

BB2 WIND FARM LIMITED

Berry Burn Extension Wind Farm

Borrow Pit Water Environment Appraisal

December 2024



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1 INTRODUCTION

- 1.1.1 Wardell Armstrong LLP have been commissioned by BB2 Wind Farm Limited. (hereafter known as 'BB2') to prepare a water environment appraisal to support an application for planning permission for the following Proposed Development:-
 - 'Proposed 2 no. borrow pits within the consented but unbuilt Berry Burn Extension Wind Farm'.
- 1.1.2 The purpose of the Proposed Development is to extract hard rock from two borrow pits to facilitate construction of the Berry Burn Extension Wind Farm. The two borrow pit areas are referred to collectively as 'the Site.' The Site is shown on Drawing ED13835/002 Borrow Pit Site Location Plan.

1.2 Background

- 1.2.1 Section 36 consent and deemed planning permission for the Berry Burn Extension Wind Farm was granted on 08 December 2021 (reference: 20/01026/S36). The permission included for two borrow pit search areas known as Borrow Pit 1 (hereafter refer to as BP1), and Borrow Pit 2. A Ground Investigation (GI) was undertaken by The Natural Power Consultants Limited in October to December 2023 to provide information on the type and quality of borrow pit material and the depth of peat and overburden available within the footprint of these two consented borrow pits.
- 1.2.2 The results of the GI indicated at Borrow Pit 2 did not have sufficient viable material for use as a borrow pit. In order to source the track and compound aggregate for wind farm construction works from an onsite source, it was decided to extend the area of BP1 and to create a new borrow pit (Borrow Pit 2a, hereafter refer to as BP2a). Drawing ED13835/002 Combined BP PoAN Redline Boundary and ED13835/003 Wider Location Plan show the locations of BP1 and BP2a, as well as the wider boundary of the Berry Burn Extension Wind Farm.

2 PROPOSED DEVELOPMENT

2.1 Description of the Site

2.1.1 The Site lies within Moray Council's boundary, approximately 12 kilometres (km) south of Forres on the Altyre Estate and covers two areas with a combined area of approximately 14 hectares (ha). The Site currently comprises open moorland and at the BP1 area, the restored former borrow pit previously used in connection with the operational Berry Burn Wind Farm.



2.1.2 The Proposed Development will consist of two borrow pits, BP1 is at National Grid Reference (NGR) NJ 07515 45162 and BP2a is located at NGR NJ 09907 44842.

2.2 Description of the Proposed Development

- 2.2.1 Drawing ED13835/009 Indicative Borrow Pit 1 Design shows the design of BP1. BP1 would be worked in two benches; the lower extraction area would generate approximate 122,000m³ of aggregate while the upper extraction area would generate approximate 117,800m³ of aggregate. The lower extraction area would be worked to approximately 354 meters Above Ordnance Datum (mAOD) and the upper extraction area worked to approximately 380mAOD. The depth of the working for both benches is up to around 25 meters below ground level (mBGL).
- 2.2.2 Drawing ED13835/010 Indicative Borrow Pit 2a Design shows the design of BP2a. BP2a would be worked in one bench and would generate approximate 44,000m³ of aggregate. BP2a would be worked to approximately 356mAOD resulting in up to approximate 25m of mineral extraction.
- 2.2.3 In addition to the mineral extraction at both BP1 and BP2a, there would be areas for peat and overburden storage and a network of surface water drainage channels designed to collect and direct runoff and water occurring within the borrow pit excavations to the discharge point. Drainage from within the borrow pit areas would be directed to a catch pit / outfall. Sediment management measures would be used within the drainage channels including but not limited to strawbales, silt fencing and rock filter dams. At the base of steeper bench faces there would be rock traps and edge protection bunds. Both borrow pits will be restored using overburden and peat to create a restoration profile, which will replicate undulating, natural-looking ground contours as closely as possible.

3 LEGISLATION AND POLICY

3.1.1 The assessment has taken into account the requirements of the Water Environment and Water Services (Scotland) Act 2003 (the 'WEWS Act'),¹ which transposed the Water Framework Directive (WFD) (2000/60/EC)² and related European Union (EU)

Scottish Government (2003) Water Environment and Water Services (Scotland) Act 2003 [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/asp/2003/3/contents

European Union (2000), Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/eudr/2000/60/contents



Directives into Scots law and remains relevant following the UK's decision to leave the EU.

- 3.1.2 The WEWS Act aims to protect the water environment. Protection of the water environment relates to prevention of further deterioration and enhancing the status of aquatic ecosystems, promoting sustainable water use, reduction in pollution of groundwater, and contributing to mitigating the effects of floods and drought. The WEWS Act also established river basin management planning. Under river basin management plans, key water bodies in each catchment are monitored and their baseline status recorded. These water bodies are also assigned target status and the progress to meeting these target statuses is reviewed. The WEWS Act along with CAR and related legislation, implemented the requirements of the WFD, the Groundwater Directive and the Priority Substances Directive in Scots law.
- 3.1.3 The WEWS Act is supported by the Water Environment (Controlled Activities) (Scotland) Regulations 2011³. The Water Environment (Controlled Activities) (Scotland) Regulations 2011, commonly known as Controlled Activities Regulations (CAR) requires activities that may affect the water environment to the authorised by SEPA. This includes discharges, disposal to land, abstractions, impoundments and engineering works.
- 3.1.4 The controlled activities are defined within the WEWS Act and are modified by CAR.

 Those activities relevant to this assessment are:
 - engineering activities in the vicinity of rivers, lochs and wetlands that are likely to have a significant adverse effect upon the water environment;
 - activities liable to cause pollution; and
 - any other activities that directly or indirectly are liable to cause a significant adverse effect upon the water environment.
- 3.1.5 National Planning Framework 4 (2023)⁴ also recognises the importance of the water environment within Policy 22 'Flood Risk and Water Management'. The intent of Policy 22 is "to strengthen resilience to flood risk by promoting avoidance as a first principle and reducing the vulnerability of existing and future development to flooding".

Scottish Government (2011) The Water Environment (Controlled Activities) (Scotland) Regulations 2011 [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/ssi/2011/209/contents

Scottish Government (2023) National Planning Framework 4 [online]. Accessed October 2024. Available at: https://www.gov.scot/publications/national-planning-framework-4/



- 3.1.6 In addition to the above, the following were also considered:
 - The Water Framework Direction (2000/60/EC)²;
 - The Groundwater Daughter Directive (2006/118/EC);⁵
 - The Priority Substances Directive (2008/105/EC);³
 - The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013;⁶
 - The Private Water Supplies (Scotland) Regulations 2006;¹⁰
 - Flood Risk Management (Scotland) Act 2009;⁷ and
 - Moray Local Development Plan 2020.8

The Water Framework Directive (2000/60/EC)

3.1.7 The WFD as implemented by the WEWS Act and CAR required The United Kingdom to aim to reach good chemical and ecological status (often referred to as 'good WFD status') in inland and coastal waters. The WFD was designed to enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands, to promote sustainable water use, to reduce pollution of water and to ensure progressive reduction of groundwater pollution. The WFD established a strategic framework for managing the water environment and requires a management plan for each river basin to be developed every six years. In Scotland, alongside the Scottish Ministers, the competent authority for securing compliance with the WFD requirements as implemented by WEWS Act and CAR is the Scottish Environment Protection Agency (SEPA).

The Groundwater Daughter Directive (2006/118/EC)

3.1.8 The Groundwater Daughter Directive⁵ as implemented by the WEWS Act and CAR specified measures to prevent and control groundwater pollution such as providing criteria for the assessment of good groundwater chemical status, for the identification and reversal of significant and sustained upward trends and for defining a baseline status.

⁵ European Union (2006) Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/eudr/2006/118/contents

Scottish Government (2013) The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013 [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/ssi/2013/29/made

Scottish Government (2009) Flood Risk Management (Scotland) Act 2009 [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/asp/2009/6/contents

Moray Council (2020) Moray Local Development Plan 2020 [online]. Accessed November 2024. Available at: http://www.moray.gov.uk/moray.standard/page 133431.html



The Priority Substances Directive (2008/105/EC)

3.1.9 The Priority Substances Directive,⁹ as implemented by the WEWS Act and CAR, identified priority substances, set Environmental Quality Standards (EQSs) for the concentrations of the priority substances in surface waterbodies and includes a requirement for periodic review of the list of priority substances.

The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013

3.1.10 The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013 (WEDWPA Order 2013)⁶ identified waterbodies used for the abstraction of drinking water as required by section 6(1) of the WEWS Act. By doing so it identified Drinking Water Protection Areas (DWPAs), which include surface water and groundwater bodies.

Private Water Supplies (Scotland) Regulations 2006

3.1.11 The Private Water Supplies (Scotland) Regulations 2006¹⁰ identified private water supplies used for human consumption. Section 6 (1) of the Private Water Supplies (Scotland) Regulations 2006 state that a monitoring local authority shall classify all private water supplies used or to be used in its areas, estimating the volume of water provided by that supply in relation to the current year rather than by reference to the year prior to it. The requirements of section 7(2) state that water does not contain any micro-organisms or parasites or any substances at a concentration or value which would constitute a potential danger to human health.

Flood Risk Management (Scotland) Act 2009

3.1.12 The Flood Risk Management (Scotland) Act 2009 (FRM Act 2009)⁷. The FRM Act 2009 includes measures for a framework for co-ordination and co-operation between organisations involved in flood management and details additional responsibilities for SEPA, Scottish Water and local authorities in relation to flood management. The FRM Act 2009 also required SEPA to provide an assessment of flood risk and measures to assist in the preparation of flood risk management plans.

