area of Conservation

Site Name	Approximate Distance and Direction from Site	Description
River Spey SAC	3.3km, South-east of BP 2a	SAC: Atlantic salmon; Freshwater pearl mussel; Otter; and Sea lamprey.
Moidach More SAC, SSSI	3.4km, South-west of BP 1	SAC: Blanket bog (Priority Habitat). SSSI: Blanket bog – sphagnum bog community characterised by major peat building bog moss.

3.2.4 The Site is not located within any non-statutory designated sites, nor is it within 2km of any such designated site. A review of MAGIC[38] found no ancient/semi-natural woodland and ancient replanted woodland within 500m of the Site.

3.3 Habitat Survey

3.3.1 This section should be read in conjunction with **Figures 2a and b** and **3a and b**; a summary of the habitat communities recorded in the Site are provided in **Tables 3.2** and **3.3**, full habitat descriptions and photographs are presented in **Annex B**.

3.3.2 In common with the Berry Burn Wind Farm Area, the vast majority of the habitats recorded at the Site exist as mosaics with many representing upland habitats potentially included in Annex 1 of the Habitats Regulations or on the Scottish Biodiversity List (SBL). These include a mix of mire (i.e. blanket bog, wet modified bog and dry modified bog), upland heath and flush habitats. However, the habitats present are substantially modified following the effects of the 2019 wildfire, and in many cases do not sit precisely within defined NVC habitat community categories. The mosaics of largely degraded habitats that have resulted from the fire, including areas of grassland and encroachment by conifers, are therefore not considered, in most cases, to represent priority examples. As such, for the most part, these are not considered to represent true Annex 1 or SBL habitats in the context of the Proposed Development.

3.3.3 However, for the purposes of this assessment, mire and wet and dry heath habitats within the Site are considered to potentially correspond to the following habitats afforded international protection under Annex 1 of the Habitats Regulations:

- 7130 Blanket Bog;
- 4010 Northern Atlantic Wet Heaths with *Erica Tetralix*; and,
- 4030 European Dry Heath.

3.3.4 **Table 3.2** provides a summary of Phase 1 habitat and NVC community types known to occur within the Site (including in mosaics), together with corresponding Annex 1 Habitat types, SBL Priority Habitat Types and GWDTE status in accordance with SNIFFER guidance (2009).

3.3.5 For the purposes of assessment, mosaics are classified as polygons where one class of habitat (e.g. dry heath) is found in mosaic with another class of habitat community (e.g. grassland). As such, mosaics of different dry heath communities or different grassland or mire communities are simply classified as 'dry heath', 'grassland' or 'mire'. Where conifer encroachment is noted, a percentage of the polygon has been assigned to give an indication of the density of tree cover, but in the majority of cases the trees are scattered and do not change the character of the underlying habitats.

3.3.6 Mosaics have been classed as 'Mosaic – Mire' and 'Mosaic – Other'. If a mosaic contains mire it is treated as 'Mosaic - Mire' irrespective of which other habitat communities occur in the mosaic. In the case of 'Mosaics – Other', where otherwise protected habitats (Annex 1 or SBL) occur in mosaic with non-priority habitats, for example dry heath with acid grassland, these are not considered to represent pristine examples of the habitat types and so are not considered to be protected. The key exception is mosaics containing mire habitats, comprising blanket bog and wet and dry modified bog, which due to the importance placed on peatland habitats are assessed as priority habitat irrespective of which other habitat communities occur in the mosaic.

[38]Multi-Agency Geographic Information for the Countryside, https://magic.defra.gov.uk/MagicMap.aspx Accessed on 12/12/24

Table 3.2: Summary of habitat communities recorded within the Site.

Phase 1 Habitat	NVC Community Type	Potential Dependence on Groundwater	Annex 1 Code and Description	SBL Priority Habitat Type
Woodland and Scrub				
A2	W23	n/a	n/a	n/a
A3 A1.2.1 A1.2.2	Ps[39]			
Mires, Flushes and Springs				
E2 E2.1	M6c	High	n/a	Upland flushes, fens and swamps
E1.6.1	M18	n/a	7130 Blanket bogs	Blanket bog
E1.7	M19	n/a	7130 Blanket bogs	Blanket bog
E1.8 E1.7	M20	n/a	7130 Blanket bogs	Blanket bog
E1.8	H9b	n/a	7130 Blanket bogs	Blanket bog
Wet Heath				
D2	M15*[40]	Moderate	4010 Northern Atlantic wet heaths *Erica Tetralix* or 7130 Blanket bogs (where peat is > 0.5m deep)	Upland heathland or blanket bogs (where peat is greater than 0.5m deep)

[39] Scattered Scots pine was recorded within habitat polygons, at insufficient density to represent a habitat community in its own right or to change the identity of the underlying habitat community. This has been assigned the code 'Ps' and given an approximate percentage coverage within relevant polygons, to enable identification of approximate density in areas where this occurs. For more detail refer to Annex B.

[40] This code has been used to refer to areas of regenerating wet heath, occupying small patches on damp, moderate slopes towards the west of the site. The vascular species present represent the typical species of M15, however, the bryophyte layer diverges significantly from the species present in 'true' M15. As such, this habitat has been assigned the code 'M15*' and given an approximate percentage coverage within relevant polygons, to enable identification of areas where this occurs. For more detail refer to Annex B.

Phase 1 Habitat	NVC Community Type	Potential Dependence on Groundwater	Annex 1 Code and Description	SBL Priority Habitat Type
D2	Mx[41]	n/a	n/a	n/a
Dry Heaths				
D1	H9b	n/a	4030 European dry heaths	Upland heathland
D1	H16*[42]	n/a	4030 European dry heaths	Upland heathland
Grasslands				
B1.1	U2a	n/a	n/a	n/a
Marshy Grassland				
B5	Je[43]	n/a	n/a	n/a
Other				
J4	Track	n/a	n/a	n/a

[41] This code has been used to refer to areas that consist of a mosaic of U2a and H9b communities. As such, this habitat has been assigned the code 'Mx' and given an approximate percentage coverage within relevant polygons, to enable identification of areas where this occurs. For more detail refer to Annex B.

[42] The vegetation here, although highly modified, appears to most closely match H16 vegetation. These two stands measure only a few square metres each. This community can be seen in photo 'H16*'. As such, this habitat has been assigned the code 'H16*' and given an approximate percentage coverage within relevant polygons, to enable identification of areas where this occurs. For more detail refer to Annex B.

[43] This code has been used to refer to areas that consist of a mosaic of *Juncus effusus* dominated communities. As such, this habitat has been assigned the code 'Je' and given an approximate percentage coverage within relevant polygons, to enable identification of areas where this occurs. For more detail refer to Annex B.

Table 3.3: Summary of main habitats and vegetation communities within the Site and extent of direct and indirect temporary loss resulting from the Proposed Development.

Borrow Pit Number	Habitat Category	Phase 1 Habitat	Corresponding Phase 1 Habitat Codes and Proportional Composition with Mosaic	Corresponding NVC Codes and Proportional Composition with Mosaic	Priority Habitat Y/N?	Temporary Direct Loss within the Site (ha)	Indirect Loss (ha)
BP 1	Mosaic - Other	Acid grassland-unimproved/Flush and spring-acid/neutral flush/Marshy grassland	B1.1 (40%)/E2.1 (30%)/B5 (30%)	U2a (40%)/M6c (30%)/Je (30%)	N	0.17	0.02
	Mosaic - mire	Acid grassland-unimproved/Marshy grassland/Wet modified bog	B1.1 (50%)/B5 (15%)/E1.7(35%)	U2a (50%)/Je (15%)/M20 (35%)	Y	0.51	0.08
	Dry dwarf shrub heath	Dry dwarf shrub heath	D1	H9b (97%)/H16* (3%)	Y	0.91	n/a
	Dry dwarf shrub heath	Dry dwarf shrub heath	D1	H9b	Y	0.61	n/a
	Mosaic - mire	Dry dwarf shrub heath/Wet dwarf shrub heath/Dry modified bog	D1 (20%)/D2 (40%)/E1.8 (40%)	H9b (20%)/M15* (40%)/M20 (40%)	Y	0.90	0.03
	Mosaic - mire	Dry dwarf shrub heath/Wet dwarf shrub heath/Dry modified bog/Parkland and scattered trees	D1 (40%)/D2 (25%)/E1.8 (35%)/A3	H9b (45%)/M15* (25%)/M20 (25%)/Ps (5%)	Y	0.21	0.21
	Dry dwarf shrub heath	Dry dwarf shrub heath/Parkland and scattered trees	D1/A3	H9b (95%)/Ps (5%)	Y	0.02	n/a
	Mire	Blanket bog/Wet modified bog	E1.6.1 (70%)/E1.7 (30%)	M18 (70%)/M20 (30%)	Y	0.79	0.14
	Mire	Wet modified bog/Dry modified bog	E1.7 (20%)/E1.8 (80%)	M20 (70%)/H9b (30%)	Y	0.88	0.02
BP 2a	Acid grassland-unimproved	Acid grassland-unimproved	B1.1	U2a	N	0.31	n/a
	Mosaic - other	Acid grassland-unimproved/Dry dwarf shrub heath/Wet dwarf shrub heath/Coniferous woodland-semi-natural	B1.1 (50%)/D1 (15%)/D2 (10%)/A1.2.1 (25%)	U2a (50%)/H9b (15%)/Mx (10%)/Ps (25%)	N	2.13	n/a

Borrow Pit Number	Habitat Category	Phase 1 Habitat	Corresponding Phase 1 Habitat Codes and Proportional Composition with Mosaic	Corresponding NVC Codes and Proportional Composition with Mosaic	Priority Habitat Y/N?	Temporary Direct Loss within the Site (ha)	Indirect Loss (ha)
	Mosaic - other	Dry dwarf shrub heath/Dry modified bog/Wet modified bog/Flush/Coniferous woodland-semi-natural	D1 (10%)/E1.8 (10%)/ E1.7 (40%)/E2 (10%)/A1.2.1 (30%)	H9b (10%)/M20 (50%)/M6c (10%)/Ps (30%)	N	2.22	0.02
	Mosaic - other	Dry dwarf shrub heath/Coniferous woodland-plantation	D1 (70%)/A1.2.2 (30%)	H9b (70%)/Ps (30%)	N	0.05	n/a
	Mosaic - other	Wet dwarf shrub heath/Coniferous woodland-semi-natural	D2 (70%)/A1.2.1 (30%)	Mx (70%)/Ps (30%)	N	0.36	n/a
	Mosaic - mire	Wet modified bog/Dry modified bog/Coniferous woodland-plantation	E1.7 (30%)/E1.8 (50%)/A1.2.2 (20%)	M20 (30%)/H9b (50%)/Ps (20%)	Y	0.00	0.01
	Mosaic - mire	Wet modified bog/Dry modified bog/Coniferous woodland-plantation	E1.7 (60%)/E1.8 (25%)/A1.2.2 (15%)	M19 (40%)/M20 (35%)/H9b (10%)/Ps (15%)	Y	2.86	0.80
	Mosaic - mire	Wet modified bog/Bog and flush	E1.7 (80%)/E2 (20%)	M20 (80%)/M6c (20%)	Y	0.12	0.09
	Mosaic - mire	Dry modified bog/Coniferous woodland-semi-natural	E1.8 (60%)/A1.2.1 (40%)	H9b (60%)/Ps (40%)	Y	0.43	0.0
	Mosaic - mire	Dry modified bog/Coniferous woodland-plantation	E1.8 (80%)/A1.2.2 (20%)	M20 (80%)/Ps (20%)	Y	0.00	0.02
	Bare ground	Bare ground	J4	Track	N	0.22	n/a
	Mosaic - other	Bare ground/Dry dwarf shrub heath/Scrub	J4 (70%)/D1 (25%)/A2 (5%)	Track/H9b (25%)/W23 (5%)	N	0.13	n/a
	Mosaic - other	Bare ground/Acid grassland-unimproved	J4 (80%)/B1.1 (20%)	Borrow Pit (80%)/U2a (20%)	N	0.18	n/a
	Mosaic - mire	Wet modified bog/Dry modified bog/Wet dwarf shrub heath/Coniferous woodland-plantation	E1.7 (30%)/E1.8 (15%)/D2 (20%)/A1.2.2 (35%)	M20 (30%)/H9b (15%)/M15* (20%)/Ps (35%)	Y	n/a	0.02
	Mire	Dry modified bog	E1.8	H9b (40%)/M20 (60%)	Y	n/a	0.04

3.4 Protected and Notable Species

Birds

Desk Study

3.4.1 One record of a swift was returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.2 Vantage Point surveys undertaken in 2019 to inform the application for the Berry Burn Wind Farm Extension recorded the following target species within the Berry Burn Wind Farm Area:

- Grey heron;
- Whooper swan;
- Pink-footed goose;
- Greylag goose;
- Teal;
- Hen harrier;
- Goshawk;
- Golden eagle; and,
- Merlin.

3.4.3 Searches for black grouse leks in 2019 did not record any lek sites.

3.4.4 Eight target species of raptor were recorded during scarce breeding raptor and owl searches undertaken in 2019 including golden eagle, osprey, buzzard, kestrel, hen harrier, merlin, peregrine and short-eared owl. However, with the exception of merlin, no Schedule 1 raptor or owl species was confirmed as breeding within the Berry Burn Wind Farm Area during the 2019 breeding season, with wildfire damage extensive throughout suitable ground-nesting habitats.

3.4.5 Breeding diver surveys in 2019 identified a single occupied breeding lochan within the Berry Burn Wind Farm survey area, supporting a single breeding pair of red-throated divers. The breeding attempt was concluded to have failed at the incubation stage.

Moorland Breeding Bird Survey 2024

3.4.6 During 2024 surveys, damage from the 2019 wildfire was still noted to be apparent throughout suitable ground-nesting habitats within the Scarce Breeding Bird Survey Area.

3.4.7 The moorland breeding bird surveys identified five territories held by four species within the Moorland Breeding Bird Survey Area. This comprised two territories for snipe, one oystercatcher, one curlew and one lapwing, the approximate locations of which are shown in **Figure 5**.

Scarce Breeding Bird Surveys 2024

3.4.8 Five species of raptor were recorded during scarce breeding bird searches undertaken in 2024; merlin, red kite, hen harrier, osprey and barn owl. Of these red kite, hen harrier and osprey were only recorded passing over/through the Site with no evidence of breeding being identified.

3.4.9 The site of a previously active merlin nest 1.6km to the south of BP 1 was checked and found to have no evidence of breeding. However, a merlin pair were recorded together during 2024 surveys and the

surveyor suspected (but could not confirm) that they were nesting in an inaccessible location on the opposite side of the gorge, near to the previously active nest site.