European Union (2008) Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council [online]. Accessed October 2024. Available at: https://www.legislation.gov.uk/eudr/2008/105/contents

Scottish Government (2006). Private Water Supplies (Scotland) Regulations 2006. [online]. Accessed November 2024. Available at: https://www.legislation.gov.uk/ssi/2006/209/contents/made



Moray Council Local Development Plan 2020

- 3.1.13 The Moray Council Local Development Plan¹¹ (MLDP) was adopted in July 2020. The following policies set out in the MLDP are related to the water environment:
 - Policy DP1 'Development Principles', the development must be integrated into the surrounding landscape which will include safeguarding existing water features by avoiding channel modification and culverting. Acceptable water and drainage provision must be made, including the use of SuDS for dealing with surface water including temporary/construction phase. New developments should not be located in areas at flood risk or increase vulnerability to flooding. Proposals must avoid major hazard sites and address any potential risk of pollution including groundwater contamination in accordance with recognised pollution prevention and control measures. Proposals must protect and wherever practicable enhance water features through for example naturalisation of watercourses.
 - EP12 'Management and Enhancement of the Water Environment', new development will not be supported if it would be at significant risk of flooding from any source or would materially increase the possibility of flooding elsewhere. Surface water from development must be dealt with in a sustainable manner that has a neutral effect on flooding, or which reduces the risk of flooding. All sites must be drained by a SuDS designed in line with current CIRIA guidance. Specific arrangements must be made to avoid the issue of permanent SuDS features becoming silted-up with run off. Proposals, including associated construction works, must be designed to avoid adverse impacts upon the water environment including Groundwater Dependant Terrestrial Ecosystems (GWDTEs) and should seek opportunities for restoration and/or enhancement. The Council will only approve proposals impacting on water features where the applicant provides a report to the satisfaction of the Council that demonstrates that any impact (including cumulative) on water quality, water quantity, physical form (morphology), river hydrology, sediment transport and erosion, coastal processes (where relevant) nature conservation (including protected species), fisheries, recreational, landscape, amenity and economic and social impact can be adequately mitigated. A buffer strip of at least 6 metres between any new

¹¹ Moray Council (2020) Moray Local Development Plan 2020 [online]. Accessed November 2024. Available at: http://www.moray.gov.uk/moray_standard/page_133431.html



development and all water features is required and should be proportional to the bank width and functional river corridor.

• EP14 – 'Pollution, Contamination and Hazards', development proposals which may cause significant water pollution or exacerbate existing issues must be accompanied by a detailed assessment report on the levels, character and transmission of the potential pollution with measures to mitigate impacts.

4 APPRAISAL METHODOLOGY

4.1 Appraisal Method

- 4.1.1 The desk-based study examined the wider surface water catchments that the Site is within, the local hydrology of the Site and the groundwater underlying the Site.
- 4.1.2 The aims of the appraisal are to:
 - establish the water environment baseline condition;
 - prepare a Conceptual Site Hydrogeological Model (CSHM);
 - identify water environment sensitive receptors;
 - identify potential likely impacts as a result of the Proposed Development and arrive at a conclusion about the likely effect of this;
 - discuss embedded design mitigation and good industry practice that would be implemented during operation and restoration of the Proposed Development;
 - determine the scale of any potential effects, assuming design mitigation and good industry practise, by assessing the degree of sensitivity of the water environment receptors and the potential magnitude of change from the baseline condition; and
 - identify any residual effects and if required, provide specific mitigation measures.

4.2 Data Sources

- 4.2.1 The following sources of information were used to determine the effect of the Proposed Development on the water environment:
 - BGS geology (1:50,000 scale) and hydrogeology (1:625,000) mapping available from GeoIndex (Onshore) website;
 - BGS Groundwater Vulnerability (Scotland) map, version 2;
 - Ordnance Survey 1:25,000 scale map;
 - SEPA's flood maps;



- data requested from SEPA and Moray Council (MC) including information on Private Water Supplies (PrWS) and abstractions and discharges;
- SEPA Land Use Guidance Notes 4 (Planning guidance on on-shore windfarm developments) and 31 (Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems);
- The Natural Power Consultants Limited (March 2024) Interpretive Ground Investigation Report (version B, reference 1343527); and
- SEPA's River Basin Management Plans.

4.3 Consultation

4.3.1 Table 4.1 provides a summary of the consultation activities undertaken in support of the preparation of the water environment appraisal. Copies of relevant correspondence are provided in Appendix 1.

	Table 4.1 Summary of Consultation Undertaken to Date							
Organisation	Form of Consultation	Summary of Outcome						
Moray Council	Request for information on PrWS was submitted on 26 September 2024	A response regarding updated information and data has been received by email on 22 October 2024, see Appendix 1.						
SEPA	Request for information on CAR licenses (abstractions and discharges) submitted on 26 September 2024	Responses with updated data were received by email 23 October 2024, see Appendix 1.						

4.4 Effect Appraisal Methodology

4.4.1 The sensitivity of receptors to hydrological and hydrogeological impacts has been determined by reference to Table 4.2, which documents a hierarchy of factors relating to the water environment. Examples of the environmental criteria contained within Table 4.2 include international and national designations; the status of watercourses and waterbodies; and work undertaken by SEPA, along with the professional judgment of the assessment team. When a receptor meets multiple criteria or there is an absence of verified published data, the highest applicable sensitivity category is assigned to allow an assessment of the worst-case scenario.

Table 4.2 Criteria for Determining Receptor Sensitivity								
Sensitivity	Criteria	Typical Examples						
	Receptor has a high quality and	Abstractions						
\/a.m ; - -	rarity on a national or regional	Abstractions for public water supply.						
Very High	scale and limited potential for							
	substitution. Receptor is highly							



	Table 4.2 Criteria for Det	ermining Receptor Sensitivity
Sensitivity	Criteria	Typical Examples
	vulnerable to impacts that may arise from the project and recoverability is long-term or not possible.	
High	Receptor has a high quality and rarity on a local scale and limited potential for substitution. Receptor is generally vulnerable to impacts that may arise from the project and recoverability is slow and/or costly.	Groundwater Highly productive aquifer (according BGS). Groundwater providing a regionally important resource or supporting a site protected under EU and UK habitat legislation (e.g. water dependent ecological receptors (GWDTE)). Surface Water Protected under EU or UK habitat legislation (e.g. Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Ramsar Site). Designated Salmonid / Cyprinid Waters and/or fishery present. Surface water providing a regionally important resource or supporting a site protected under EU and UK habitat legislation (e.g. water dependent ecological receptors). Abstractions Abstractions for non-potable use >10m³/day (e.g. industry / process water, spray irrigation, river augmentation). Abstractions for private water supplies. Hydro-ecological Receptors Nationally and internationally designated sites where hydrology/hydrogeology is a key factor in designation (e.g. Ramsar / SSSI / SAC / Special Protection Areas (SPA) sites).
Medium	Receptor has a medium quality and rarity, local scale and limited potential for substitution/replacement or receptor with a low quality and rarity, regional or national scale and limited potential for substitution. Receptor is somewhat vulnerable to impacts that may arise from the project and/or has moderate to high recoverability.	Groundwater
Low	Receptor with a low quality and rarity, local scale and limited potential for substitution. Receptor is not generally vulnerable to impacts that may	Groundwater Low productivity aquifers (according to the BGS). Aquifers supporting potentially water dependent ecosystems e.g. Local Wildlife Sites (LWS)/ wetland. Surface Water Watercourse with no designated features.



	Table 4.2 Criteria for Det	ermining Receptor Sensitivity
Sensitivity	Criteria	Typical Examples
	arise from the project and/or has high recoverability.	Non-sensitive water resources (non WFD classified e.g. small lakes, ponds). Man-made feature not in hydraulic continuity (e.g. canal). Abstractions Abstractions for industrial use (e.g. dust suppression / washing machinery). Hydro-ecological Receptors Non-statutory designated sites where hydrology / hydrogeology is a key factor in designation (e.g. Sites of Importance for Nature Conservation (SINC), LWS).
Negligible	Attribute has a very low environmental importance and/or rarity on local scale. Receptor is of negligible value, not vulnerable to impacts that may arise from the project and/or has high recoverability.	Surface Water Man-made feature with no ecological importance (e.g. land drains).

Note

Professional judgement based on the baseline condition of the receptor should be used to determine a receptor's sensitivity.

Magnitude of Change

4.4.2 Table 4.3 describes the guidance criteria used to assess the magnitude of change from the baseline condition that may occur due to the Proposed Development.

Table 4.3	Guideline Criteria to Determine Magnitude of Change
Magnitude of Change from Baseline Condition	Guideline Criteria
High	Total loss of, or alteration to, the baseline resource such that post-development characteristics or quality would be fundamentally and irreversibly changed.
Medium	Loss of, or alteration to, the baseline resource such that post-development characteristics or quality would be partially changed.
Low	Small changes to the baseline resource, which are detectable, but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions.
Negligible	A very slight change to the baseline conditions, which is barely distinguishable, and approximates to the 'no change' situation.

Scale of Effect

4.4.3 The scale or level of effects is determined in relation to the sensitivity of the receptor and the potential magnitude of change from baseline conditions, using the matrix shown in Table 4.4. Effects that have been determined to be major or moderate are considered to require additional mitigation to address them. Effects that are identified as minor or negligible are not considered to require further mitigation.



	Table 4.4 Matrix of Determining Scale of Effect									
		Receptor Sensitivity								
		Very High	High	Medium	Low	Negligible				
Magnitude	High	Major	Major	Moderate	Moderate	Minor				
of Change	Medium	Major	Moderate	Moderate	Minor	Minor				
from	Low	Moderate	Minor	Minor	Negligible	Negligible				
Baseline Condition	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible				

4.5 Assumption and Limitations

4.5.1 There are no substantial limitations or assumptions that have affected the development of the baseline and subsequently the assessment of this report.

5 BASELINE CONDITIONS

5.1 Rainfall

5.1.1 Average rainfall data has been obtained from the nearest Meteorological Office Climate Station to the Site at Kinloss, 12 which is approximately 18km north of the Site at NGR NJ 06956 63237 for the standard period 1991 – 2020. Table 5.1 presents the monthly and annual average rainfall for the Kinloss Meteorological Office Climate Station, the north of Scotland and the UK. The Site is on average drier than the North of Scotland and UK. All rainfall averages show a distinct dry period between March and May, whilst the Site sees its wettest period between August to October which contrasts the North of Scotland and UK as their wet period is between November to January.