3.4.10 A barn owl breeding site was confirmed during surveys within abandoned farm buildings 1.4km west of BP 1).

3.4.11 No black grouse or diver species were recorded during the 2024 surveys.

3.4.12 Information pertaining to the locations or likely breeding locations of Schedule 1 and Annex 1 raptor species is considered confidential. As such, survey results are provided in **Confidential Figure 4**.

Bats

Desk Study

3.4.13 No records of bats were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.14 A review of UK Habitats Directive Article 17 Report (2019) identified that the Site is located within the known species distribution range for common and soprano pipistrelle, Daubenton's, Natterer's and brown long-eared bat.

3.4.15 The operational Berry Burn Wind Farm ES reported no bats during surveys; however, the scope of bat surveys at the time was restricted to two walked transect surveys outside the peak activity season for bats in Scotland, in September and October 2003. Surveys undertaken in 2019 to inform the Berry Burn Wind Farm Extension EIA Report predominantly detected activity by common and soprano pipistrelle bats, with less frequent records of unidentified Pipistrelle, Nyctalus and Myotis bat species. These surveys were conducted after the wildfire and so the suitability of habitat conditions will have been severely reduced.

3.4.16 Meanwhile surveys in 2014, 2015, 2016 and 2018 to inform the Clash Gour Wind Farm EIA Report identified seven species of bats; common pipistrelle, soprano pipistrelle, Daubenton's, Natterer's, *Myotis* spp., *Nyctalus* spp. and brown long-eared bat. The Clash Gour Wind Farm site comprises mainly forest and therefore is likely to be more attractive to foraging bats than the primarily open upland habitats of the Site.

3.4.17 Baseline surveys undertaken for Paul's Hill II Wind Farm in 2014 did not record any bat roost locations but reported activity of five species of bat either foraging or commuting; common pipistrelle, soprano pipistrelle, Daubenton's, Natterer's and brown long-eared bat.

Potential Roost Features

3.4.18 No evidence of bat roosts was observed during the extended Phase 1 survey. One tree (a dead Scots pine located at NJ 09580 44943, greater than 200m from BP 2a search area), was identified as having small cracks and peeling bark with the potential to support an individual roosting bat on an occasional basis.

3.4.19 While some of the larger native pines to the east of BP 2a may hold potential for small, occasional roost features the relatively young age and/or stunted nature of the majority of woodland within the Extended Phase 1 Survey Area is likely to provide very limited opportunities for roosting bats, and with no features suitable for supporting a maternity or hibernation roost present.

Foraging and Commuting Bats

3.4.20 The open nature of the Site is generally likely to provide limited foraging potential for most species, with activity likely to be focussed around watercourses and woodland edges.

Badger

3.4.21 The operational Berry Burn Wind Farm Environmental Statement (ES) reported no evidence of badger during surveys in 2003. The Clash Gour Wind Farm EIA Report identified three active badger setts in 2014 and 2017 in woodland outside the Site, although specific location information was not available.

3.4.22 No records of badger were returned by NESBReC within 2km of the Site from within the last 10 years. Some potential badger activity has historically been recorded within the Berry Burn Wind Farm Area.

3.4.23 The Site offers relatively limited suitable habitat for badger, given its extensive open nature and bog habitats which make it generally unsuitable for sett building. Areas of woodland and arable habitats further east, outside the Site, are considered to provide increased opportunities for foraging and sett building.

3.4.24 No evidence of badger was recorded within the Badger Survey Area during 2024 surveys.

Otter

3.4.25 The operational Berry Burn Wind Farm ES and Clash Gour Wind Farm EIA Report detail signs of otter activity within the surrounding area, notably at Loch Trevie, Loch Dallas, the River Lossie and along the Berry Burn. However no confirmed or possible holt locations were recorded in these assessments.

3.4.26 No records of otters were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.27 The waterbodies and watercourses within the Berry Burn Wind Farm Area are likely to provide commuting and foraging habitat for otters.

3.4.28 Both definitive and potential evidence of otter was recorded within the Otter Survey Area (200m buffer of the Site) during 2024 surveys. Evidence of otter was recorded at several locations within the Otter Survey Area along the River Lossie, in proximity to BP 2a to the south. Here otter prints and spraints were recorded, together with slides, paths and an entry point into the watercourse.

3.4.29 Two voids beneath overhanging banks with the potential to be used as otter couches were also recorded along the River Lossie (within 200m south of BP 2a), although no definitive evidence of otter use was found in association with these features.

Water Vole

3.4.30 The operational Berry Burn Wind Farm ES recorded water vole signs on a burn leading from Loch Trevie in 2003, and further stated that many burns offered suitable habitat for the species. The Clash Gour Wind Farm EIA Report identified a water vole burrow and latrines along the Stripe of Craigroy and potential presence along the River Divie in 2014. Suitable habitats were also noted along the tributaries of the River Divie and River Lossie.

3.4.31 No records of water vole were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.32 Some watercourses within the surrounding area are considered likely to offer suitable habitat for water vole. The wildfire in 2019 likely resulted in a number of watercourses becoming unsuitable due to the removal of bankside vegetation reducing cover and foraging resources. Unburnt areas within the bog habitats, including those with soft peaty banks and slow flow rates are likely to offer suitable alternative structures for burrow creation, supported by suitable foraging resources. However, the wildfire will have ultimately affected species range and territories within the surrounding areas.

3.4.33 No evidence of water vole was recorded within the Water Vole Survey Area (50m buffer of the Site) during 2024 surveys.

Pine Marten

3.4.34 The operational Berry Burn Wind Farm ES reported no signs of pine marten. The Clash Gour Wind Farm EIA Report noted a den location, approximately 0.5km south-east of Loch Dallas, with an incidental sighting of the species during ornithology surveys in 2014.

3.4.35 No records of pine marten were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.36 Suitable den habitat, including rocky outcrops and boulders were identified within the footprint of BP 1 and were considered to represent suitable habitat for pine marten, although no evidence of the species' presence was found.

3.4.37 No confirmed evidence of pine marten was recorded during 2024 surveys.

Red Squirrel

3.4.38 The operational Berry Burn Wind Farm ES reported signs of red squirrel along the access track at Greens Kennels (grid reference NJ 045495, to the north of the Site) and also near to Tomcork, north west of the Site. The Clash Gour Wind Farm EIA Report identified a red squirrel sighting in 2014 in woodland to the north of the Site, along with numerous dreys.

3.4.39 No records of red squirrel were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.40 Habitats within the Site are unsuitable for red squirrel. Prior to the 2019 wildfire, woodland planting existed surrounding BP 1 and BP 2a. However, the area of woodland surrounding BP 1 is no longer present as a result of the fire. The forested habitats which lie adjacent to BP 2a to the east are likely to afford some foraging opportunities and trees of suitable age and structure for drey creation and within which the species is known to occur.

3.4.41 However, no survey access was granted to the conifer plantation to the east of BP 2a as it falls under separate ownership and is outside the Berry Burn Wind Farm Area. As a result, surveys for red squirrels could not be undertaken. The buffer for this borrow pit was noted to contain some mature conifers and consequently there is the potential that squirrel dreys may be present.

Scottish Wildcat

3.4.42 The operational Berry Burn Wind Farm ES reported no signs of Scottish wildcat during mammal surveys in 2003. The Clash Gour Wind Farm EIA Report identified no evidence of wildcat during protected species surveys; however, an incidental sighting of a potential Scottish wildcat was made in 2018, although this could not confirm if it was a true Scottish wildcat or a hybrid.

3.4.43 No records of Scottish wildcat were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.44 The Site is not located within, or in close proximity to, any identified Scottish wildcat priority area (Littlewood, 2014) and it is considered that wildcats are unlikely to be present.

3.4.45 No evidence of Scottish wildcat was recorded within the Scottish Wildcat Survey Area during the 2024 surveys.

Amphibians and Reptiles

3.4.46 No records of amphibians were noted from the operational Berry Burn Wind Farm ES. The Clash Gour Wind Farm EIA Report found limited potential habitat for amphibians, although specific surveys were not completed.

3.4.47 No records of reptiles were noted from the operational Berry Burn Wind Farm ES. Surveys for the Clash Gour Wind Farm EIA Report found two reptile species (common lizard and adder), both within forest edge and clear-fell habitats to the north and east of the Site.

3.4.48 No records of amphibians or reptiles were returned by NESBReC within 2km of the Site from within the last 10 years.

3.4.49 The Site affords some suitable habitat for reptiles. The suitability of the Site for reptiles was severely impacted by the wildfire in 2019, but in the absence of the fire, the heathland habitats and woodland edges are likely to provide suitable foraging and hibernacula opportunities.

3.4.50 Many of the habitats within the Site are considered unsuitable for amphibians, particularly following the 2019 wildlife. As such it is considered unlikely that these species are present within the Site despite the presence of suitable aquatic habitat within 500m of the Site.

Other Notable Species

3.4.51 One record of a brown hare was returned by NESBReC within 2km of the Site (1.53km west of BP 1) from within the last 10 years. Although this species was not recorded during 2024 surveys, it may reasonably be expected to occur within or around the Site.

3.5 Invasive Non-native Species

3.5.1 No records of invasive non-native species were returned by NESBReC within 2km of the Site from within the last 10 years. No invasive non-native species were recorded within the Site during 2024 habitat surveys.

4 APPRAISAL

4.1 Important Ecological Features

4.1.1 An IEF is a sensitive receptor that occurs within the EZoI and which has been evaluated to be of Local nature conservation importance, or greater, and for which there is considered to be the potential for significant effects as a result of the Proposed Development. IEFs have been identified and evaluated for their conservation importance and are of sufficient importance, in relation to the Proposed Development. Any IEFs requiring detailed assessment are then carried through to the appraisal stage.

4.1.2 Identified IEFs within this appraisal have been presented in two tables below:

- **Table 4.1** – IEFs Scoped In within the Appraisal; and,
- **Table 4.2** – Ecological Features Scoped Out of the Appraisal.

4.1.3 Due to spatial separation and lack of connectivity to the Site, and so route to impact, all designated sites and watercourses identified have been scoped out of this appraisal and are therefore presented, alongside justifications, in **Table 4.2**.

4.1.4 Due to the embedded mitigation (as laid out below), the small area of predicted habitat loss, the prevalence of similar habitat in the wider area and the Applicant's commitment to conduct minimal vegetation clearance and tree felling, all habitats identified during the habitats survey (other than Annex 1 and SBL habitats) have been scoped out of this appraisal. Justification is provided in **Table 4.2**.

Embedded Impact Avoidance and Mitigation

4.1.5 The Proposed Development avoids any substantial areas of habitat loss and any loss will be temporary in nature.

4.1.1 Embedded mitigation relevant to this appraisal will be captured through the overarching Construction Environmental Management Plan (CEMP) and Species Protection Plans (SPPs) for the Berry Burn Wind Farm Extension which will be delivered through its associated planning conditions. The Applicant will require that the protocols detailed within these documents are implemented successfully by the employed contractors and through the engagement of an Environmental Clerk of Works (EnvCoW).

Environmental Clerk of Works (EnvCoW)

4.1.2 A suitably qualified and experienced EnvCoW will be appointed as part of the planning conditions for the wider consented Berry Burn Wind Farm Extension construction activities, through whom appropriate ecological advice will be provided throughout, including in relation to the Proposed Development.

4.1.3 The EnvCoW will be responsible for undertaking and/or co-ordinating checks for protected species before construction and decommissioning activities commence. The EnvCoW (or appointed 'clerks' on behalf of the EnvCoW) will also maintain a watching brief as necessary as the borrow pits are worked.

4.1.4 The detailed scope of the role and responsibilities of the EnvCoW will be agreed in consultation with NatureScot and Moray Council, in compliance with Condition 9 of the Berry Burn Wind Farm Extension consent.

Construction Environmental Management Plan (CEMP)

4.1.5 Condition 14 of the Berry Burn Wind Farm Extension consent requires a CEMP to be agreed prior to construction works commencing. The CEMP will, inter alia, incorporate measures to be adopted by contractor(s) while working the borrow pits and will help mitigate any potential habitat degradation and fragmentation, beyond the minimum amount of clearance required by the Proposed Development. The CEMP will also help ensure pollution events, which may otherwise result in habitat degradation, are avoided or reasonably mitigated for.

4.1.6 Embedded mitigation captured within the CEMP will be sufficient to address and control potential impacts associated with pollution events, including measures surrounding oil storage and refuelling and working in or near water. The CEMP will address and mitigate for potential impacts on habitat interests including soil management and biosecurity.

4.1.7 Specific mitigation for habitat losses is not required; however, measures will be detailed within the CEMP and implemented to ensure protection of sensitive habitats; blanket bog, acid dry dwarf shrub heath and wet heath.

Species Protection Plans (SPPs)

4.1.8 The production of SPPs are a requirement of Condition 15 of the consented Berry Burn Wind Farm Extension which includes the requirement for pre-construction surveys[44] for protected mammal species (including bats, water vole, otter, badger, pine marten, red squirrel, Scottish wildcat and reptiles). These will be undertaken no more than 6 months before the commencement of construction. Surveys will be undertaken in accordance with current survey guidance and will aim to identify the presence or likely presence of protected mammals within working areas and appropriate buffers and will cover wind farm construction activities as well as working of the two borrow pits. Surveys will include all parts of the Site and wider Berry Burn Wind Farm Area where effects could potentially occur.

4.1.9 The SPPs produced to discharge Condition 15 of the consented Berry Burn Wind Farm Extension will address any measures required by embedded mitigation and identify any licencing requirements and appropriate protection measures, for both the Proposed Development as well as the consented Berry Burn Wind Farm Extension.

4.1.10 The SPP will be designed to provide the contractor and EnvCoW with approved methodologies and mitigation measures for carrying out certain activities and will be agreed in consultation with NatureScot and Moray Council.

4.1.11 The SPP will be produced for the wider consented Berry Burn Wind Farm Extension and will cover borrow pit excavations for the following species:

- Otter;
- Pine marten;
- Water vole;
- Badger;
- Red squirrel;
- Scottish wildcat;
- Reptiles; and,
- Breeding bird species.

Important Ecological Features – Scoped In

4.1.12 The habitats scoped-in as an IEF for further appraisal are presented in **Table 4.1**, together with the justification for this evaluation.

Table 4.1: Important Ecological Features scoped into the appraisal.

IEF	Geographic Importance	Justification
Priority Habitats	Mire (including in mosaic), Wet Heath and Dry Heath – Regional	Habitat loss as a result of the Proposed Development has been minimised through a sensitive and iterative design process.