Table	5.1 Annual Average Precipi	tation for Standard Period	1991 – 2020	
Month	Kinloss Average Rainfall	North of Scotland	UK Average Rainfall	
WIOIILII	(mm)	Average Rainfall (mm)	(mm)	
January	49.83	200.57	121.48	
February	42.96	159.66	96.15	
March	39.06	140.68	85.07	
April	41.78	101.90	71.71	
May	50.54	95.89	70.96	
June	59.44	92.77	77.19	
July	61.71	101.28	82.46	
August	66.88	122.41	93.75	
September	66.13	136.83	90.90	
October	72.30	180.28	122.52	
November	56.54	176.76	123.34	
December	55.51	192.35	127.16	
Annual Average	662.68	1701.37	1162.70	

¹² Met Office (2024) UK Climate Averages: Kinloss (Moray) [online]. Accessed October 2024. Available at: https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gfjryyz20



5.2 Surface Water Features and Surface Water Quality

- 5.2.1 Drawing ED13835/004 Surface Water Catchments shows the location of the two borrow pits in regard to surface water catchments and Table 5.2 shows the percentage of the borrow pit area within each catchment.
- 5.2.2 BP1 lies within the River Findhorn catchment and the Berry Burn sub-catchment. Within the Berry Burn sub-catchment, BP1 lies on the watershed between two sub-sub-catchments: Reenlarig Burn and Berry Burn. The Reenlarig Burn lies adjacent to the north border of BP1, whilst the Berry Burn (also known as Burn of Calfnashalvack) is approximately 0.4km southeast of BP1. The Berry Burn (known as the Dorback Burn / River Divie) is monitored by SEPA under the WFD and in 2022 was classified as having an overall good WFD status.¹³
- 5.2.3 BP2a lies within the River Lossie catchment and is entirely within the Headwaters of the River Lossie sub-catchment. The River Lossie lies 0.02km to the south of BP2a and is monitored by SEPA under the WFD and in 2022 was classified as having an overall good WFD status.¹³

Table 5.2 Catchment and Sub-Catchments of Borrow Pit Areas								
Borrow Pit	Percentage Area within Main Catchment	Percentage Area within Sub- Catchment	Percentage Area within Sub – Sub- Catchment					
BP1	100% River Findhorn	100% Berry Burn	39.5% Reenlarig Burn					
DLI	100% Kiver Findhoffi	100% berry burn	60.5% Berry Burn					
BP2a	100% River Lossie	100% Headwaters of	No Sub – Sub-					
DrZd	100% KIVEL FOSSIE	River Lossie	Catchment					

- 5.2.4 There are a number of lochs and lochans within the 2km of the borrow pits, the most notable are:
 - Lochanan a'Ghiubhias within the Berry Burn sub-catchment of the River Findhorn catchment; and
 - Loch Trevie, Loch Noir the Lochs of Little Benshalag within the River Lossie catchment.
- 5.2.5 It is thought that these waterbodies as well as other unnamed lochans may be kettle hole lakes, formed by melting glacial ice.

¹³ Scottish Environment Protection Agency (2024) Water Environment [online]. Accessed October 2024. Available at: https://informatics.sepa.org.uk/RBMP3/



5.3 Geology

5.3.1 Table 5.3 provides a summary of the onsite borehole logs from the October to December 2023 Natural Power GI, see Appendix 2 for the logs.

Soils and Peat

5.3.2 According to the 1:250,000 National Soil Map of Scotland¹⁴ the soils found at both borrow pits comprise of Organic Soils soil association – dystrophic blanket peat. Peat depth surveys undertaken by WA in September 2018, October 2019 and November 2024 found that peat depth at BP1 ranged from 0.05m to 3.20m with an average depth of 0.53m. At BP2a peat depth ranged from 0.05m to 2.80m and had an average depth of 0.91m. Peat was not recorded at all surveyed locations.

Made Ground

5.3.3 The BGS¹⁵ do not record any 'Made Ground' within the BP2a area. However, Made Ground is present within BP1, in the form of existing access tracks and backfilled overburden from the previously worked borrow pit at this location associated with the operational Berry Burn Wind Farm.

Superficial Deposits

5.3.4 According to the BGS 1:50,000 scale map,¹⁵ as shown on Drawing ED13835/005 Superficial Geology and Borehole Locations, the Site and surrounding area is underlain by glacial deposits (Till (Diamicton) and Glaciofluvial Sheet Deposits) with areas of Peat and Alluvium. Numerous glacial morphological features have been recorded and are available from the by BRITICE project.¹⁶ BP1 features several meltwater channels, which transect the borrow pit from north to south and east to west. Furthermore, a subglacial lineation¹⁷ is present around 80m west of BP1. BP2a also features meltwater channels which cross through the Site from south east to north west. Additionally, moraines can be found to the east of the Site and around 115m west of the BP2.

Scotland's Environment (2024) Scotland's Soil Map [online]. Accessed October 2024. Available at: https://map.environment.gov.scot/Soil maps/?layer=1

¹⁵ British Geological Survey (2024) Geolndex Onshore [online]. Accessed October 2024. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html

¹⁶ University of Sheffield (2017) BRITICE. Accessed November 2024. Available at: https://www.sheffield.ac.uk/geography-planning/research/geography/projects/britice

[&]quot;A generic term for the range of longitudinal and transverse landforms produced at the base of a glacier or ice sheet as a result of active ice flow across a sediment base." Taken from University of Sheffield (2024) Subglacial bedforms. [online]. Accessed November 2024. Available at: https://www.sheffield.ac.uk/drumlins/bedforms



- 5.3.5 Based on BGS 1:50,000 scale mapping BP1 is largely underlain by Till deposits and a small area of peat in the east of the BP1. However, borehole logs for BP1-BH1, BP1-BH2 and BP1-BH3 record Peat or peaty topsoil (up to 1.00m thick) underlain by gravelly sand or gravel (up to 7.10m thick in BP1-BH3) rather than Diamicton (Table 5.3). The term Till has been used to refer to the glacial deposits.
- 5.3.6 Based on BGS 1:50,000 scale mapping BP2a is wholly underlain by Till deposits. However, according to the borehole log for BP3-BH1, Peat (0.75m thick) is underlain by gravelly sand (3.00m thick). No Till has been recorded at BHT06; Peat (2.50m thick) is directly underlain by weathered bedrock.

Bedrock Geology

- 5.3.7 According to the BGS 1:50,000 scale map¹⁵, as shown on Drawing ED13835/006 Bedrock Geology and Borehole Locations, BP1 and BP2a are both underlain by bedrock geology of the Nethybridge Psammite Formation Psammite, strata comprised of low grade metamorphic sedimentary rock. This is consistent with the borehole logs at each borrow pit, which are summarised in Table 5.3.
- 5.3.8 At BP1, Nethybridge Psammite Formation is found at depths of 2.20mBGL to 2.70mBGL in the west of the BP1 area at BP1-BH1 and BH2, and 7.50mBGL to the centre at BP1-BH3. A weathered Nethybridge Psammite Formation horizon (0.70m thick) is recorded at the base of the superficial deposits in the west of BP1 at BP1-BH2 at a depth of 2.20mBGL. Bands of Schist are found throughout the Nethybridge Psammite Formation.
- 5.3.9 BP2a borehole logs record Nethybridge Psammite Formation at depths of 3.70mBGL at BP3-BH1 and at 2.50mBGL at BHT06. A highly weathered horizon of the Nethybridge Psammite Formation is reported at BHT06 at a depth of 1.40mBGL with a thickness of 1.10m. Unlike BP1, the Nethybridge Psammite Formation present under BP2a does not feature any Schist bands but has the occasionally quartz veins parallel to formation.
- 5.3.10 There are no linear features reported on BGS linear features 1:50,000 scale map. 15



			1		T	I	1		nmary Of Borehol	e Lugs					
Borehole ID	NGR	Borehole Drill Date	Borehole Depth (mBGL)	Monitoring Well Installation Depth (mBGL)	Ground Level (mAOD)	Water Strike (mBGL)	Water Strike (mAOD)	Geology Where Water Encountered (mBGL)	Depth (mBGL)	Thickness (m)	Summary of Geological Sequence Geological Description	Geologic Uni			
				(((0.00 - 0.50	0.50	Soft brown PEAT	Peat			
									0.50 - 1.90	1.40	Medium dense brownish yellow gravelly SAND with cobbles	Till**			
									1.90 – 2.70	0.80	***	***			
	NJ 07367	24/10/2023 -		Slotted pipe		2.70 and	355.37	Grey Psammite	2.70 – 2.90	0.20	Grey PSAMMITE with very hard bands				
P1-BH1	45197	25/10/2023	15.40	from 3.0m to	358.07	rose to	and rose	with very hard	2.90 - 5.30	2.40	Very strong narrowly to medium banded light pink banded grey felspathic PSAMMITE	Nethybridg			
				12.0m*		2.40	to 355.67	bands	5.30 - 6.30	1.0	Medium strong very narrowly foliated dark grey banded grey SCHIST	Psammite			
									6.30 – 15.40	9.10	Strong light grey very narrowly to medium banded PSAMMITE with subordinate moderately weak very narrowly foliated SCHIST bands	Formation			
									0.00 - 1.00	1.00	Soft brown PEAT	Peat			
									1.00 - 2.20	1.20	Medium dense grey medium SAND with small gravels and cobbles	Till**			
									2.20 – 2.70	0.50	Grey weathered PSAMMITE				
									2.70 – 2.90	0.20	Grey weathered PSAMMITE with very hard bands	1			
P1-BH2	NJ 07377 45133	26/10/2023 - 27/10/2023	15.10	Slotted pipe from 3.0m to	362.88	2.60 and rose to	360.28 and rose	Grey weathered	2.90 – 4.40	1.50	Medium strong to strong very thinly banded light pink mottled grey felspathic PSAMMITE	Nethybridg			
		, ,		12.0m*		2.40	to 360.48	Psammite	4.40 - 8.10	3.70	Very strong very narrowly to narrowly foliated grey PSAMMITE with occasional light pink felspathic bands	Psammite Formation			
									8.10 – 15.10	7.00	Medium strong to strong very narrowly to narrowly foliated dark grey mottled pink PSAMMITE with occasional medium strong SCHIST bands				
						<u> </u>	I		0.00 - 0.40	0.40	Peaty TOPSOIL	Peat			
						No Groundwat			0.40 - 7.50	7.10	Sandy GRAVEL with cobbles and boulders	Till**			
P1-BH3	NJ 07535 45245	23/11/2023 - 24/11/2023	15.10	Slotted pipe from 2.0 to				er Strike	7.50 – 12.80	5.30	Strong narrowly foliated dark purplish grey to pinkish brown magmatic PSAMMITE	Nethybridg			
	132 13			15.10					12.80 – 15.10	2.30	Strong to very strong narrowly foliated dark purplish grey to pink magmatic PSAMMITE	Psammite Formation			
									0.00 - 0.70	0.70	PEAT	Peat			
			15 10						0.70 - 3.70	3.00	Light coloured gravelly SAND with cobbles	Till**			
		21 30/11/2023 -			272.47				3.70 – 4.65	0.95	Medium strong to strong purplish grey PSAMMITE				
P3-BH1	NJ 09921			Slotted pipe		N.	a Czawadwat	ou Chuileo	4.65 – 7.55	2.90	Strong narrowly foliated purplish grey PSAMMITE	N			
-3-RHT	44843	44843	44843	44843	05/12/2023	15.10	from 3.0 to 15.10	372.47	l N	o Groundwat	er Strike	7.55 – 8.50	0.95	Medium strong fragmented purplish grey PSAMMITE	Nethybrid Psammite
												8.50 - 9.85	1.35	Strong narrowly foliated light grey to purplish grey PSAMMITE	Formatio
				1					9.85 – 13.40	3.55	Medium strong to strong very narrowly foliated grey to purplish grey PSAMMITE	l			
									13.40 – 15.10	1.70	Strong very narrowly foliated grey to light grey PSAMMITE				
									0.00 - 1.40	1.40	Firm dark brown fibrous PEAT gradually becoming plastic / pseudofibrous with increasing depth	Peat			
									1.40 - 2.50	1.10	Highly weathered and destructured brownish grey PSAMMITE				
				Slotted pipe					2.50 – 4.00	2.50	Light brown gravelly fine to medium SAND. Gravel subangular fine to medium weak PSAMMITE.				
H-T06	NJ 09891	29/11/2023 -	12.55	3.0 to from	363.72	N	o Groundwat	er Strike	4.00 - 5.30	1.30	Weak very narrowly foliated purplish grey PSAMMITE	Nethybridg			
	44900	05/12/2023		11.0*					5.30 - 6.00	1.30	Extremely weak brownish grey weathered PSAMMITE	Psammite			
												6.00 - 6.90	0.90	Medium strong increasing downwards to strong very narrowly foliated greyish brown PSAMMITE	Formation
									6.90 – 12.55	5.65	Strong very narrowly foliated greyish to purplish brown PSAMMITE with occasional quartz veins and magmatic bands parallel to foliation				

Note

Psammite = Metamorphose sedimentary rock with a dominantly sandstone protolith.

mAOD = meters Above Ordnance Datum mBGL = metres below ground level

 $^{^*}$ Due to inconsistencies in the borehole logs, the monitoring well installation details have been inferred.

^{**} BGS 1:50,000 scale mapping records Till (Diamicton) although the borehole logs record granular glacial material (sand / gravel).

^{***} The borehole log stratum description is "Soft brown PEAT" but the legend indicates gravelly SAND.



5.4 Hydrogeology and Groundwater Quality

- 5.4.1 BGS hydrogeology 1:625,000 scale map¹⁵ shows that the Site is underlain by the Grampian Group (includes the Nethybridge Psammite Formation) which is a low productivity aquifer with small amounts of groundwater in near surface weathered zone and secondary fractures.
- 5.4.2 SEPA have confirmed that they do not hold information on groundwater quality or groundwater elevation data within 2km of NGR NJ 08848 44535. BP2a is located within a class 4a groundwater vulnerability area, 18 meaning that the groundwater is vulnerable to those pollutants not readily absorbed or transformed and may have low permeability soil; and less likely to have clay present in superficial deposits. BP1 is partially located on a class 4a and class 4b groundwater vulnerability area. Class 4b is defined as groundwater vulnerable to those pollutants not readily absorbed or transformed and is more likely to have clay present in superficial deposits.
- 5.4.3 As shown in Table 5.3, during drilling in November 2023, groundwater was encountered within the two of the three BP1 boreholes at between 2.6mBGL (BP1-BH2) and 2.7mBGL (BP1-BH1). In BP1-BH1, the water strike occurred at 2.70mBGL, the contact point between the Till and Nethybridge Psammite Formation and rose to 2.40mBGL. BP1-BH2 water strike was at the top of the weathered Nethybridge Psammite Formation layer at 2.60mBGL. No water strike was recorded at BP1-BH3.
- 5.4.4 No water strikes were recorded in BP3-BH1 and BH-T06 located at the BP2a location.
- 5.4.5 Table 5.4 and Appendix 2 present the groundwater level (dips) taken by Natural Power in November 2023 and January 2024.

	Table 5.4 Natural Power Groundwater Levels							
Borehole ID	Screened Strata	Water Level 28/11/2023 – 30/11/2023		Water Level 29/01/2024				
		mBGL	mAOD	mBGL	mAOD			
BP1-BH1	3 – 12mBGL (Nethybridge Psammite Formation)	1.62	356.45	12.84	345.23			
BP1-BH2	3 – 12mBGL (Nethybridge Psammite Formation)	1.10	361.78	7.45	355.43			
BP1-BH3	2 – 15.10mBGL (Nethybridge Psammite Formation)	ı	-	9.10	379.81			
BP3-BH1	3 – 15.10mBGL (Nethybridge Psammite Formation)	-	-	7.02	365.45			

British Geological Survey (2011) User Guide: Groundwater Vulnerability Scotland Version 2. Accessed November 2024. Available at: https://www2.bgs.ac.uk/nationalgeosciencedatacentre/citedData/catalogue/95759d72-eae9-4b2b-a9ee-589b00a505b2.html

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	Table 5.4 Natural Power Groundwater Levels								
Borehole ID	Screened Strata	Water Level 28/11/2023 - 30/11/2023 mBGL mAOD		Water Level 29/01/2024					
				mBGL	mAOD				
BH-T06	3 – 11mBGL (Nethybridge Psammite Formation)	-	-	3.03	360.69				

Note

Groundwater level data taken form The Natural Power Consultants Limited (March 2024) Berry Burn Wind Farm Extension Interpretive Ground Investigation Report, Table 7.1 Groundwater levels, page 17.

The date of individual dip has not been provided.

- 5.4.6 Groundwater levels in the Nethybridge Psammite Formation from November 2023 were between 1.10mBGL (361.78mAOD; BP1-BH2) and 1.62mBGL (356.45mAOD; BP1-BH1). For the January 2024 round, groundwater levels ranged between 3.03mBGL (360.69mAOD;BH-T06) and 12.84mBGL (345.23mAOD; BP1-BH1). The reduction in groundwater levels between November 2023 and January 2024 in BP1-BH1 and BP1-BH2 is thought to be due to regional above average rainfall in November 2023 and slightly below average rainfall at the end of January 2024. In summer and drier periods groundwater levels are expected to fall further below the January 2024 levels. At both borrow pits groundwater flow appears to follow topographic gradients towards large watercourses.
- 5.4.7 SEPA has delineated the groundwater beneath the borrow pits as being a part of the Strathnarim, Speyside and Cairngorm groundwater catchment. In 2022, the Strathnarim, Speyside and Cairngorm groundwater body was classified by SEPA under the WFD as having good overall status.¹³

5.5 Flood Risk

5.5.1 Although SEPA's indicative flood maps¹⁹ indicate that the southern area of BP2a features a high likelihood of fluvial water flooding, due to the local topography and elevated position of BP2a it is very unlikely that it would be affected by the fluvial flooding from the River Loosie. BP1 is at no risk to fluvial, surface water or tidal flooding.

⁻ Indicated no groundwater level available.

Scottish Environmental Protection Agency (2024) SEPA Flood Maps [online]. Accessed November 2024. Available at: <a href="https://scottishepa.maps.arcgis.com/apps/webappviewer/index.html?id=3098bbef089c4dd79e5344a0e1e7c91c&showlayers=FloodMapsBasic 2743;FloodMapsBasic 2743 0;FloodMapsBasic 2743 1;FloodMapsBasic 2743 2;FloodMapsBasic 2743 3;FloodMapsBasic 2743 4;FloodMapsBasic 2743 5;FloodMapsBasic 2743 6;FloodMapsBasic 2743 7;FloodMapsBasic 2743 8;FloodMapsBasic 2743 9;FloodMapsBasic 2743 10;FloodMapsBasic 2743 11



- 5.5.2 There are small areas at risk of surface water flooding within BP2a, but these are due to local depressions in the topography and are present near to the River Lossie.
- 5.5.3 With reference to groundwater, as shown in Appendix 2, Table 5.3 and Table 5.4, groundwater at BP1 can occur within 1.10 to 12.84m of the ground surface. Therefore, as the excavations for the borrow pit will occur below this depth groundwater is likely to be encountered. Likewise, groundwater level monitoring in January 2024 at BP2a encountered groundwater between 3.03 and 7.02m below the ground surface and is also likely to be encountered during excavation. The groundwater is likely to occur from shallow fractures and the upper weathered zone of the Nethybridge Psammite Formation, meaning there is likely to be a strong link between rainfall and groundwater elevations. Therefore, during winter and wetter periods groundwater may rise to the base of excavations and if encountered will require management to ensure it does not interfere with the mineral extraction works. Water management measurements have been designed into the borrow pits therefore groundwater is not expected to present a substantial risk to the Proposed Development.