[44] 'Pre-construction surveys' are surveys to inform constraints evaluation in the months immediately prior to the start of construction works. These are distinct from the 'pre-commencement' surveys which were used to update baseline conditions and inform SPPs for the consented Berry Burn Wind Farm Extension.

IEF	Geographic Importance	Justification
		Despite this, direct land-take resulting in the temporary loss of some Annex 1 and SBL habitat types will be likely given their widespread nature throughout the Site. As a conservative estimate, due to uncertainty regarding where within the search areas the borrow pits will be excavated, the full footprint of both borrow pits (5.02ha for BP 1 and 9.01ha for BP 2a) has been considered as land-take for the purposes of assessing temporary habitat loss. In reality only parts of these areas will be temporarily lost. Given the extensively modified nature of the majority of the habitats present, they are considered to be examples of no greater than Regional importance. Embedded mitigation will prevent indirect impacts to habitats associated with pollution and dust. However, the potential for indirect effects on adjoining/nearby habitats through local changes to hydrology, is also considered within the appraisal for hydrologically dependent habitats only. As such, Annex 1 and SBL habitats is scoped in and will be included further within this appraisal.

Important Ecological Features – Scoped Out

4.1.13 No operational activities are associated with the Proposed Development as the requirement for borrow pit creation is temporary and only required during the construction of the associated Berry Burn Wind Farm Extension. Once the construction phase for this associated development is completed the requirement for the borrow pits will no longer exist and the Site will be restored. As such operational effects on ecology have been scoped out of this appraisal.

4.1.14 Designated sites, habitats and species that are of less than Local importance (e.g., Site importance) are scoped out of this appraisal, with justification provided in **Table 4.2** below.

Table 4.2: Important Ecological Features scoped out of the appraisal.

IEF	Justification
Designates Sites	Due to the nature of the excavation works, spatial separation and absence of connectivity, it is considered there is no route to impact to any designated sites or the habitats and species they support as a result of the Proposed Development. Indirect effects will be similarly avoided through the implementation of standard good practice drainage management and pollution prevention and runoff control measures. Subsequently, the potential effects on designated sites can be reasonably precluded following embedded measures. As such, these sites are scoped out of further consideration.
Rivers and streams	Rivers are identified as a SBL priority habitat. The River Lossie is located approximately 50 m to the south of BP 2a. Due to the nature of the excavation works required, spatial separation and absence of connectivity, it is considered there is no route of impact to these habitats and the species they support as a result of the Proposed Development. Indirect effects will be similarly avoided through the implementation of standard good practice drainage management and pollution prevention and runoff control measures. Subsequently, the potential effects on designated sites can be reasonably precluded following embedded measures. As such, rivers and streams are scoped out of further consideration.
Habitats (excluding Annex 1 and SBL Habitats)	Habitat losses within the Site are considered to be of limited extent and the habitats affected are widespread in the local area. These habitats will also be temporarily affected only due to the temporary nature of borrow pit works. Habitats will be reinstated following the completion of construction works in accordance with a CEMP, and as such losses would be considered short-term and reversible. As such, these habitats are scoped out of further consideration.
Bats	The Site is largely open in nature, with foraging and commuting most likely to be primarily associated with woodland edge and watercourses, and no suitability for roosting identified. Subsequently, there is negligible potential for disturbance to roosting bats or significant levels of disturbance to foraging or commuting individuals due to the lack of suitable habitat within the Site. Works associated with the Proposed Development would take place during daylight hours during the season when bats are active (April to October, inclusive), therefore any disturbance for foraging and commuting bats is highly unlikely to occur. The Proposed Development would result in the temporary loss of a small amount of sub-optimal (open ground) foraging habitat when compared to availability of higher quality foraging opportunities in the Berry Burn Wind Farm Area (burns, woodland edge). The loss is therefore likely to be not significant to the conservation status of the local population. For these reasons, bats are scoped out of further consideration.
Otter	No records of otters were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed resting sites were identified within 200 m of the Proposed Development. The River Lossie to the south of BP 2a is considered to provide foraging and commuting opportunities rather than habitat for the establishment of holts. Various otter signs including a spraint, slide and possible couch site fall within 50 m of the Site. All were recorded along the River Lossie, south of BP 2a. No breeding sites have been identified within 200 m of the Site.

IEF	Justification
	Habitat loss and disturbance to suitable otter habitat are considered minimal, relative to the extensive availability of more favourable habitats within the surrounding Berry Burn Wind Farm Area. Precautionary mitigation measures would be outlined to ensure legislative compliance within a CEMP and SPP. Mitigation measures detailed within these reports (including the use of mammal ramps in exposed excavations and the avoidance of work at sensitive times of the day for this species) will be followed to reduce any risk to otters. With the successful implementation of the mitigation hierarchy and embedded mitigation, any potential impacts to this species are assessed as being at Site level; as such this species is scoped out of further consideration.
Pine Marten	No records of pine marten were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed evidence of pine marten was recorded during 2024 surveys. Habitats within the Site are largely unsuitable for pine marten. However, the species will traverse open moorland habitats as part of their wider territories. Overall losses of suitable pine marten habitat are considered negligible, relative to the extensive availability of more favourable mixed woodland habitats within the Berry Burn Wind Farm Area. Pine marten are considered to be of Site level importance only, and due to the absence of evidence that this species is currently utilising the habitat to be impacted by the Proposed Development, any potential impacts to this species are assessed as being negligible; as such this species is scoped out of further consideration.
Water Vole	No records of water vole were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed evidence of water vole was recorded during 2024 surveys. Habitats within the Site are largely unsuitable for water vole and overall losses of suitable water vole habitat are considered negligible. Water vole are considered to be of Site level importance only, and due to the absence of evidence that this species is currently utilising the habitat to be impacted by the Proposed Development, any potential impacts to this species are assessed as being negligible; as such this species is scoped out of further consideration.
Badger	No records of badger were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed evidence of badger was recorded during 2024 surveys. Habitats within the Site are largely unsuitable for badger. Overall losses of suitable badger habitat are considered negligible, relative to the extensive availability of more favourable habitats within the Berry Burn Wind Farm Area. Badger are considered to be of Site level importance only, and due to the absence of evidence that this species is currently utilising the habitat to be impacted by the Proposed Development, any potential impacts to this species are assessed as being negligible; as such this species is scoped out of further consideration.
Red Squirrel	No records of red squirrel were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed evidence of red squirrel was recorded during 2024 surveys. Habitats within the Site are unsuitable for red squirrel and therefore no losses of suitable red squirrel habitat will take place as a result of the Proposed Development. However, potentially suitable breeding habitat was identified adjacent to the Site (conifer plantation to the east of BP 2a) and as such there is some risk of disturbance to any dreys that may be present in that area. Red squirrels are a Schedule 5 species, meaning

IEF	Justification
	that they are protected against killing and against disturbance whilst occupying a place of shelter. Therefore, pre-construction checks of suitable squirrel habitats within 100m of the Site will be undertaken prior to start of works, as detailed in a SPP for red squirrel. Should any active dreys be found to be present, a NatureScot licence would be obtained to prevent a breach of legislation. The species is considered to be of Site level importance only, and due to the absence of evidence that this species is currently utilising the habitat to be impacted by the Proposed Development, any potential impacts to this species are assessed as being negligible; as such this species is scoped out of further assessment.
Scottish Wildcat	No records of Scottish wildcat were returned by NESBReC within 2km of the Site from within the last 10 years. No confirmed evidence of Scottish wildcat was recorded during 2024 surveys. Habitats with the Site are largely unsuitable for Scottish wildcat. Overall losses of suitable Scottish wildcat habitat are considered negligible, relative to the extensive availability of more favourable woodland habitats within the Berry Burn Wind Farm Area. Scottish wildcat are considered to be of Site level importance only, and due to the absence of evidence that this species is currently utilising the habitat to be impacted by the Proposed Development, any potential impacts to this species are assessed as being negligible; as such this species is scoped out of further consideration.
Breeding birds	During 2024 surveys, numbers of target bird species recorded were notably low. Damage from the 2019 wildfire was still noted to be apparent throughout suitable ground-nesting habitats within the Site and wider Berry Burn Wind Farm Area. Moorland breeding bird surveys identified five territories held by four species. This comprised two territories for snipe, one oystercatcher, one curlew and one lapwing. Five species of raptor/owl were recorded within the Site during 2024 Scarce Breeding Bird Surveys; merlin, red kite, hen harrier, osprey and barn owl, of which only merlin and barn owl were identified to be breeding in the Berry Burn Wind Farm Area, outwith the Proposed Development. No black grouse or breeding divers were recorded during the surveys. The species assemblage recorded during the surveys was mainly comprised of small numbers of common and widespread species typical of upland habitats, with relatively scarce occurrence of a small number of target species recorded within the wider Berry Burn Wind Farm Area. Therefore, with the successful implementation of the mitigation hierarchy and embedded mitigation, these species are considered to be of Site level importance and the impact of the Proposed Development upon breeding birds is assessed as being negligible; as such, they are scoped out of further consideration.
Other Protected Species	No records of reptile or amphibians were returned by NESBReC within 2km of the Site from within the last 10 years. Habitats within the Site were considered suitable for reptile and amphibian species. However, the habitats as a whole within the footprint of the Proposed Development are not thought to be optimal for these species, with larger, more suitable habitats located in the Berry Burn Wind Farm Area. The Proposed Development would result in the temporary loss of a small amount of habitat when compared to availability of higher quality habitat in the Berry Burn Wind Farm Area. The loss is therefore likely to be not significant to the conservation status of the local population. As such, reptile and amphibian species are scoped out of further consideration. One record of brown hare was returned by NESBReC. Protected species, including brown hare, may occur within the Site; however, potential effects on these species are highly unlikely to be considerable at a local level and are subsequently scoped out.

4.2 Assessment of Effects, Mitigation and Residual Effects of the Proposed Development

Description of Effects

4.2.1 This section details an appraisal on IEFs during construction. **Table 4.3** describes the appraisal undertaken for IEFs with respect to potential impacts from the Proposed Development. The appraisal considers embedded mitigation, including the implementation of a CEMP including drainage management and pollution prevention measures, restoration post-construction and any additional mitigation measures which may be required.

4.2.2 Due to uncertainty regarding where within the search areas the borrow pits will be excavated, the maximum footprint of both borrow pits (9.01ha for BP 1 and 5.02ha for BP 2a) has been considered as land-take for the purposes of assessing habitat loss. In reality only parts of these areas will be temporarily lost and the estimates of habitat loss produced are therefore conservative. A summary of total potential temporary impacts to Priority Habitat Communities is presented in **Table 4.4**.

4.2.3 Due to the potential for drying effects on hydrologically sensitive habitats, indirect impacts have been considered for hydrologically dependent habitats within 10m of areas of direct loss.

Table 4.3: Appraisal of the effects on Important Ecological Features from the Proposed Development.

IEF	Potential Impact	Details of Ecological Effect and Potential Mitigation	Appraisal
Priority Habitat Communities	Temporary Direct and Indirect Loss of Mire (including in mosaic), Wet Heath and Dry Heath	The Proposed Development will require some temporary land-take, resulting in direct and indirect impacts to Priority Habitat Communities. However, the habitat communities and mosaics recorded within the Proposed Development are widespread throughout the Berry Burn Wind Farm Area and wider Region, and the Applicant has committed to conduct minimal vegetation clearance within the Site which will result in only part of the Site being used for the Proposed Development. It is also important to note that any land-take will be temporary. The borrow pits will not be required in perpetuity and these habitats will be reinstated following the completion of construction works in accordance with the CEMP. Restoration of bog in accordance with the Extension Habitat Management Plan (EHMP) (as required by condition 11 of the Berry Burn Wind Farm Extension consent) will be in excess of the extent required under planning conditions for the consented Berry Burn Extension and so any loss of bog habitats as a result of the Proposed Development, although temporary, will also be further mitigated via habitat creation and enhancement detailed in a the EHMP.	The total extent of habitat within the footprint of the Site thought to represent priority habitats is 4.83ha within BP 1 and 3.41ha within BP 2a; though noting that the actual excavated footprint of the borrow pits will be less than this. Indirect loss within 10m of hydrologically dependent habitats is estimated to involve 0.62ha of habitats for BP 1 and 0.98ha of habitats for BP 2a. These habitats will be reinstated following the completion of construction works in accordance with the approved CEMP, and as such losses would be short-term and reversible. The temporary habitat disturbance effects to blanket bog and heathland habitats relating to the borrow pits and other temporary infrastructure were assessed in the EIA Report for the consented Berry Burn Wind Farm Extension as being short-term of Negligible/Low magnitude, of Minor Adverse significance, which is Non-significant in the context of the EIA Regulations. These habitats are widespread in the Berry Burn Wind Farm Area and the conclusions of the updated borrow pit-specific EcIA contained herein are unchanged from those of the EIA Report, with impacts to Priority habitats expected to be minimal and temporary.

Table 4.4: Summary of total potential temporary impacts to priority habitat communities.

Borrow Pit Number	Class	Corresponding Phase 1 Habitat Codes and Proportional Composition with Mosaic	Corresponding NVC Codes and Proportional Composition with Mosaic	Direct Loss (ha)	Indirect Loss (ha)	Total Loss (ha)
BP 1	Mosaic - mire	B1.1 (50%)/B5 (15%)/E1.7(35%)	U2a (50%)/Je (15%)/M20 (35%)	0.51	0.08	0.59
	Dry dwarf shrub heath	D1	H9b (97%)/H16* (3%)	0.91	n/a	0.91
	Dry dwarf shrub heath	D1	H9b	0.61	n/a	0.61
	Mosaic - mire	D1 (20%)/D2 (40%)/E1.8 (40%)	H9b (20%)/M15* (40%)/M20 (40%)	0.9	0.03	0.93
	Mosaic - mire	D1 (40%)/D2 (25%)/E1.8 (35%)/A3	H9b (45%)/M15* (25%)/M20 (25%)/Ps (5%)	0.21	0.21	0.42
	Dry dwarf shrub heath	D1/A3	H9b (95%)/Ps (5%)	0.02	n/a	0.02
	Mire	E1.6.1 (70%)/E1.7 (30%)	M18 (70%)/M20 (30%)	0.79	0.14	0.93
	Mire	E1.7 (20%)/E1.8 (80%)	M20 (70%)/H9b (30%)	0.88	0.16	1.04
BP 2a	Mosaic - mire	E1.7 (30%)/E1.8 (50%)/A1.2.2 (20%)	M20 (30%)/H9b (50%)/Ps (20%)	0	0.01	0.01
	Mosaic - mire	E1.7 (60%)/E1.8 (25%)/A1.2.2 (15%)	M19 (40%)/M20 (35%)/H9b (10%)/Ps (15%)	2.86	0.8	3.66
	Mosaic - mire	E1.7 (80%)/E2 (20%)	M20 (80%)/M6c (20%)	0.12	0.09	0.21
	Mosaic - mire	E1.8 (60%)/A1.2.1 (40%)	H9b (60%)/Ps (40%)	0.43	0	0.43
	Mosaic - mire	E1.8 (80%)/A1.2.2 (20%)	M20 (80%)/Ps (20%)	0	0.02	0.02
	Mosaic - mire	E1.7 (30%)/E1.8 (15%)/D2 (20%)/A1.2.2 (35%)	M20 (30%)/H9b (15%)/M15* (20%)/Ps (35%)	n/a	0.02	0.02
	Mire	E1.8	H9b (40%)/M20 (60%)	n/a	0.04	0.04

Residual Effect

4.2.4 Following the successful implementation of embedded industry good practice mitigation measures during construction, any residual effects are considered to be undetectable at any geographic scale.