5.6 Private Water Supplies

- 5.6.1 A request was made to MC on 26 September 2024 for information on PrWS in the vicinity of the borrow pits. A response was received on 24 October 2024. Within 2km of the borrow pits there are three PrWS that appeared on MC's register and are shown on Drawing ED13835/007 Abstractions and Discharges;
 - Rochuln, Dunphail (06/00290/SPRING)— a domestic groundwater supply from a spring (NGR NJ 07263 47150), thought to be associated with the Nethybridge Psammite Formation, which has an estimated abstraction volume of 0.4m³ per day. This PrWS is located approximately 1.8km northwest of BP1;
 - Berry Burn Wind Farm (13/00015/BOREHO) a commercial groundwater supply from a borehole (NJ 06206 45589), thought to be associated with the Nethybridge Psammite Formation, which has an estimated abstraction volume of 2m³ per day. This PrWS is located approximately 1.2km west from BP1; and
 - Berry Burn Wind Farm Substation (18/00010/RAINWA) a rainwater supply (NJ 06206 45589). This PrWS is located approximately 1.2km west from BP1.
- 5.6.2 There are no PrWS within 2km of BP2a.



5.7 Abstractions and Discharges

5.7.1 An information request was made to SEPA on 26 September 2024 regarding CAR licenses (abstractions and discharges), with the data received on 24 October 2024. Table 5.5 presents the CAR licence discharges within 2km of the borrow pits and their locations are shown on Drawing ED13835/007 Abstractions and Discharges. There are three CAR licences, all relating to discharges and to the operational Berry Burn Wind Farm (CAR/R/1110979, CAR/R/1110995, and CAR/R/1104909). CAR/R/1110995 lies within 250m of BP1. All three discharges relate to discharge of treated sewage (see Table 5.5 for details).

Table 5.5 Summary of CAR Licences within 2km of the Site								
Authorisation No.	Site	Authorisation Status Date	Activity	NGR	Distance to BP1			
CAR/R/1110995	Site Office ST(2) Berry Burn Wind Farm	17 April 2013	Sewage (Private) Primary - Discharge	NJ 07760 44790	0.2km south			
CAR/R/1104909	Berry Burn Substation, Moray, Berry Burn	2 August 2012	Sewage (Private) Primary - Discharge	NJ 05938 45347	1.4km west			
CAR/R/1110979	Site Office ST(1) Berry Burn Wind Farm	17 April 2013	Sewage (Private) Primary - Discharge	NJ 07960 43520	1.5km south			

5.7.2 None of the abstractions and discharges are located within 2km of BP2a.

5.8 Designations

5.8.1 The borrow pits are not located in Bathing Waters,²⁰ Shellfish Waters,²⁰ a Nitrate Vulnerable Zone²⁰ or a river or lake / loch Drinking Water Protection Areas (DrWPA).²⁰ The borrow pits are within a groundwater DrWPA.²⁰

Hydro-ecological designated areas

- 5.8.2 Hydro-ecological designated areas include internationally, nationally and locally designated ecological areas where hydrology or hydrogeology is a key factor in their designation. Designation areas include, but are not limited to, Ramsar sites, SPAs, SACs, SSSIs, NNRs, Sites of Nature Conservation Interest (SNCIs) and LNRs.
- 5.8.3 As shown on the MAGIC website,²¹ the borrow pits are not located within 2km of any statutory hydro-ecologically designated area.

²⁰ Scotland's Environment (2024) Scotland's Environment Map [online]. Accessed October 2024. Available at: https://map.environment.gov.scot/sewebmap/

MAGIC Partnership (2024) Magic Map [online]. Accessed October 2024. Available at: https://magic.defra.gov.uk/MagicMap.aspx



Groundwater Dependent Terrestrial Ecosystems (GWDTE)

5.8.4 Two National Vegetation Classification (NVC) communities were recorded by Avian Ecology in September 2024 during the NVC survey and which have the potential for groundwater dependency as defined by SEPA Land use Guidance Note 31.²² Figures 3a and 3b prepared by Avian Ecology submitted with the stand alone Ecological Impact Assessment show the locations of NVC communities. These drawings are also available at the end of this report.

5.8.5 These are:

- M6 Carex Echinata Sphagnum recurvum mire (SEPA: highly groundwater dependent) was recorded the southeast of BP1 and covering 10% of the eastern part of BP1. It was also located south of BP2a.
- M15 Scirpus Cespitosus Erica Tetralix wet heath (SEPA: moderate groundwater dependent) was recorded to the eastern border of BP1 and to the north of BP2a.
 It also covered western parts of BP2a.
- 5.8.6 As discussed above, the Nethybridge Psammite Formation bedrock is metamorphic and is considered a low productivity aquifer. The boreholes BP3-BH1 and BHT06 at BP2a did not encountering any groundwater strikes in either the superficial deposits or the bedrock. Groundwater at between 355 and 361mAOD was recorded at BP1 in boreholes BP1-BH1 and BP1-BH2. The groundwater strikes at BP1 were found within the top of weathered bedrock, and the groundwater was recorded within the Nethybridge Psammite Formation monitoring wells. It is unlikely that the bedrock aquifer is providing a groundwater connection / water supply to the NVC communities for them to be considered GWDTE. The groundwater levels are below the level of the peat / ground surface and therefore this does not suggest a hydraulic connection. Therefore, it is more likely that surface water via precipitation and throughflow is sufficient to support the habitats.

6 CONCEPTUAL SITE HYDROGEOLOGICAL MODEL

6.1.1 The Conceptual Site Hydrological Model (CSHM), as described below, shows the conceptual water movement pathways from precipitation and bedrock aquifers, through the peat, superficial deposits and groundwater flows in bedrock geology.

Scottish Environment Protection Agency (2017) Land Use Planning System SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Accessed October 2024. Available at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf



6.2 Sources

6.2.1 The baseline assessment did not identify any sources of contamination.

Baseline

- 6.2.2 Water sources comprise:
 - Precipitation (predominantly rain and snow melt);
 - Water stored in lochs and lochans;
 - Water in peat deposits acting as a pseudo-aquifer; and
 - Groundwater stored in Till and Nethybridge Psammite Formation.

Construction and Restoration Phases

- 6.2.3 Potential sources of contamination that may result from the Proposed Development include:
 - Oil, lubricants, fuel and other chemicals; and
 - Releases of sediment from peat overburden and bedrock disturbance.

6.3 Pathway

6.3.1 The following pathways describe how baseline water moves through the borrow pit areas:

Baseline

- Runoff (above surface flow) flows across the borrow pit areas from areas of high to low elevations in accordance with topography;
- Infiltration of precipitation into the peat acrotelm layer and subsequently into the peat catotelm layer;
- Throughflow in the peat and Till (where water is present within the Till).
 Throughflow in peat predominantly occurs within the acrotelm layer and typically flows downgradient towards watercourses. The water movement is dominated by either surface water or lateral flow within the acrotelm due to its high hydraulic conductivity. The catotelmic peat layer (layer typically below 10–40cm of fibrous acrotelm peat) has a low hydraulic conductivity; and
- Percolation into the weathered Nethybridge Psammite Formation bedrock, in particular where there are no Till deposits present. Groundwater flow through fractures in the upper weathered zone of the Nethybridge Psammite Formation bedrock.



Construction and Restoration Phases

- Disruption or removal of peat during construction could locally disrupt the peat acrotelm layer hydraulic connectivity in the immediate vicinity of the associated works. However, during the restoration phase hydraulic connection of the peat would be re-established, e.g. water flows within the peat would re-route around quarried material and would re-establish downslope hydraulic connections and flows to receptors;
- The removal of superficial deposits for borrow pits could result in a direct recharge to the Nethybridge Psammite Formation aquifer but may also decrease the time for any contaminant laden water to reach the bedrock aquifer;
- Nethybridge Psammite Formation groundwater levels at BP1 have been recorded between 345 and 380mAOD. The maximum depth of working at BP1 is to 354mAOD in the lower extraction area and 380mAOD in the upper extraction area. Therefore, there is likely to be groundwater ingress from the bedrock, however it is not expected to generate large quantities and would be managed to not interfere with the workings or created an onsite or offsite flood risk. Although it should be noted that the groundwater levels have been based on two rounds of monitoring during the winter period, which is more likely to represent seasonally high groundwater levels than the rest of the year.

No groundwater strikes were encountered in BP3-BH1 and BHT06 at BP2a. However, groundwater level dip data indicates that Nethybridge Psammite Formation groundwater levels at BP2a occur between 361mAOD and 365mAOD. The maximum depth of working at BP2a is to 356mAOD. Therefore, it is likely groundwater will be encountered during quarrying of bedrock at BP2a; and

 The removal of bedrock, Nethybridge Psammite Formation could result in direct recharge of the Nethybridge Psammite Formation Aquifer and decrease the time for any contaminant laden water to reach the aquifer. However, the recovery and replacement of removed overburden and peat will re-establish the natural hydraulic flow regime of the Site and act as a buffer for any potential contaminant laden water to reach the aquifer.

6.4 Evaluation of the Receptors

6.4.1 Table 6.1 summarises the potential receptors and the reasons for inclusion or exclusion from the detailed assessment.