Habitat Enhancements

4.2.5 Bog and wet heath habitats within the Site and surrounding area have been historically impacted through the installation of artificial drainage ditches and creation of access tracks, which affect the natural hydrology of the area.

4.2.6 The EHMP required by condition 11 of the Berry Burn Wind Farm Extension consent will deliver rewetting over an area in excess of the 57ha extent of bog and peatland habitat creation and enhancement required under condition 11, such that mitigation of any short-term temporary impacts relating to borrow pit excavation will also be achieved via re-wetting in the bog restoration area.

4.2.7 The blocking of artificial drains using peat dams is a well-recognised and successful restoration technique and will serve to increase water table levels throughout the bog restoration area, improving the condition of peatland habitats locally.

Cumulative

4.2.8 Impacts arising from the Proposed Development will be localised and discrete in nature and scale, as well as being sufficiently far enough away from the other developments so as not to contribute to any cumulative impacts.

4.3 Summary

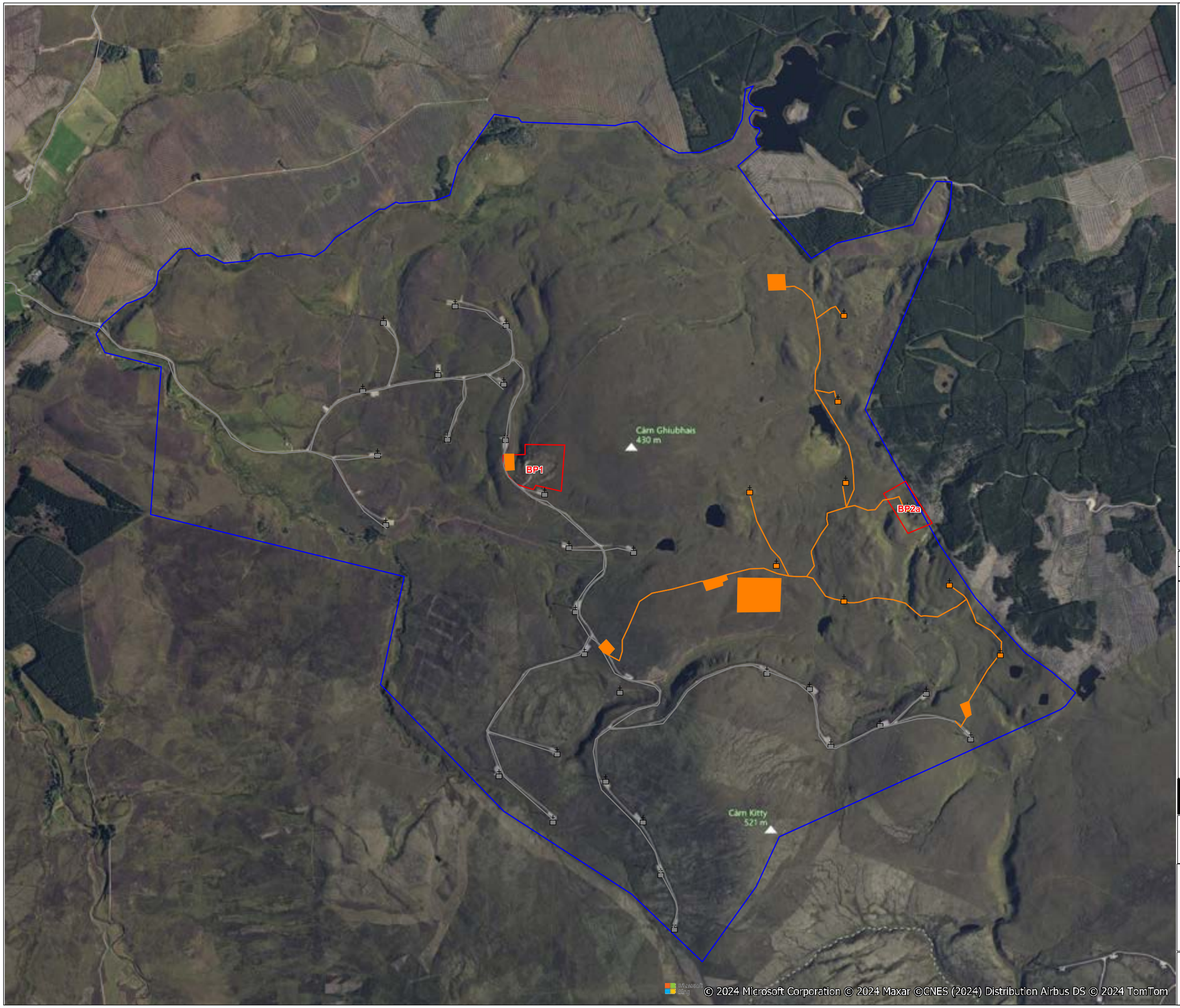
4.3.1 The Proposed Development and Survey Areas were found to contain a variety of ecologically viable habitats supporting a range of protected species. Priority Habitats (Mire and Heath) were identified as sensitive ecological receptors (referred to as IEFs) within the Site and EZoIs.

4.3.2 This report has considered how, in the absence of mitigation, the Proposed Development would impact the above IEFs via habitat loss and degradation and fragmentation.

4.3.3 Through the successful application of embedded and industry-standard mitigations (including a CEMP and SPPs), and additional (secondary) mitigations identified through this appraisal; this assessment concludes that the Proposed Development would not result in a residual negative effect on any sensitive ecology and nature conservation receptors.

4.3.4 As discussed in the Planning Statement, the Site in isolation offers limited opportunities for biodiversity enhancements, as required by Policy 3 of NPF4. However, bog restoration measures prescribed through the EHMP for the Berry Burn Wind Farm Extension (the EIA for which included proposed borrow pits which have since been replaced the Proposed Development) will deliver significant habitat enhancements across the wider Berry Burn Wind Farm Area. This will meet the biodiversity enhancement requirements of NPF4 for both the Berry Burn Wind Farm Extension and the Proposed Development.

APPENDIX 1: FIGURES 1 TO 7



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00	12/12/2024		HD	HD

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Datum: OSGB 1936
Units: Metres

BERRY BURN

FIGURE 1 - SITE LOCATION PLAN

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 900
meters

N W E S

Habitat

- A1.2.2: Coniferous woodland-plantation
- B1.1/B5/E1.7: Acid grassland-unimproved/Marshy grassland/Wet modified bog
- B1.1/D1/A1.2.2: Acid grassland-unimproved/Dry dwarf shrub heath/Coniferous woodland
- B1.1/D1/A2: Acid grassland-unimproved/Dry dwarf shrub heath/Scrub
- B1.1/D1/D2/A1.2.1: Acid grassland-unimproved/Dry dwarf shrub heath/Wet dwarf shrub heath/Coniferous woodland-semi-natural
- B1.1/E2.1/B5: Acid grassland-unimproved/Flush and spring-acid/neutral flush/Marshy grassland
- B1.1: Acid grassland-unimproved
- D1/A1.2.1: Dry dwarf shrub heath/Coniferous woodland-semi-natural
- D1/A1.2.2: Dry dwarf shrub heath/Coniferous woodland-plantation
- D1/A3: Dry dwarf shrub heath/Parkland and scattered trees
- D1/D2/E1.8/A3: Dry dwarf shrub heath/Wet dwarf shrub heath/Dry modified bog/Parkland and scattered trees
- D1/D2/E1.8: Dry dwarf shrub heath/Wet dwarf shrub heath/Dry modified bog
- D1/D2: Dry dwarf shrub heath/Wet dwarf shrub heath
- D1/E1.8/E1.7/E2/A1.2.1:Dry dwarf shrub heath/Dry modified bog/Wet modified bog/Flush /Coniferous woodland-semi-natural
- D1/E1.8: Dry dwarf shrub heath/Dry modified bog
- D1/E2.1/B1.1/E2.3: Dry dwarf shrub heath/Flush and spring-acid/neutral flush/Acid grassland-unimproved/Flush and spring-bryophyt-dominated spring
- D1: Dry dwarf shrub heath
- D2/A1.2.1: Wet dwarf shrub heath/Coniferous woodland-semi-natural
- E1.6.1/E1.7: Blanket bog/Wet modified bog
- E1.6.1: Blanket bog
- E1.7/A1.2.2/E2/B1.1: Wet modified bog/Coniferous woodland-plantation/Bog and flush /Acid grassland-unimproved
- E1.7/A1.2.2: Wet modified bog/Coniferous woodland-plantation
- E1.7/A3: Wet modified bog/Parkland and scattered trees
- E1.7/D2: Wet modified bog/Wet dwarf shrub heath
- E1.7/E1.8/A1.2.2: Wet modified bog/Dry modified bog/Coniferous woodland-plantation
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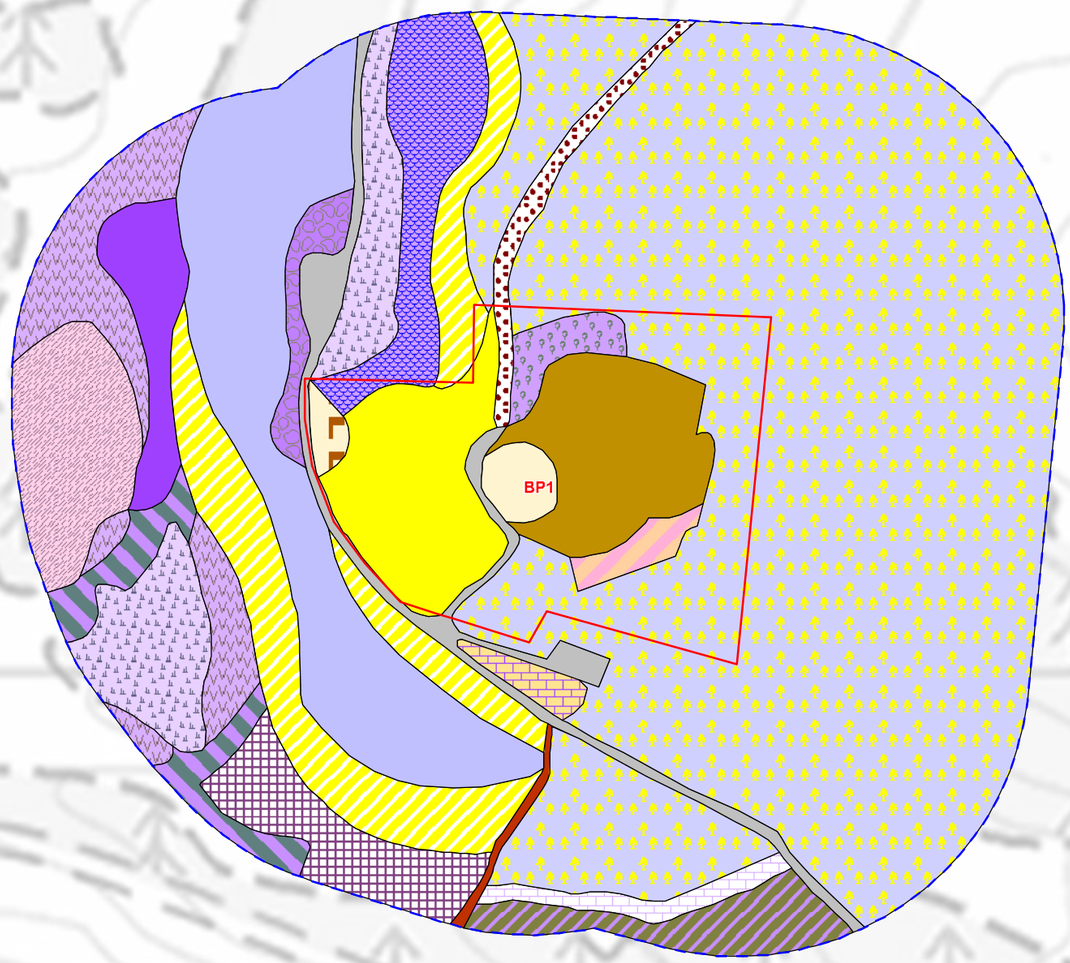
- E1.7/E2: Wet modified bog/Bog and flush
- E1.7: Wet modified bog
- E1.8/A1.2.1: Dry modified bog/Coniferous woodland-semi-natural
- E1.8/A1.2.2: Dry modified bog/Coniferous woodland-plantation
- E1.8/E1.7/A1.2.2: Dry modified bog/Wet modified bog/Coniferous woodland-plantation
- E1.8: Dry modified bog
- E2/B1.1/E1.8/D1: Flush/Acid grassland-unimproved/Dry modified bog/Dry dwarf shrub heath
- E2/B1.1: Flush/Acid grassland-unimproved
- J4/A2: Bare ground/Scrub
- J4/B1.1: Bare ground/Acid grassland-unimproved
- J4/D1/A2: Bare ground/Dry dwarf shrub heath/Scrub
- J4: Bare ground



Legend

- Site Boundary
- 250m Buffer

Rev	Date	Description	De	App
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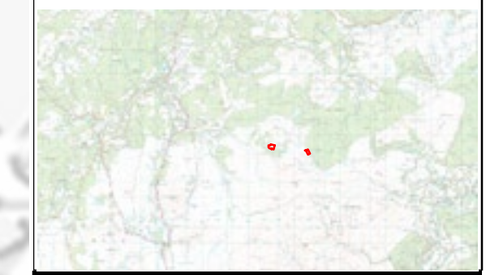

BERRY BURN

FIGURE 2A - PHASE 1 HABITAT SURVEY PLAN

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 200
meters

N W E S

Habitat

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- D1/D2/E1.8: Dry dwarf shrub heath/Wet dwarf shrub heath/Dry modified bog
- D1/D2: Dry dwarf shrub heath/Wet dwarf shrub heath
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- D1/E1.8: Dry dwarf shrub heath/Dry modified bog
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- J4/B1.1: Bare ground/Acid grassland-unimproved
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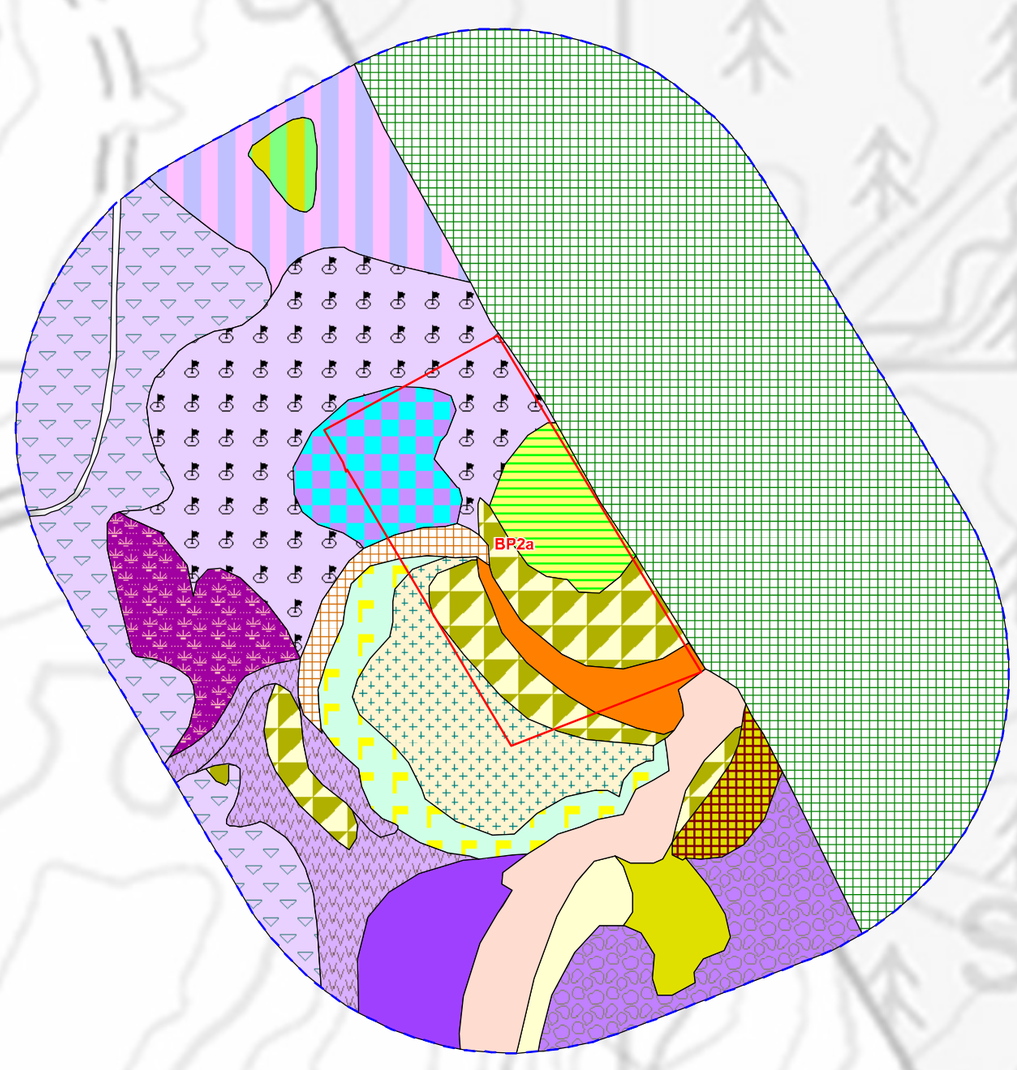
- J4: Bare ground



Legend

- Site Boundary
- 250m Buffer

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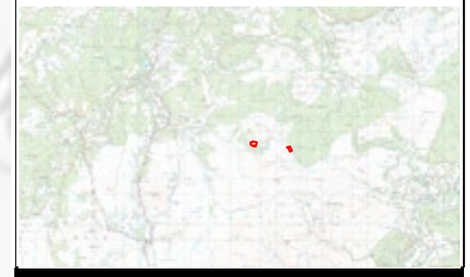

BERRY BURN

FIGURE 2B - PHASE 1 HABITAT SURVEY PLAN

avian ecology

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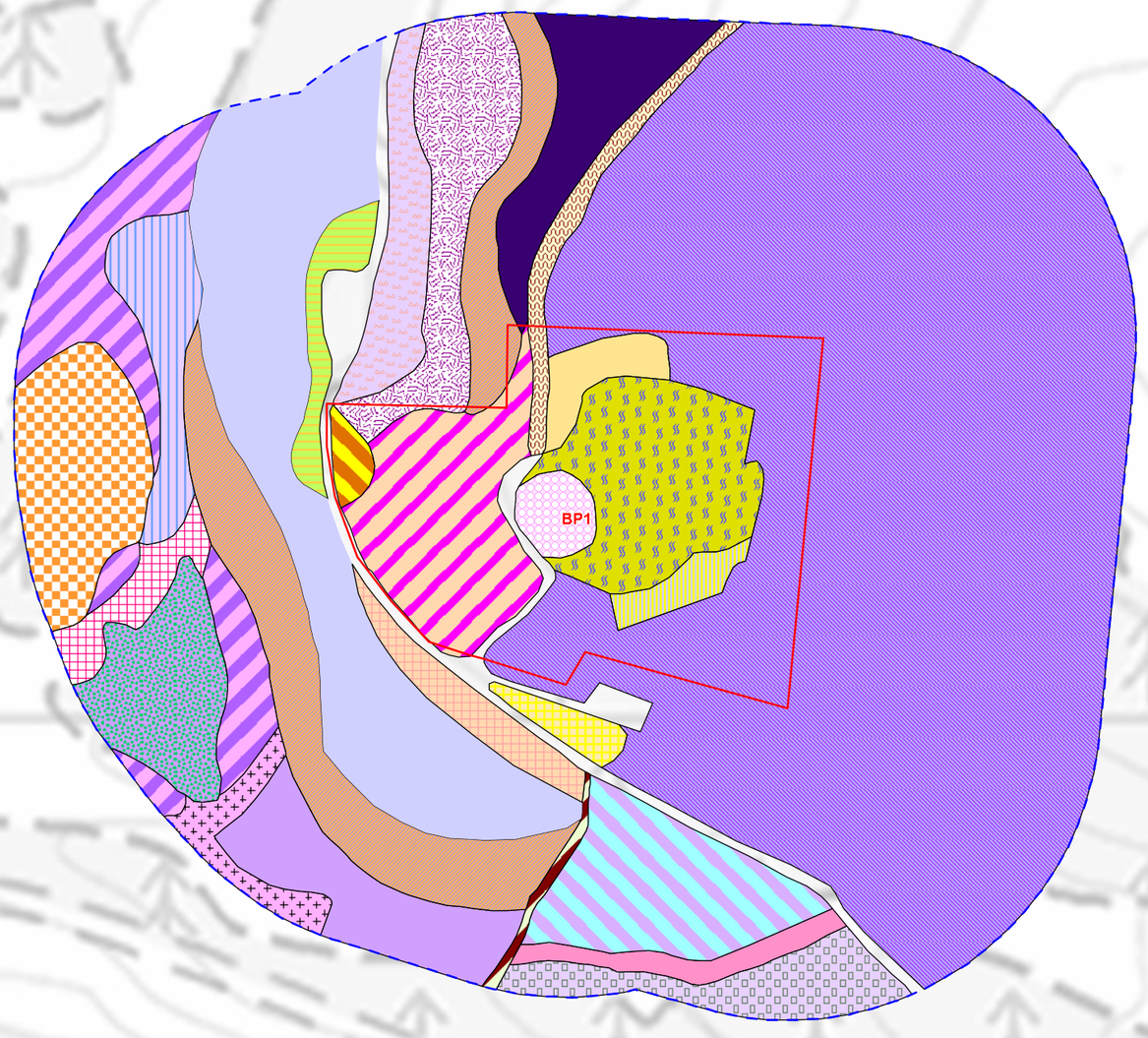
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 200
meters

N W E S

NVC Habitat

- Borrow Pit (80%)/U2a (20%)
- H16*
- H9 (40%)/M6c (18%)/U2a (40%)/M32 (2%)
- H9b
- H9b (10%)/M20 (50%)/M6c (10%)/Ps (30%)
- H9b (15%)/U2a (40%)/M6c (20%)/Je (10%)/U16c (5%)/W18 (10%)
- H9b (20%)/M15* (40%)/M20 (40%)
- H9b (40%)/M15* (60%)
- H9b (40%)/M20 (60%)
- H9b (45%)/M15* (25%)/M20 (25%)/Ps (5%)
- H9b (50%)/M20 (20%)/Ps (30%)
- H9b (60%)/Ps (40%)
- H9b (70%)/M20 (30%)
- H9b (70%)/Ps (30%)
- H9b (90%)/ W18 (10%)
- H9b (90%)/Ps (10%)
- H9b (95%)/Ps (5%)
- H9b (97%)/H16* (3%)
- M17a
- M18
- M18 (70%)/M20 (30%)
- M19 (40%)/M20 (35%)/H9b (10%)/Ps (15%)
- M20
- M20 (20%)/H9b (20%)/Ps (60%)
- M20 (30%)/H9b (15%)/M15* (20%)/Ps (35%)
- M20 (30%)/H9b (50%)/Ps (20%)
- M20 (40%)/H9 (30%)/Ps (30%)
- M20 (60%)/M6c (5%)/U2a (15%)/Ps (20%)
- M20 (68%)/H9b (20%)/M15* (10%)/Ps (2%)
- M20 (70%)/H9b (30%)
- M20 (70%)/Ps (30%)
- M20 (80%)/H9b (20%)
- M20 (80%)/M6c (20%)
- M20 (80%)/Ps (20%)
- M20 (85%)/M15* (15%)
- M20 (90%)/Ps (10%)
- M20 (95%)/Ps (5%)
- M20 (99%)/Ps (1%)
- M6c (30%)/U2a (30%)/M20 (20%)/H9b (20%)
- M6c (30%)/U2a (70%)
- M6c (40%)/U2a (20%)/H9b (20%)/M20 (20%)
- Mx (70%)/Ps (30%)
- Track/H9b (25%)/W23 (5%)
- Track/W23 (10%)
- U2a
- U2a (40%)/M6c (30%)/Je (30%)
- U2a (50%)/H9b (15%)/Mx (10%)/Ps (25%)
- U2a (50%)/H9b (30%)/Ps (20%)
- U2a (50%)/Je (15%)/M20 (35%)



Legend

- Site Boundary
- 250m Buffer

Rev	Date	Description	De	App
00	04/12/2024		HD	HD

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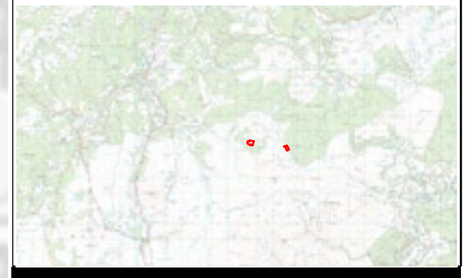

BERRY BURN

FIGURE 3A - NATIONAL VEGETATION CLASSIFICATION
HABITAT SURVEY PLAN

avianecology

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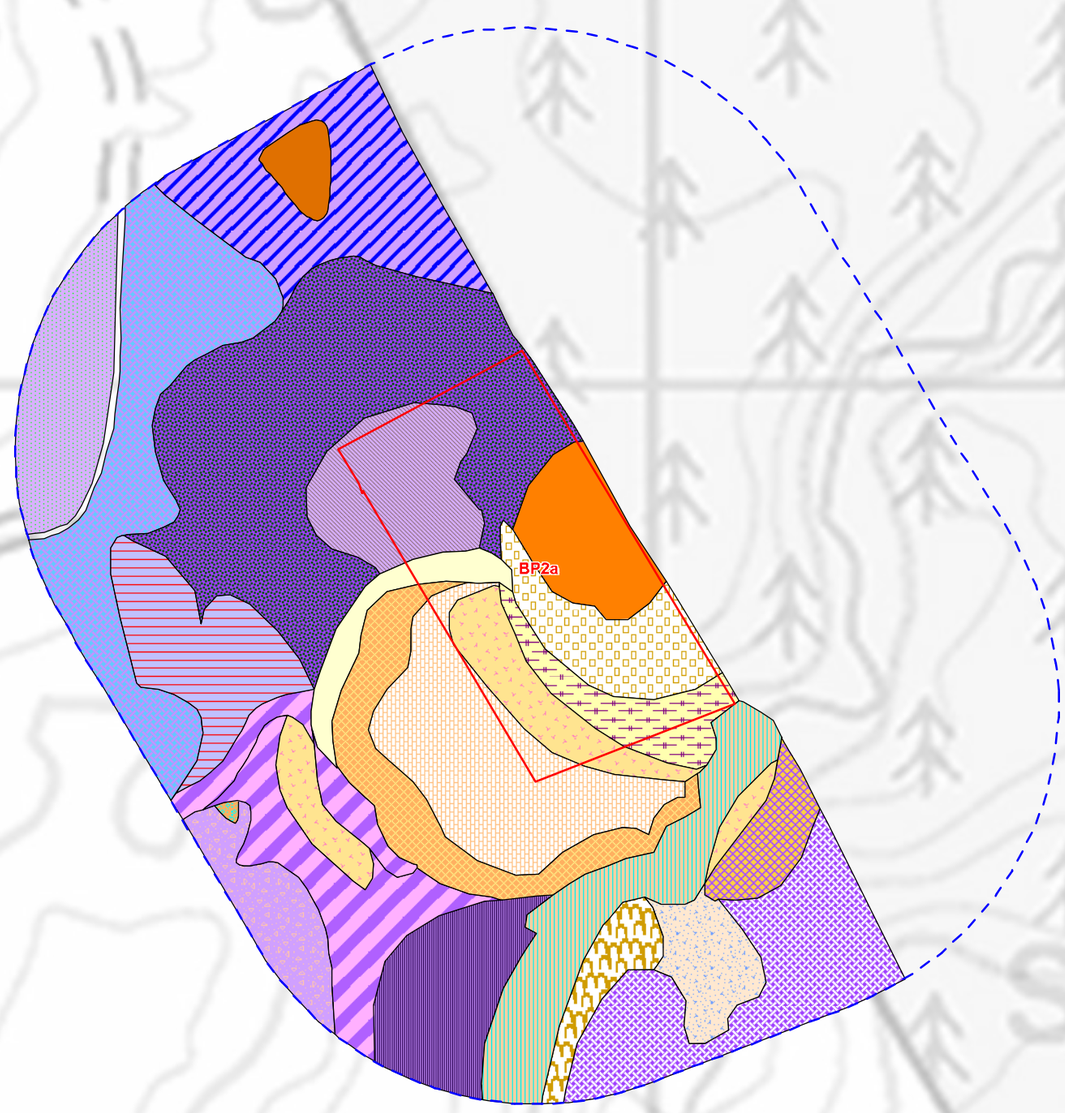
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 200
meters