	Table 6.1 Su	mmary of Recept	or and Sensitiv	ity
Receptors	Distance from the Proposed Development	Summary of receptor characteristics	Receptor sensitivity	Is this receptor Scoped into the assessment?
Berry Burn Catchment	BP1 lies within this catchment	Watercourse with designated features	Medium	Yes – The Proposed Development lies within this catchment
Reenlarig Burn Catchment	BP1 lies within this catchment	Watercourse with no designated features	Low	Yes – The Proposed Development lies within this catchment
Headwaters of River Lossie	BP2a lies within this catchment	Watercourse with designated features	Medium	Yes – The Proposed Development lies within this catchment
Water in Peat	Underlies both borrow pits	Pseudo- aquifer	Medium	Yes – Underlies the Proposed Development
Water Within Till	Underlies both borrow pits	Localised water	Low	Yes – Underlies the Proposed Development
Nethybridge Psammite Formation Bedrock Aquifer	Underlies both borrow pits	Low Productivity Aquifer	Low	Yes – Underlies the Proposed Development
Rochuln, Dunphail PrWS 06/00290/SPRING	1.8km from BP1 and over 2km from BP2a	Private Water Supply	High	No – PrWS is not located within 250m of the Proposed Development Footprint.
Berry Burn Wind Farm PrWS 13/00015/BOREHO	1.2km from BP1 and over 2km from BP2a	Private Water Supply	High	No – PrWS is not located within 250m of the Proposed Development Footprint.
Berry Burn Wind Farm Substation PrWS 18/00010/RAINWA	1.2km from BP1 and over 2km from BP2a	Private Water Supply	High	No – PrWS is not located within 250m of the Proposed Development Footprint.
Potential GWDTE Habitats	Underlies the Proposed Development	Rainwater Dependent	N/A	No – these habitats are not considered to be groundwater dependant.

7 POTENTIAL EFFECTS

7.1.1 Table 7.1 identifies the potential impacts that may arise from the components of the Proposed Development.



	Table 7.1 Summa	ry of Component Features and Potential Effects of the	e Proposed Development Relevant to th	e Water Environment	
Project Component	Activities	Receptors Affected	Potential effects	Comments/observations	
	Vegetation removal	Berry Burn Catchment		The total area of the borrow pits compared to the associated	
		Reenlarig Burn Catchment	Removal of vegetation reduces	catchments is low. Therefore, any	
		Headwaters of River Lossie Catchment	interception and evapotranspiration rates and increases runoff.	change to interception and evapotranspiration rates are unlikely	
		Water in Peat		to substantially alter the runoff within the catchments.	
		Berry Burn Catchment		The total amount of peat to be removed compared to the associated	
	Peat removal	Reenlarig Burn Catchment	Removal of peat may disrupt and/or disconnect the hydraulic connectivity	catchments is low. Therefore, the loss of peat from the catchments would	
		Headwaters of River Lossie Catchment	of the peatland in the surrounding area.	not substantially alter the overall lateral flow and hydraulic connectivity at the catchment scale.	
		Water in Peat			
Extraction for Borrow Pits	Stone extraction	Water Within Till	Removal of overburden and stone	The total extraction of aggregate is unlikely to substantially alter the	
		Nethybridge Psammite Formation Bedrock Aquifer	may cause changes to the groundwater recharge.	groundwater recharge of the low productive metaphoric bedrock aquifer.	
	Dewatering	Water Within Till	Dewatering can potentially alter the	Dewatering at BP1 is likely to be of low volume and only have small scale local changes to the natural flow regime of water.	
		Nethybridge Psammite Formation Bedrock Aquifer	natural flow regime of the area		
		Berry Burn Catchment		Good industry practice such as	
		Reenlarig Burn Catchment		pollution prevention measures detailed in Guidance for Pollution	
	Use of machinery	Headwaters of River Lossie Catchment	Pollution from spills or leakage of fuel		
		Water in Peat	and oil from use of machinery.	Prevention GPP1, GPP21 and GPP22	
		Water Within Till	and an individue of macrimery.	(see Table 8.1) would reduce the risk	
		Nethybridge Psammite Formation Bedrock Aquifer		and the overall impact if a spill or leakage were to occur.	
Restoration	Revegetation	Berry Burn Catchment	Re-vegetation may lead to pre-	No further comments.	
Restoration	nevegetation	Reenlarig Burn Catchment	development interception and	No further confinents.	



	Table 7.1 Summa	ry of Component Features and Potential Effects of the	e Proposed Development Relevant to th	e Water Environment		
Project Activities Component		Receptors Affected	Potential effects	Comments/observations		
		Headwaters of River Lossie Catchment	evapotranspiration rates and pre-			
		Water in Peat	development runoff conditions.			
		Berry Burn Catchment	Reinstatement of peat and			
		Reenlarig Burn Catchment	overburden would result in the re-			
		Headwaters of River Lossie Catchment	establishment of hydrological and			
	Backfilling	Water in Peat	hydrogeological flow pathways and	No further comments.		
		Water Within Till	regimes however exposure of bedrock			
		Nethybridge Psammite Formation Bedrock Aquifer	may lead to direct groundwater recharge.			
		Berry Burn Catchment		Good industry practice such as		
		Reenlarig Burn Catchment		pollution prevention measures		
	Use of	Headwaters of River Lossie Catchment	Pollution from spills or leakage of fuel	detailed in Guidance for Pollution		
	machinery	Water in Peat	and oil from use of machinery.	Prevention GPP1, GPP21 and GPP22		
		Water Within Till	and on from use of machinery.	(see Table 8.1) would reduce the risk		
		Nethybridge Psammite Formation Bedrock Aquifer		and the overall impact if a spill or leakage were to occur.		



8 MITIGATION MEASURES

- 8.1.1 The retention of vegetation cover where possible across the borrow pits will prevent erosion; maintain the existing pre-development greenfield runoff characteristics; control sediment potentially released from construction activities associated with the Proposed Development; and retain drainage routes and pathways for water movement.
- 8.1.2 The Proposed Development will be undertaken in accordance with the guidance and codes of best practice specified in Table 8.1 to limit the potential for disturbance or contamination of water resources.

Table 8.1 Good practice guides and guidance documents

GPP1 Understanding your environmental responsibilities - good environmental practices

GPP2 Above Ground Oil Storage Tanks

GPP4 Treatment and disposal of wastewater where there is no connection to the public foul sewer

GPP5 Works and Maintenance In or Near Water

GPP6 Working at Construction and Demolition Sites

GPP8 Safe Storage and Disposal of Used Oils

GPP13 Vehicle washing and cleaning

GPP21 Pollution Incident Response Planning

GPP22 Dealing with spills

GPP26 Safe storage - drums and intermediate bulk containers

SEPA WAT-SG-26 Good Practice Guide – Sediment Management

SEPA WAT-SG-29 Good Practice Guide – Construction Methods

SEPA WAT-PS-10-01 Assigning Groundwater Assessment Criteria for Pollutant Inputs²³

SEPA LUPS-GU4 SEPA Guidance Note 4: Planning Advice on Windfarm Developments

SEPA LUPS-GU31 SEPA Guidance Note 31: Guidance on Assessing the Impact of Windfarm Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems

Forestry Commission UK forestry standard (5^{th} edition): 'The governments' approach to sustainable forestry' 2023^{24}

Construction Industry Research and Information Association (CIRIA) C532 Control of Water Pollution from Construction Sites²⁵

CIRIA C750 Groundwater control - design and practice²⁶

CIRIA C753 SuDS manual²⁷

²³ Scottish Environment Protection Agency (2024) WAT-PS-10-01 Assigning Groundwater Assessment Criteria for Pollutant Inputs [online]. Accessed October 2024. Available at: https://www.sepa.org.uk/media/152662/wat_ps_10.pdf

Forestry Commission (2023) The UK Forestry Standard - The governments' approach to sustainable forestry (5th edition) [online]. Accessed October 2024. Available at: https://www.forestry.gov.scot/publications/1522-the-uk-forestry-standard-the-governments-approach-to-sustainable-forestry-5th-edition/viewdocument/1522

Construction Information Research and Information Association (2001) C532 Control of Water Pollution from Construction Sites [online]. Accused October 2024. Available at: https://www.ciria.org/CIRIA/CIRIA/Item Detail.aspx?iProductCode=C532

Construction Information Research and Information Association (2016) C750 Groundwater control - design and practice [online]. Accessed October 2024. Available at: https://www.ciria.org/ltemDetail?iProductCode=C750&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91

²⁷ Construction Information Research and Information Association (2015) CIRIA C753 The SuDS Manual [online]. Accessed October 2024. Available at: https://www.ciria.org/CIRIA/CIRIA/Item Detail.aspx?iProductCode=C753



Table 8.1 Good practice guides and guidance documents

CIRIA C811 Environmental good practice on site guide²⁸

- 8.1.3 A Construction Environmental Management Plan (CEMP) is required as a condition of the Berry Burn Extension Wind Farm permission Condition 14. The CEMP will shortly be submitted to the Council for approval pursuant to Condition 14 and will address construction of the wind farm as well as working of the two borrow pits forming the Proposed Development. The CEMP will incorporate the principles of good practice, legislation and guidance. With respect to protection of water resources, the CEMP will provide practical measures to avoid and minimise the effect of the Proposed Development on ground and surface waters, as well as providing emergency preparedness and corrective actions together with measures for monitoring, recording and disseminating of information.
- 8.1.4 The principles of water related components of the CEMP include the following, where possible:
 - The borrow pits have been designed to minimise disruption to the natural flow regime. Watercourses, drains etc, have been avoided as far as possible in the Proposed Development design;
 - A number of measures will be adopted to prevent and control the release of sediment. Surface water will be directed across vegetated zones or through mesh fencing, to capture sediment as appropriate. Alternatives, such as sediment traps or settlement lagoons, may also be considered if the quantity of sediment laden water is anticipated to be large. The CEMP specifies maintenance to ensure that sediment control measures, drains and potholes would be regularly inspected and cleared/infilled/repaired;
 - All fuel, oils and other polluting substances would be securely stored in suitably bunded containers on impermeable surfaces in accordance with GPP2 and GPP8 (Table 8.1). The total quantity and range of potential pollutants to be used onsite is anticipated to be small. Static machinery and plant would, where practicable, have integral drip trays of 110% of the capacity of the fuel tank. The use of biodegradable oils and lubricants will also be used, where practicable. All plant, vehicles and machinery will be inspected regularly for leaks. Refuelling would be undertaken in a designed refuelling area;