N W E S

NVC Habitat

- Borrow Pit (80%)/U2a (20%)
- H16*
- H9 (40%)/M6c (18%)/U2a (40%)/M32 (2%)
- H9b
- H9b (10%)/M20 (50%)/M6c (10%)/Ps (30%)
- H9b (15%)/U2a (40%)/M6c (20%)/Je (10%)/U16c (5%)/W18 (10%)
- H9b (20%)/M15* (40%)/M20 (40%)
- H9b (40%)/M15* (60%)
- H9b (40%)/M20 (60%)
- H9b (45%)/M15* (25%)/M20 (25%)/Ps (5%)
- H9b (50%)/M20 (20%)/Ps (30%)
- H9b (60%)/Ps (40%)
- H9b (70%)/M20 (30%)
- H9b (70%)/Ps (30%)
- H9b (90%)/ W18 (10%)
- H9b (90%)/Ps (10%)
- H9b (95%)/Ps (5%)
- H9b (97%)/H16* (3%)
- M17a
- M18
- M18 (70%)/M20 (30%)
- M19 (40%)/M20 (35%)/H9b (10%)/Ps (15%)
- M20
- M20 (20%)/H9b (20%)/Ps (60%)
- M20 (30%)/H9b (15%)/M15* (20%)/Ps (35%)
- M20 (30%)/H9b (50%)/Ps (20%)
- M20 (40%)/H9 (30%)/Ps (30%)
- M20 (60%)/M6c (5%)/U2a (15%)/Ps (20%)
- M20 (68%)/H9b (20%)/M15* (10%)/Ps (2%)
- M20 (70%)/H9b (30%)
- M20 (70%)/Ps (30%)
- M20 (80%)/H9b (20%)
- M20 (80%)/M6c (20%)
- M20 (80%)/Ps (20%)
- M20 (85%)/M15* (15%)
- M20 (90%)/Ps (10%)
- M20 (95%)/Ps (5%)
- M20 (99%)/Ps (1%)
- M6c (30%)/U2a (30%)/M20 (20%)/H9b (20%)
- M6c (30%)/U2a (70%)
- M6c (40%)/U2a (20%)/H9b (20%)/M20 (20%)
- Mx (70%)/Ps (30%)
- Track/H9b (25%)/W23 (5%)
- Track/W23 (10%)
- U2a
- U2a (40%)/M6c (30%)/Je (30%)
- U2a (50%)/H9b (15%)/Mx (10%)/Ps (25%)
- U2a (50%)/H9b (30%)/Ps (20%)
- U2a (50%)/Je (15%)/M20 (35%)



Legend

- Site Boundary
- 250m Buffer

Rev	Date	Description	De	App
00	12/12/2024		HD	HD

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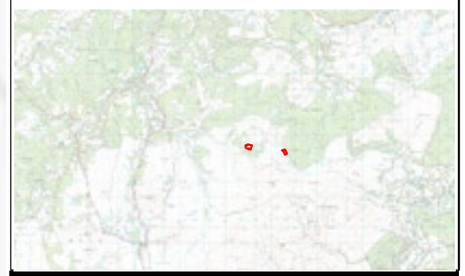

BERRY BURN

FIGURE 3B - NATIONAL VEGETATION CLASSIFICATION HABITAT SURVEY PLAN

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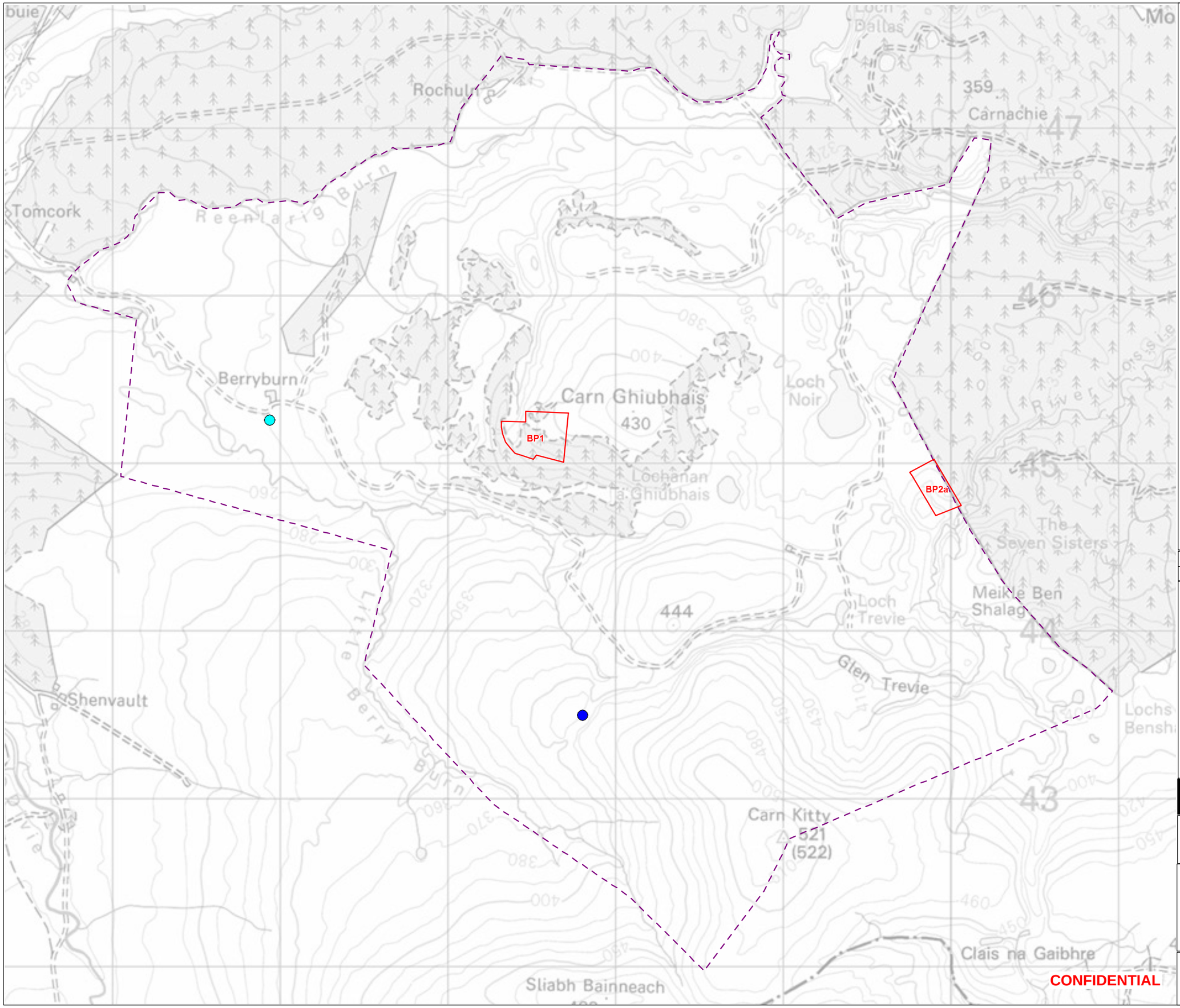
0 200
meters

N W E S



Legend

- Site Boundary
- Scarce Breeding Bird Survey Area

Target Species

- BO-Barn Owl-Confirmed Breeding Site
- ML-Merlin

Rev	Date	Description	De	App
00	12/12/2024		HD	HD

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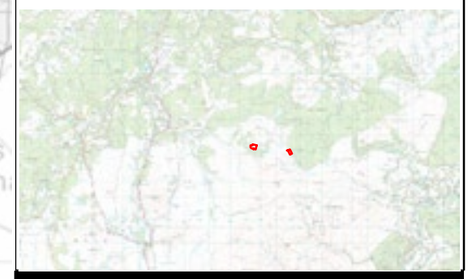

BERRY BURN

FIGURE 4 - CONFIDENTIAL SCARCE BREEDING BIRD SURVEY RESULTS PLAN

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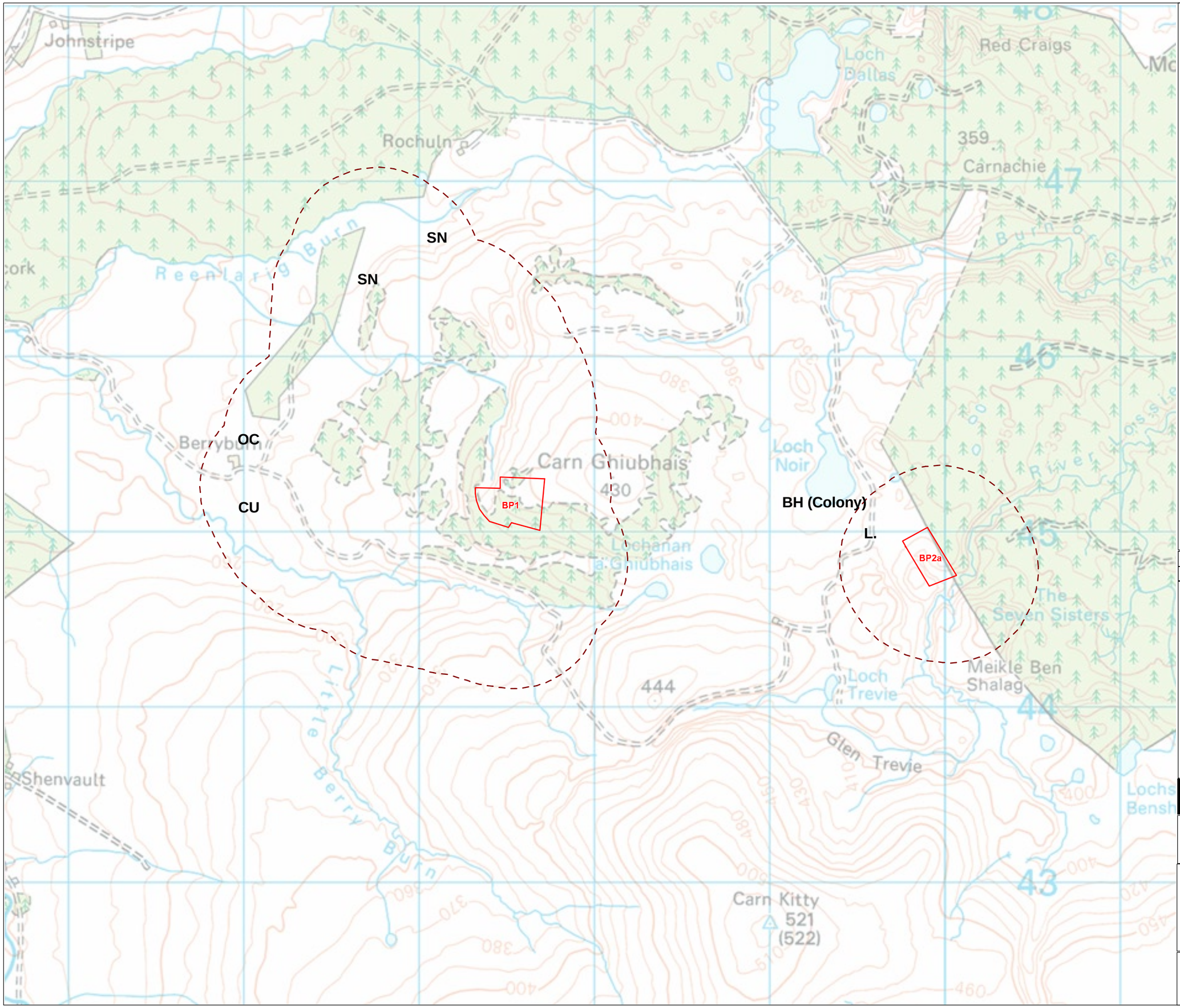
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 1
kilometers

N W E S

CONFIDENTIAL



Legend

- Site Boundary
- Moorland Breeding Bird Survey Area (500m)

Breeding Territory

- Black-headed gull (BH)
- Curlew (CU)
- Lapwing (L.)
- Oystercatcher (OC)
- Snipe (SN)

Rev	Date	Description	De	App
00	12/12/2024		HD	HD

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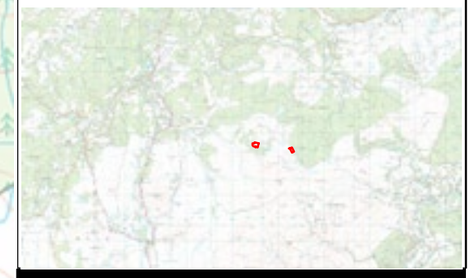
Datum: OSGB 1936
Units: Metres



BERRY BURN

FIGURE 5 - MOORLAND BREEDING BIRD SURVEY PLAN

avianecology

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WA4 4PG
Tel: 0843 506 5116
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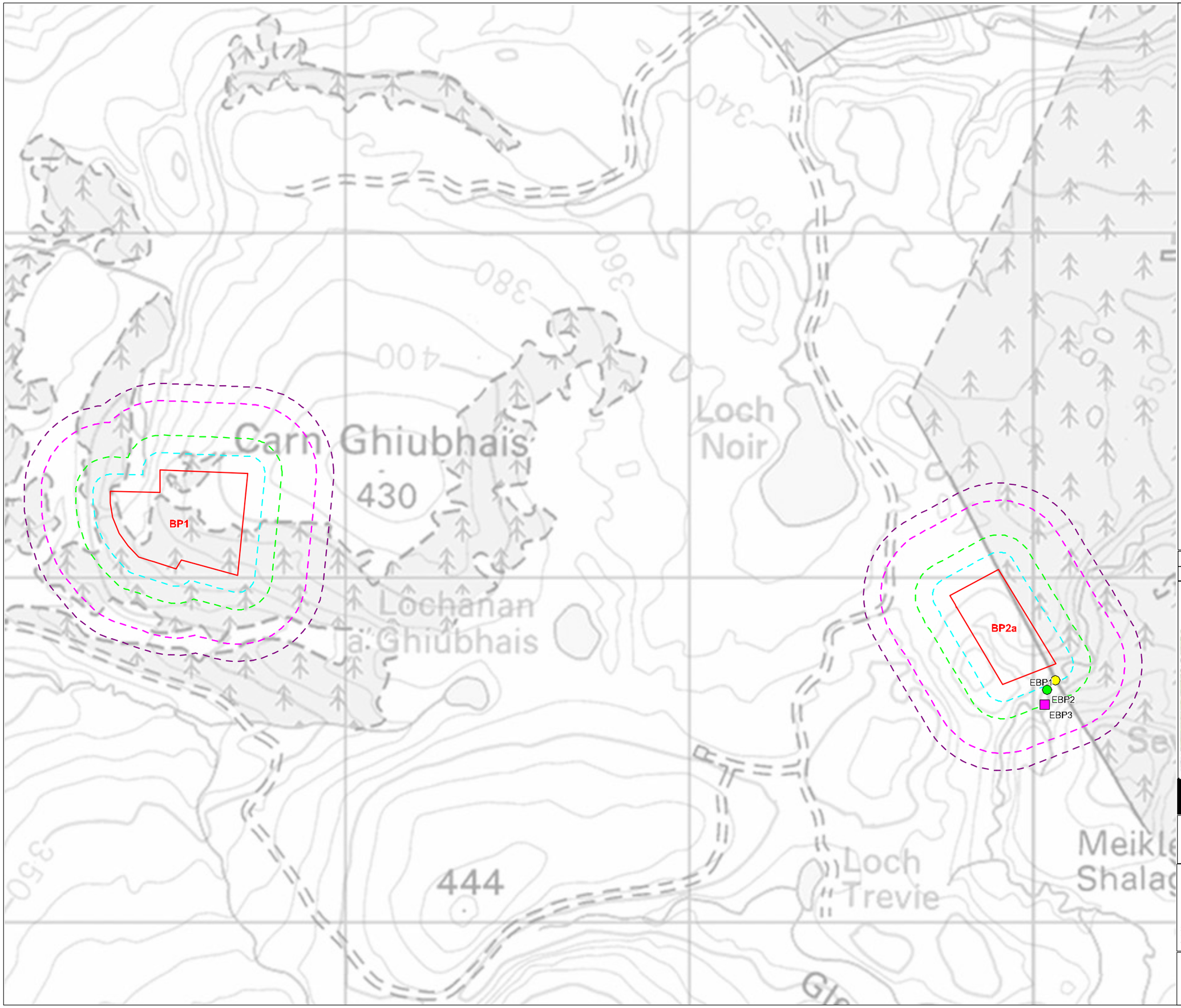
0 1
kilometers

N W E S



Legend

Site Boundary

Survey Areas

- Water Vole Survey Area (50m Buffer)
- Badger Survey Area (100m Buffer)
- Otter Survey Area (200m Buffer)
- Scottish Wildcat Survey Area (200m Buffer)
- Pine Marten Survey Area (250m Buffer)

Survey Results

- Mammal-Path
- Otter-Scat
- Otter-Slide

Rev	Date	Description	De	App
00	12/12/2024		HD	HD

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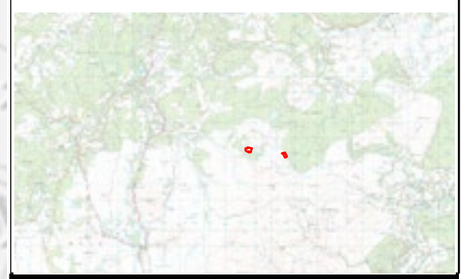
Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres



BERRY BURN

FIGURE 6 - PROTECTED SPECIES SURVEY RESULTS

avian ecology

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0 500
meters

N W E S

Legend

- Site Boundary
- 2km Buffer

Designated Site

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

Rev	Date	Description	De	App
00	12/12/2024		HD	HD

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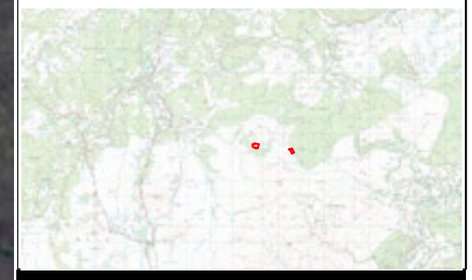
Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres



BERRY BURN

FIGURE 7 - STATUTORY DESIGNATED SITES PLAN

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www.avianecology.co.uk

0 1.5
kilometers

N W E S

ANNEX A: ORNITHOLOGICAL FIELD SURVEY EFFORT 2024

The following codes are used to record weather conditions within **Tables A1 and A2**:

Wind Speed		**Wind Direction**		**Cloud Height**	
Calm	0	16 point compass		<150m	0
Light air	1			150-500m	1
Light breeze	2	**Rain**		>500m	2
Gentle breeze	3	None	0		
Moderate breeze	4	Drizzle/mist	1	**Frost**	
Fresh breeze	5	Light showers	2	None	0
Strong breeze	6	Heavy showers	3	Ground	1
Moderate gale	7	Heavy rain	4	All day	2
Fresh gale	8				
Strong gale	9	**Visibility**		**Snow**	
Whole gale	10	Poor	0	None	0
Storm	11	<1km	1	On site	1
		>1km	2	High ground	2

The following surveyors are named: D. Burt (DB), G. Dunbar (GD), M. Lawson (ML), S. MacDonald (SM), J. Morton (JM), J. Partridge (JP)

Table A1: Moorland breeding bird survey effort (2024).

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
09/05/2024	SM	08:30	11:30	3/3/3	SW/SW/WSW	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
09/05/2024	ML	08:30	11:30	3/3/3	SW/SW/SW	0/0/0	7/6/5	2/2/2	2/2/2	0/0/0	0/0/0
31/05/2024	JM	08:50	09:50	3	NW	0	5/8	2	2	0	0
31/05/2024	JP	08:30	12:30	3/3/3/3	WNW/WNW/WNW/WNW	0/0/0/0	3/3/4/6	2/2/2/2	2/2/2/2	0/0/0/0	0/0/0/0
05/07/2024	GD	08:30	10:30	3/3	SW/SW	0/0	8/8	2/2	2/2	0/0	0/0
05/07/2024	DB	08:30	10:30	3/3	SW/SW	0/0	8/8	2/2	2/2	0/0	0/0
24/07/2024	JM	08:40	12:30	2/3/3/3	SSW/SSW/SW/SW	0/0/0/0	6/4/3/3	2/2/2/2	2/2/2/2	0/0/0/0	0/0/0/0
24/07/2024	JM	13:00	14:00	2	SW	0	5/8	2	2	0	0

Table A2: Scarce breeding bird survey effort (2024).

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
25/04/2024	SM	04:40	07:40	2/1/2	NNW/N/N	0/0/0	8/8/8	2/2/1	2/2/2	0/0/0	0/0/2
09/05/2024	SM	04:05	07:05	3/4/3	SW/SW/SW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
09/05/2024	ML	04:05	07:05	2/3/3	SW/SW/SW	0/0/0	6/7/6	2/2/2	2/2/2	0/0/0	0/0/0
16/05/2024	DB	03:05	06:50	2/2/3	E/E/E	0/0/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
16/05/2024	DB	03:50	06:50	2/2/3	E/E/E	0/0/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
16/05/2024	GD	03:50	06:50	2/2/3	E/E/E	0/0/0	6/5/3	2/2/2	2/2/2	0/0/0	0/0/0
31/05/2024	JM	09:50	12:40	3/2/2	WNW/NW/NW	0/0/0	5/6/7	2/2/2	2/2/2	0/0/0	0/0/0
13/06/2024	SM	09:40	15:40	3/2/2/2/3/3	S/SSW/SSW/S/S/S	0/0/0/0/0/0	6/7/5/6/6/6	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0	0/0/0/0/0/0
13/06/2024	ML	09:40	15:40	3/3/2/2/3/3	S/S/S/S/S/S	0/0/0/0/0/0	8/6/5/5/4/5	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0	0/0/0/0/0/0
05/07/2024	GD	10:30	13:30	3/3/4	SW/SW/SW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
05/07/2024	DB	10:30	13:30	3/3/4	SW/SW/SW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
24/07/2024	JM	14:15	17:15	2/3/3	SW/SW/SW	0/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
14/08/2024	JM	15:00	18:00	3/2/3	WSW/SW/SW	0/0/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0

ANNEX B: HABITAT SURVEY DESCRIPTIONS AND PHOTOGRAPHS

Borrow Pit 1

H9b - *Calluna vulgaris/Deschampsia flexuosa* Heath

4.3.5 These heaths occur widely across the site, where severe burning – likely due to the 2019 wildfire – has led to floristic impoverishment in two primary contexts. The first is typical dry heath habitats on steep, well-drained slopes. However, this community also occurs on areas of more gently sloping deep peat, where severe burning and draining have dried out the peat and led to the dominance of this community. Patches of bare peat, and the burnt stems of old heather, are distinctive features of this habitat. Regenerating *Calluna vulgaris* is by far the dominant vascular plant species, and several stands are almost monocultures. *Deschampsia flexuosa* is also abundant in lesser quantities, and there is patchy cover of regenerating *Vaccinium* spp., along with occasional examples of *Blechnum spicant*, *Carex binervis*, *Potentilla erecta*, and other 'heathland' species. The bryophyte layer, although patchy, is dominated by *Campylopus introflexus*, *Cladonia* lichens and *Pohlia nutans*, along with patchy regeneration of pleurocarpous mosses such as *Hypnum jutlandicum* and *Hylocomium splendens*. Grazing of this community appears moderate, with many shoots of *Vaccinium myrtillus* particularly affected. It appears likely that many of these stands derive from H12 heath before burning.

M6c - *Carex echinata/Sphagnum recurve* Mire

4.3.6 This community occurs locally across the site, generally around the margins of small watercourses and wet hollows, where water flows diffusely from the surrounding bog habitats down gentle gradients. This community is somewhat variable on site, with some influence of more base-rich/neutral water affecting species composition in the bryophyte layer, and a higher diversity of forbs, leading to some stands of M6c approaching an intermediate composition between M6c and M23b vegetation. In addition, several bog associates have been captured in some of the sample quadrats, leading to further diversification of the data. However, this community is defined by thick swards of *Juncus effusus*, with *Polytrichum commune* and *Sphagnum fallax* constant and generally dominant in the bryophyte layer. *Sphagna* are also represented by *S. palustre* and occasionally *S. squarrosum* in some stands. *Lophocolea bidentata* and *Kindbergia praelonga* are also relatively abundant. *Deschampsia flexuosa* has been recorded as a constant, and the sward also includes scattered examples of *Holcus lanatus*, *Eriophorum vaginatum* and *Carex rostrata*. Forbs are somewhat variable, although *Galium saxatile* is a constant. This community is often trampled and disturbed by mammal trails, and is clearly used as a couch by deer in places.

M15* - *Scirpus cespitosus/Erica tetralix* wet heath

4.3.7 This code has been used to refer to areas of regenerating wet heath, occupying small patches on damp, moderate slopes towards the west of the site. The vascular species present represent the typical species of M15, namely *Calluna vulgaris*, *Tricophorum germanicum*, *Erica tetralix* and *Molinia caerulea*. However, the bryophyte layer diverges significantly from the species present in 'true' M15. *Sphagna* are essentially absent, and the bare peat instead supports patchy *Cladonia* lichens, *Campylopus introflexus*, and a few sparse wefts of typical Pleurocarpous mosses. *Eriophorum vaginatum* is present as isolated tussocks in several samples, reflecting the proximity of various bog habitats and perhaps the disturbed nature of these slopes. Essentially, these stands of vegetation – in a mosaic with various heaths and mires – appear to consist of regenerating M15 wet heath among bare peat. As such, the bryophyte layer differs somewhat from M15 as described in the NVC and M15* has been used as a proxy.

M19 - *Calluna vulgaris /Eriophorum vaginatum* Mire

4.3.8 This community occurs around the highest altitudes of the site, and consists of areas of blanket bog which, although fire-damaged, have retained the key features of M19 bog. These stands form mosaics with areas of H9 on particularly fire-damaged deep peat often surrounding drains, as well as areas of M20 where tussocky *Eriophorum vaginatum* dominates the vegetation. The peat on which this community is found appears to be rather dry to somewhat moist, and there is evidence of trampling by deer. *Calluna vulgaris* and *Eriophorum vaginatum* are often co-dominant in the regenerating vegetation, with more sparse associates such as *Erica tetralix*, *Tricophorum germanicum*, *Eriophorum angustifolium* and occasionally *Rubus chamaemorus* and *Empetrum nigrum*. The bryophyte layer demonstrates modification from fire damage, with *Sphagna* sparse and generally restricted to scattered shoots of regenerating *S. capillifolium*. More abundant among the patches of bare peat are *Cladonia* lichens, *Campylopus introflexus*, and *Hypnum jutlandicum*. Although this community is clearly indicative of regenerating M19 bog, it does not appear possible to define the vegetation to subcommunity level.

M20 - *Eriophorum vaginatum* Mire

4.3.9 This community occurs widely around the site, on relatively deep peat and generally on flat to gently-sloping gradients. These areas are clearly fire-damaged and often further modified by the presence of planted *Pinus sylvestris*, and artificial drainage. The peat varies from being dry in exposed situations, to somewhat moist in lower-lying and sheltered stands. Although this habitat is variable on the site, the dominance of *Eriophorum vaginatum* has been taken as a defining feature of this community. *Calluna vulgaris* is also present, although lesser in abundance than the tussocky cotton grass. On occasion the heather thickens up in patches, leading to small areas that may be considered intermediate between M20 and M19. Regenerating *Vaccinium vitis-ideae* is often relatively abundant over the bare peat between tussocks, with some scattered shoots of *Vaccinium myrtillus* and *Erica tetralix*. The bryophyte layer is very variable, with the bare peat often partially encrusted by *Cladonia* lichens, with *Campylopus introflexus* and *Dicranum scoparium*. Pleurocarpus mosses such as *Hylocomium splendens* and *Pleurozium schreberi* are scattered locally. *Sphagnum capillifolium* was recorded in all samples, however it is present only as sparse regenerating shoots, and not a dominant component of the bryophyte layer. It is likely that much of the M20 on site is derived from M19 bog.