Construction Information Research and Information Association (2023) C811 Environmental good practice on site guide (5th edition) [online]. Accessed November 2024. Available at: https://www.thenbs.com/PublicationIndex/documents/details?Pub=CIRIA&DocId=340873



- Pollution incidents response plans have been prepared for incorporation into the CEMP and will identify the type and location of onsite resources (e.g., spill kits, absorbent materials, oil booms etc.) available for the control of accidental releases of pollution and other environmental incidents. These resources will be available to contractors at all times of operation;
- Groundwater and surface water drainage arrangements for construction elements
 will be in line with the principles of sustainable drainage systems (SuDS) by
 incorporating appropriate attenuation and treatment. This approach will be in line
 with the SuDS Manual (C753) published by CIRIA and the CAR Practical Guide
 (2024);
- Temporary cutoff drains will be installed to prevent surface water and shallow throughflow entering excavations. Treated water would be discharged downstream of the excavation and encouraged to infiltrate into the ground mimicking natural flow patterns;
- Runoff and any water pumped from excavations in proximity to sensitive habitats
 will be discharged near to the excavation thereby retaining natural flow patterns
 and utilising the natural treatment potential of existing vegetation and peat.
 Infiltration of flows will be encouraged (e.g., use of swales) and the concentration
 of flows at the discharge point(s) will be avoided to prevent scouring; and
- Excavations will be reinstated as soon as practicable once construction works are complete and will ensure that natural hydrological conditions are restored as far as possible.

9 EFFECT APPRAISAL

- 9.1.1 The implementation of good practice that is defined in the CEMP either avoids or minimises the potential effects set out in Table 7.1. As a result of the described mitigation, the magnitude of change from the baseline condition caused by the potential effects of working both borrow pits have been assessed as ranging from negligible (for changes relating to the hydrological and hydrogeological flow regime) to low (for those effects, which may cause pollution and a degradation in water quality). This is due to the implementation of measures such as borrow pit design, pollution incident response plans, and sediment runoff containment and treatment.
- 9.1.2 Table 9.1 details the findings of the appraisal, which assumes that the measures described above will be implemented. No effect has found to be greater than minor adverse.



Project Component	Activities	Potential effect	Nature and geographical significance of effect	Receptors	Sensitivity of receptor	Magnitude of change from baseline	Scale of effect
		Demoval of vegetation reduces intercention	Long-term, reversible, adverse and local	Berry Burn Catchment	Medium	Negligible	Negligible
	Vegetation removal	Removal of vegetation reduces interception and evapotranspiration rates and increases runoff.		Reenlarig Burn Catchment	Low	Negligible	Negligible
	vegetation removal			Headwaters of River Lossie Catchment	Medium	Negligible	Negligible
		Tullott.		Water in Peat	Medium	Negligible	Negligible
		Demonstration and the second s	Short-term, reversible, adverse and	Berry Burn Catchment	Medium	Negligible	Negligible
	Peat removal	Removal of peat may disrupt and/or disconnect the hydraulic connectivity of the		Reenlarig Burn Catchment	Low	Negligible	Negligible
	reat lellioval	peatland in the surrounding area.	local	Headwaters of River Lossie Catchment	Medium	Negligible	Negligible
		peatiand in the surrounding area.		Water in Peat	Medium	Negligible	Negligible
Excavations for	Stone extraction	Removal of overburden and stone may cause	Long-term, irreversible, adverse and	Water Within Till	Low	Negligible	Negligible
Borrow Pits	Stone extraction	changes to the groundwater recharge.	local	Nethybridge Psammite Formation Bedrock Aquifer	Low	Negligible	Negligible
	Dowatoring	Alternation of natural flow regime.	Short-term, reversible, adverse and	Water Within Till	Low	Negligible	Negligible
	Dewatering		local	Nethybridge Psammite Formation Bedrock Aquifer	Low	Negligible	Negligible
		Pollution from spills or leakage of fuel and oil from use of machinery.	Short-term, reversible, adverse and local	Berry Burn Catchment	Medium	Low	Minor
	Use of machinery			Reenlarig Burn Catchment	Low	Low	Negligible
				Headwaters of River Lossie Catchment	Medium	Low	Minor
				Water in Peat	Medium	Low	Minor
				Water Within Till	Low	Low	Negligible
				Nethybridge Psammite Formation Bedrock Aquifer	Low	Low	Negligible
	Revegetation		Long-term, irreversible, neutral and local	Berry Burn Catchment	Medium	Negligible	Negligible
		Re-vegetation may lead to pre-development		Reenlarig Burn Catchment	Low	Negligible	Negligible
		interception and evapotranspiration rates and pre-development runoff conditions.		Headwaters of River Lossie Catchment	Medium	Negligible	Negligible
				Water in Peat	Medium	Negligible	Negligible
		Reinstatement of peat and overburden would result in the re-establishment of hydrological and hydrogeological flow pathways and regimes however exposure of	Long-term, irreversible, neutral and local	Berry Burn Catchment	Medium	Negligible	Negligible
				Reenlarig Burn Catchment	Low	Negligible	Negligible
	Backfilling			Headwaters of River Lossie Catchment	Medium	Negligible	Negligible
Dootovation				Water in Peat	Medium	Negligible	Negligible
Restoration		bedrock may lead to direct groundwater		Water Within Till	Low	Negligible	Negligible
		recharge.		Nethybridge Psammite Formation Bedrock Aquifer	Low	Negligible	Negligible
				Berry Burn Catchment	Medium	Low	Minor
		Pollution from spills or leakage of fuel and oil	Short-term, reversible, adverse and local	Reenlarig Burn Catchment	Low	Low	Negligible
	lles of mrhim			Headwaters of River Lossie Catchment	Medium	Low	Minor
	Use of machinery	from use of machinery.		Water in Peat	Medium	Low	Minor
				Water Within Till	Low	Low	Negligible
				Nethybridge Psammite Formation Bedrock Aquifer	Low	Low	Negligible



10 ADDITIONAL MITIGATION

10.1.1 As demonstrated in Table 9.1, all effects are no more than minor adverse as a consequence of the Proposed Development. Therefore, no additional mitigation is required above measures already considered in the assessment, such as the Proposed Development design and good practice included in the CEMP.

11 RESIDUAL EFFECTS

11.1.1 As demonstrated in Table 9.1, all effects are no more than minor adverse as a consequence of the Proposed Development and there is no requirement for additional mitigation. Therefore, there are no residual effects.

12 SUMMARY

- 12.1.1 BP1 lies within the River Findhorn surface water catchment and BP2a lies within the River Lossie surface water catchment, which both have sub-catchments. No PrWS or abstractions are present within 250m of the BP1 and BP2a. Peat has been recorded at both borrow pit locations, which is undertaken by 'Till' deposits. Underlying the Till is metaphoric bedrock belonging to the Nethybridge Psammite Formation, which is a low productivity aquifer. Water strikes were encountered during the drilling of two of the three boreholes located at BP1 and Nethybridge Psammite Formation groundwater was recorded during the monitoring in November 2023 and January 2024. Groundwater at BP1 occurs between 345mAOD and 380mAOD. Nethybridge Psammite Formation groundwater levels at BP2a were recorded between 361mAOD and 365mAOD in January 2024. The base of the excavations at BP1 and BP2a are both below the recorded groundwater levels therefore groundwater is likely to be encountered during mineral extraction. The borrow pits have been designed to incorporate groundwater management measures to ensure that groundwater does not interfere with the Proposed Development.
- 12.1.2 The CSHM has demonstrated that the habitats across the borrow pits are likely to be supported by precipitation and peat rather than bedrock groundwater and therefore are not considered to be GWDTE.
- 12.1.3 Retention of the vegetation cover, where possible, across the borrow pit area would help to reduce erosion, maintain existing pre-development greenfield runoff characteristics, control sediment potentially released from the Proposed Development activities and retain drainage routes and pathways for water movement. Additionally, the borrow pit water management will include a network of surface



- water drains with sediment management measures. Any groundwater ingress into the excavation areas will be managed to not cause a risk of flooding onsite and offsite.
- 12.1.4 The key principles of the water related components of the CEMP for the Proposed Development include the careful design and control of sediment and potential pollutants. The CEMP draws upon good industry guidance and best practice measures. Mitigation measures, such as the avoidance of hydrologically sensitive areas, have been incorporated into the design of the Proposed Development. The assessment has assumed the implementation of good industry guidance and best practice measures, such as a pollution prevention plan (See Appendix 10 of the CEMP) and sediment management measures, would avoid the likelihood of potentially adverse effects occurring.
- 12.1.5 Potential effects on the water environment are those which may change the hydrological and hydrogeological flow regime, and those which may cause pollution and a degradation in water quality. This assessment has found that the potential effects of the Proposed Development to be no greater than minor adverse.



APPENDICES



Appendix 1 Consultee Correspondence

From:

Sent: 22 October 2024 13:45

To:

Subject: Fwd: Request for Information Under the Environmental Information (Scotland)

Regulations 2004)

Attachments: EIR Private Water Supply Berry Burn 101003646661.xls

Kind Regards



From: info@moray.gov.uk

Date: 22 October 2024 at 13:43:10 GMT+1

To:

Subject: Request for Information Under the Environmental Information (Scotland)

Regulations 2004)

CAUTION: This email originated from outside the organisation. Do not click links, scan QR codes or open attachments unless you recognise the sender and know the content is safe.

Reference: 101003646661

Dear

REQUEST FOR INFORMATION UNDER THE ENVIRONMENTAL INFORMATION (SCOTLAND) REGULATIONS 2004

Thank you for your information request concerning Private Water Supply - Berry Burn dated 2024-09-27. This is being dealt with under the Environmental Information (Scotland) Regulations 2004.