Mx - Mire

4.3.10 This code has been used to describe the vegetation in two small areas within the site boundary. These stands are situated at the bottom of concave, bowl-like hollows, the upper slopes of which consist of a mosaic of U2a and H9b communities. These upper slopes likely drain into the 'bowls', resulting in a moist albeit thin layer of peaty, stony, acidic soil. These stands are also further modified by the presence of *Pinus sylvestris* throughout this part of the site, and residual fire-damage. The relatively open, patchy vegetation bears similarity to U2b *Deschampsia flexuosa* Grassland. However, *D. flexuosa* is not particularly dominant, and generally occurs as scattered shoots among *Calluna vulgaris* and *Eriophorum vaginatum*, with other vascular species including *Juncus squarrosus*, *Erica tetralix*, *Empetrum nigrum*, *Eriophorum angustifolium* and rarely other grasses. *Juncus effusus* also occurs sparsely here, although this was not recorded in the sample data. The bryophyte layer contains much *Polytrichum piliferum*, along with *Polytrichum commune*, and pleurocarpous mosses including *Hylocomium splendens*, *Pleurozium schreberi* and *Rhytidiadelphus loreus*. *Campylopus introflexus* is also present, and much of the ground between the vascular species is bare and stony.

U2a - *Deschampsia flexuosa* Grassland

4.3.11 This community occurs locally around the site and has likely resulted from intense burning. Generally, U2a grassland occurs on dry to moist slopes, often in mosaic with dry heaths, and it also occurs here around the margins of dry watercourse beds, with M6c occurring in wetter adjacent areas.

Deschampsia flexuosa is consistently the most abundant species, forming dense swards. *Juncus squarrosus* is frequently present, along with *Calluna vulgaris*, *Erica tetralix*, *Eriophorum angustifolium*, *Empetrum nigrum*, and in places *Holcus lanatus* and *Agrostis stolonifera*. The bryophyte layer in these stands is relatively sparse, consisting of *Cladonia* lichens, *Polytrichum commune*, *Hylocomium splendens*, *Rhytidiadelphus loreus*, and other common species.

W23 - *Ulex europaeus/Rubus fruticosus* Scrub

4.3.12 This habitat code refers to scrubby growth of *Ulex europaeus*, growing alongside the rougher estate tracks. *Rubus fruticosus* is not present, although *Cytisus scoparius* occurs alongside the gorse. The field layer beneath the scrub is essentially like the surrounding H9b heath, dominated by *Calluna vulgaris* with *Deschampsia flexuosa*. This community can be seen in photo 'W23'.

Ps - *Pinus sylvestris*

4.3.13 This code has been used to refer to areas of the site which contain *Pinus sylvestris* in addition to other habitats. The pines are up to 3m tall - generally much lower - and are in most cases dead. The trees do not form a closed canopy and appear to have/have had little effect on the ground flora, aside from where manipulation of the peat historically occurred to plant the trees. This community can be seen in photo 'Ps'.

Borrow Pit 2a

H9b - *Calluna vulgaris/Deschampsia flexuosa* Heath

4.3.14 This community is found locally throughout the site, on steep, well-drained slopes often surrounding watercourses. These heaths appear to have resulted from the 2019 fire, which severely burned slopes that were likely to have contained H12 dry heath (or perhaps H10). Whilst the samples contain a greater abundance of *Vaccinium* species than may be expected for the community, they have been referred to H9b due to paucity of species, constancy of *Deschampsia flexuosa*, and the bryophyte layer which differs significantly from H12 heath, due to being severely burned. Moderate grazing by wild deer is also apparent, as well as disturbance from deer trails. *Calluna vulgaris* is dominant in a species-poor sward that also contains variable cover of *Erica cinerea*. *Deschampsia flexuosa* is also constant in variable abundance. *Vaccinium myrtillus* and *Vaccinium vitis-ideae* are regenerating somewhat more quickly than other species and are conspicuous among the other vascular plants and bare peat. Occasional examples of *Carex binervis* and *Blechnum spicant* are also present. The bryophyte layer is patchy among areas of bare peat, but contains *Campylopus atrovirens*, *Pohlia nutans*, *Cladonia* lichens, and occasional regenerating wefts of pleurocarpous species such as *Hypnum jutlandicum* and *Hylocomium splendens*.

M6c - *Carex echinata/Sphagnum recurve* Mire

4.3.15 This community occurs locally around the site, generally marking out seepage of water on the fringes of watercourses, and around wet hollows. A species-poor community, this habitat is dominated by thick stands of *Juncus effusus*, above a carpet of bryophytes dominated by *Polytrichum commune* and *Sphagnum fallax*, often with *Sphagnum palustre*. On the fringes, grasses such as *Holcus lanatus*, *H. mollis*, and *Molinia caerulea* also occur. Forbs are not abundant, but *Epilobium palustre*, *Rumex acetosa* and *Potentilla erecta* were recorded, and *Galium saxatile* was recorded as a constant. Among the carpet of larger bryophytes, some *Lophocolea bidentata* is present. This habitat is often used as a couch by deer, and is criss-crossed by mammal trails.

M15* - *Scirpus cespitosus/Erica tetralix* wet heath

4.3.16 This code has been used to refer to areas of regenerating wet heath, occupying small patches on damp, moderate slopes towards the west of the site. The vascular species present represent the typical

species of M15, namely *Calluna vulgaris*, *Tricophorum germanicum*, *Erica tetralix* and *Molinia caerulea*. However, the bryophyte layer diverges significantly from the species present in 'true' M15. *Sphagna* are essentially absent aside from scarce regenerating shoots of *S. capillifolium* (present in one quadrat only), and the bare peat instead supports patchy *Cladonia* lichens, *Campylopus introflexus*, and a few sparse wefts of typical *Pleurocarpous* mosses. *Eriophorum vaginatum* is present as isolated tussocks in several samples, reflecting the proximity of various bog habitats and perhaps the disturbed nature of these slopes. Essentially, these stands of vegetation - in a mosaic with various heaths and mires - appear to consist of regenerating M15 wet heath among bare peat. As such, the bryophyte layer differs somewhat from M15 as described in the NVC and M15* has been used as a proxy.

M18 - *Erica tetralix/ Sphagnum papillosum* raised & blanket mire

4.3.17 This community is found in two areas of the site, on essentially level gradients, and on deep, waterlogged peat where the water table is essentially at the surface (recent heavy rain notwithstanding). It seems likely that the variation in topography within the survey area has allowed these areas to retain moisture much more effectively than the surrounding slopes containing M20 bog. The sward of vascular species is open and somewhat sparse, and contains *Eriophorum vaginatum*, *Erica tetralix*, *Calluna vulgaris* and to a lesser extent *Tricophorum germanicum*. *Narcethium ossifragum* was also recorded as a constant, although variable in cover. Characteristic of this community is a rich carpet of *Sphagna*, and in these stands *S. papillosum* and *S. capillifolium* are dominant in the bryophyte layer. Additionally, *S. tenellum*, *S. magellanicum* and *S. subnitens* were recorded. *Caldonia* lichens are sparsely present where the carpet of *Sphagna* is broken, along with *Hypnum jutlandicum*. The liverwort *Odontoschisma sphagni* occurs among the hummocks and lawns of *Sphagna*. It seems that small areas of bare peat within this community represent historic fire damage, particularly where encrusting lichens are present. Furthermore, trampling by deer is visible in places, and the bog surface has been disturbed by the construction of a tower (see Phase 1 target notes). These modification factors may be why the vegetation does not fit neatly into subcommunity level.

M20 - *Eriophorum vaginatum* Mire

4.3.18 This community is very common on site, occupying gentle slopes and more flat areas, generally on relatively deep peat (but shallower than on which occurs M18 bog). Generally, the abundance of this community appears to relate to degradation of other 'bog' communities. M20 is somewhat variable on this site, as with the western site, showing variation in species depending upon how moist the peat is in a given stand, and perhaps variation in the 'type' of bog the cottongrass-dominated M20 derives from. Nonetheless, these stands of vegetation are unified by the dominance of *Eriophorum vaginatum*, often in a tussocky form, with other species variable in abundance between the tussocks. *Calluna vulgaris* and *Erica tetralix* are common, but variable in coverage. Moderate grazing may be keeping the *Calluna vulgaris* in sparse condition as it regenerates following severe burning. In some stands, *Vaccinium vitis-ideae* has regenerated vigorously. Other vascular species are sporadic at best. The bryophyte layer is variable, although encrusting *Cladonia* lichens are constant. Regenerating wefts of *pleurocarpous* mosses are sparse. *Sphagnum capillifolium* was recorded in three quadrats as regenerating shoots among the tussocks

U2a - *Deschampsia flexuosa* Grassland

4.3.19 These grasslands are present throughout the site, in reasonably dry watercourse beds and surrounding wetter areas containing M6c and Je communities, as well as on more dry, well-drained slopes. It is highly likely that this community has developed in response to the 2019 fire, as *Deschampsia flexuosa* is dominant throughout, despite variation in stand composition. Other grass species present include *Nardus stricta*, *Holcus mollis*, *Holcus lanatus*, *Agrostis capillaris*, and *Anthoxanthum odoratum*, although none of these species match the dominance of *Deschampsia flexuosa*. *Calluna vulgaris* and

Vaccinium spp. are dotted throughout the sward. Forb cover is dominated by *Galium saxatile* and *Potentilla erecta*. The bryophyte layer is variable, although generally *Polytrichum piliferum* is constant, along with *pleurocarpous* mosses such as *Hylocomium splendens* and *Pleurozium schreberi*. Some stands in the watercourse-adjacent areas contain cushions of *Polytrichum commune*. Some grazing of *Vaccinium myrtillus* and *Calluna vulgaris* is apparent and may contribute to the continued establishment of these grasslands where some form of heath would otherwise recover. This community can be seen in photo 'U2a'.

4.3.20 Communities recorded which don't correspond to standard NVC communities:

Ps - *Pinus sylvestris*

4.3.21 Scattered around the site are various small clusters and individual examples of *Pinus sylvestris*. This code has been used to refer to polygons containing these trees, which stand at around 3m in height and have little influence on the ground flora. This principally corresponds to to Phase 1 community A1.2.2 coniferous plantation, but in places is self-seeded and so corresponds to A1.2.1 semi-natural coniferous woodland and to A3 scattered trees. Ps has been used in NVC to refer to these stands of Pinus sylvestris, as they do not correspond with any recognised NVC community (e.g. W18), and although a percentage cover of polygons has been assigned to provide an overview of density of tree presence within a polygon, in reality, these are almost all short, burned and often dead trees even when relatively dense, which have essentially no impact on the character of the community beneath them.

H16* - Vegetation related to H16 *Calluna vulgaris/Arctostaphylos uva-ursi* Heath

4.3.22 Two very small stands of vegetation on the summits of small hills contain extensive areas of bare peaty substrate (barely 5cm deep), upon which short, sparse *Calluna vulgaris* is regenerating, occasionally with *Erica cinerea*. Also present here is *Arctostaphylos uva-ursi* in wefts over the bare ground, and *Vaccinium* spp. The bryophyte layer is essentially made up of sparse *Cladonia* lichens. It appears that these areas may comprise the most exposed and wind-swept localities of the site. The vegetation here, although highly modified, appears to most closely match H16 vegetation. These two stands measure only a few square metres each. This community can be seen in photo 'H16*'.

Je - *Juncus effusus* Acid Grassland

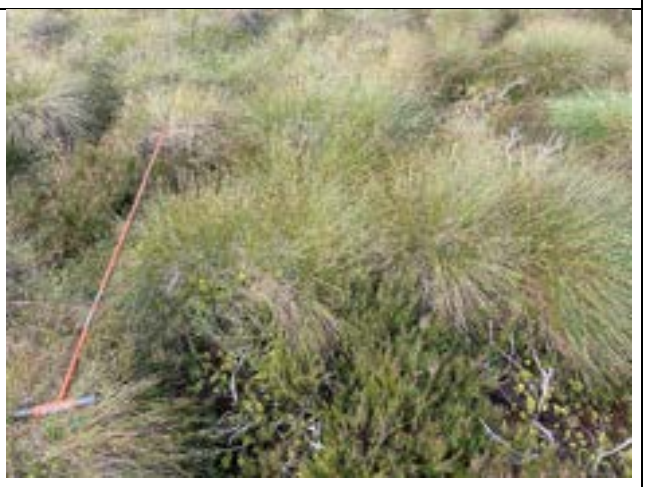
Locally around the site, in mosaics with U2a grassland, are areas of similar vegetation with the exception that the sward is dominated by *Juncus effusus*. These areas are generally found fringing the watercourse beds, particularly where drier than areas of M6c mire. The ground here is relatively moist; however the species present alongside the rushes are essentially similar to the U2a grassland, including grasses such as *Holcus lanatus*, *Agrostis capillaris* and *Anthoxanthum odoratum*, forbs dominated by *Galium saxatile* and *Potentilla erecta*, and large *pleurocarpous* mosses such as *Hylocomium splendens* and *Pleurozium schreberi*, with the addition of sparse *Kindbergia praelonga*. This vegetative community, although not uncommon, therefore does not appear to fit into any of the 'usual' Soft Rush-dominated vegetation types (M6c, M23b) and has been assigned the code Je. This community can be seen in photo 'Je' .

Commercial Forestry Plantation

4.3.23 The eastern section of the site is dominated by tall (to 20m+) commercial forestry blocks, primarily composed of Lodgepole Pine and Larch, with some Scots Pine. In many places – clearly visible in aerial photos - the trees are dead and burned, likely as a result of the 2019 fire. In these areas, the trees have also fallen, presenting a tangled mass of trunks and brash. Throughout the forestry blocks, the trees are densely planted, and the ground flora is essentially non-existent, either composed of piled brash, dead needles or churned peat, generally a combination of the three. Several mammal trails lead into the forestry, many of these appear to be attributable to Roe Deer, which are numerous on the

site, however the complex three-dimensional structure and abundant cover within the forestry may be suitable for Pine Marten. The surveyor was unable to access the forestry interior due to access restrictions, so observations have been made from the fence line.

Table A2: Photographs of habitats recorded during 2024 surveys.

	
U2a - *Deschampsia flexuosa* Grassland	W23 - *Ulex europaeus/Rubus fruticosus* Scrub
	
Ps - *Pinus sylvestris*	H16* - Vegetation related to H16 *Calluna vulgaris/Arctostaphylos uva-ursi* Heath
	
Je - *Juncus effusus* Acid Grassland	M19 - *Calluna vulgaris /Eriophorum vaginatum Mire*

	
M20 - *Eriophorum vaginatum* Mire	Mx – Mire
	
M15* - *Scirpus cespitosus/Erica tetralix* Wet Heath	M6c - *Carex echinata/Sphagnum recurve* Mire
	
H9b - *Calluna vulgaris/Deschampsia flexuosa* Heath	M18 – *Erica tetralix/ Sphagnum papillosum* raised & blanket mire