Please find the response to your information request below:

Please see the attached list of private water supplies in your search area. If you require further information on individual sources please contact our Private Water Supplies Team via email EHadmin@moray.gov.uk.

Reg 2 are supplies that are commercial (including private lets), or they supply more than 50 persons. Category B are non-commercial with less than 50 persons.

NOTE: The location data we hold for the private water supplies is not 100% accurate;

eastings and northings can be out, but we are currently working on improving these using GPS surveys. Unfortunately, I cannot provide a figure on the accuracy and some sources may just be located in the general area of the property served. Sources within an additional 'Plus1km' buffer are included in the list to cover this eventuality.

The spreadsheet may contain multiple records for the same source reference, this may be where either multiple source abstractions points are located or there are other private water supply infrastructure located e.g. storage tanks. The location Type indicates the type: A or A1 etc = Source, B or B1 etc = supply infrastructure, U or U1 etc = unused supply infrastructure. Sites marked with "Y" confirmed are for sites where we have visited site and obtained more accurate locations. The list does not include historic private water supplies. The data is provided based on the best information available to the council at the time of writing.

Further private water supply information can be obtained from the link below, along with access to our register of sources.

https://eur01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.moray.gov.uk%2Fmoray_standard%2Fpage_55031.html&data=05%7C02%7Crgraham%40wardell-armstrong.com%7Ce71174307e4948076e4708dcf29699a3%7C9d7ad7f82d2849bb838b7a3fed4d398d%7C0%7C0%7C638651977900555387%7CUnknown%7CTWFpbGZsb3d8eyJWljoiMC4wLjAwMDAiLCJQljoiV2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C%7C&sdata=22XYaWAS7qq%2BJS6dYfVEbMU5Rub8n3S58ie9Lfv3fUQ%3D&reserved=0

Disclaimer. Moray Council will not accept any liability for any costs incurred by the recipient or by any third parties arising from or as a result of any inaccuracies in the information provided by us in relation to the location of a particular Private Water Supply. Recipients are asked to note that the information provided will be taken from information provided by Private Water Supply Users, the accuracy or otherwise of which may not have been verified by the Council.

Please note, information regarding your question c) is not held. Information that is not held falls under Section 17 of the Freedom of Information (Scotland) Act 2002 - Information not held.

We trust this satisfies your information request. It is the Council's practice to publish all requests and responses on its website. If you have any queries about this email please write to the Records and Heritage Manager, Elgin Library, Cooper Park, Elgin, IV30 1HS or email info@moray.gov.uk quoting the reference number given above.

Please note that The Moray Council owns copyright in the material supplied in response to your enquiry unless otherwise stated. The supply of documents and information by the Council does not give the person or organisation who receives them the right to re-use the documents in a way which would infringe copyright under the Copyright, Designs and Patents Act 1988. Such material is not to be used commercially without permission from the copyright holder.

Should this information be reused for commercial purposes the information will be

subject to the Re-use of Public Sector Information Regulations 2015. Under these regulations the Council is entitled to charge a fee for the re-use of information.

If you are dissatisfied in any way with the manner in which the Council has dealt with your request for information, you are entitled to ask the Council to review its actions and decisions. If you would like a review of this decision please write to the Information Governance Manager and Data Protection Officer, Elgin Library, Cooper Park, Elgin, IV30 1HS, or email records@moray.gov.uk. A review panel will convene and has 20 days to consider and respond to your appeal. All appeal requests must be made in writing.

If you are still dissatisfied with the outcome of this review, then you may appeal within 6 months by writing to the Scottish Information Commissioner via their online appeal service at

https://eur01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.itspublicknowledge.info%2FAppeal&data=05%7C02%7Crgraham%40wardell-

armstrong.com%7Ce71174307e4948076e4708dcf29699a3%7C9d7ad7f82d2849bb838b7 a3fed4d398d%7C0%7C0%7C638651977900588148%7CUnknown%7CTWFpbGZsb3d8ey JWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCl6Mn0%3D%7C0%7C%7C%7C%sdata=osPNWZKctAuGmzRNb2SwG4NXlbZeYDtBleRLycgbLic%3D&reserved=0 or to Kinburn Castle, Doubledykes Road, St Andrews, Fife KY16 9DS.

Further information on the Environmental Information (Scotland) Regulations 2004 can be obtained by visiting

https://eur01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.moray.gov.uk%2F&data=05%7C02%7Crgraham%40wardell-

arm strong. com %7 Ce71174307e4948076e4708dcf29699a3%7 C9d7ad7f82d2849bb838b7a3fed4d398d%7 C0%7 C0%7 C638651977900612250%7 CUnknown%7 CTWFpbGZsb3d8ey JWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7 C0%7 C%7 C&sdata=arCP4QQ8gX%2F62aVXhB%2FcM6GMp9pxOidWdX8CGadT4Fo%3D&reserved=0.

Yours sincerely

Information Co-ordinator

The Moray Council info@moray.gov.uk

From: Access to Information Enquiries <foi@sepa.org.uk>

Sent: <u>26 September 2024 16:28</u>

To:

Subject: SEPA Access to Information Request – Acknowledgement of your request – F0197968

CAUTION: This email originated from outside the organisation. Do not click links, scan QR codes or open attachments unless you recognise the sender and know the content is safe.

OFFICIAL

Dear

REFERENCE NUMBER: F0197968

ACKNOWLEDGEMENT OF YOUR REQUEST FOR INFORMATION

We are writing to acknowledge receipt of your request which we received on **26/09/2024** and which requested the following information:

[..] National Grid Reference NJ 08848 44535 (eastings 308848, northings 844535), nearest postcode IV36 2QH.

Could you please provide me with digital copies of the following within **5km of (NGR) NJ 08848 44535 (eastings 308848, northings 844535):**

Details and locations of:

- 1. waste management facilities,
- 2. contaminative uses,
- 3. pollution controls/incidents,
- 4. hazardous substances:
- 5. Confirmation of published Flood Map for this area i.e. are there any known issues with the accuracy of the published flood map in this area
- 6. Details of any known Flood Defences on adjacent watercourses
- 7. Historic flood data for adjacent watercourses
- 8. Historic Flood Event Map for adjacent watercourses or any other available details
- 9. Surface water quality monitoring records

- 10. Groundwater quality monitoring records
- 11. Groundwater level monitoring records
- 12. Consented surface water and groundwater abstractions (private and public) (license holder, license number, coordinates, quantity abstracted, purpose of abstraction, and source of abstraction)
- 13. Consented surface water and groundwater discharges (private and public) (holder, license number, coordinates, receiving water, quantity of discharge per day)

Your unique reference number is F0197968

Please use your reference number in any future contact with us about your request.

We aim to respond to requests within 20 working days of the date your request was received, in this case by no later than **24/10/2024**

While you wait for your response

The following sites may have the information you require:

- SEPA website.
- Our <u>Public Register</u> web page.
- Our <u>Disclosure Log</u> which has information we've already published. You can search our
 Disclosure Log by entering a key search word in the Title box and clicking on the filter icon
- <u>Scotland's Environment website</u>. This website brings together environmental information and data in one place so that is easy to search, discover, analyse, and interpret.

If you have any queries in the meantime, please contact us.

Yours sincerely

Senior Admin Officer

Scottish Environment Protection Agency Buidheann Dìon Àrainneachd na h-Alba

- foi@sepa.org.uk
- Strathallan House I Castle Business Park I Stirling I FK9 4TZ
- Postal address: Angus Smith Building I Unit 6, 4 Parklands Avenue I Holytown I Motherwell I ML1 4WQ



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Working flexibly

I work flexibly (Wednesday to Friday).

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Dh'fhaodte gu bheil am fiosrachadh a gheibhear sa phost-d seo, còmhla ri ceanglachain sam bith na chois, dìomhair, agus thathar an dùil gun tèid a chleachdadh leothasan a-mhàin air an robhar ag amas. Chan eilear ag ùghdarrachadh gum faighear cothrom air an fhiosrachadh, no gun dèanar lethbhreac no ath-chleachdadh a dhèanamh dheth, le neach sam bith eile. Mur sibhse an neach ris an robhar ag amas, nach toir sibh fios thugainn sa bhad le post-d freagairte gu postmaster@sepa.org.uk. Oifis chlàraichte: Angus Smith Building, SEPA, Unit 6, 4 Parklands Avenue, Holytown, Motherwell, ML1 4WQ. Dh'fhaodte gun tèid conaltradh le SEPA a sgrùdadh no a chlàradh no a leigeil mu sgaoil gus obrachadh èifeachdach an t-siostaim a dhèanamh tèarainte agus airson adhbharan laghail.

OFFICIAL

From

Sent: Thursday, September 26, 2024 10:06 AM

To: Access to Information Enquiries <foi@sepa.org.uk>

Subject: Berry Burn foi Request

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

To Whom it may concern,

Wardell Armstrong are working on a project located at national grid reference Wardell Armstrong are currently working on a project at National Grid Reference NJ 08848 44535 (eastings 308848, northings 844535), nearest postcode IV36 2QH.

Could you please provide me with digital copies of the following within 5km of (NGR) NJ 08848 44535 (eastings 308848, northings 844535):

Details and locations of:

- waste management facilities,
- contaminative uses,
- pollution controls/incidents,
- hazardous substances;
- Confirmation of published Flood Map for this area i.e. are there any known issues with the accuracy of the published flood map in this area
- Details of any known Flood Defences on adjacent watercourses
- Historic flood data for adjacent watercourses
- Historic Flood Event Map for adjacent watercourses or any other available details
- Surface water quality monitoring records
- Groundwater quality monitoring records
- Groundwater level monitoring records
- Consented surface water and groundwater abstractions (private and public) (license holder, license number, coordinates, quantity abstracted, purpose of abstraction, and source of abstraction)
- Consented surface water and groundwater discharges (private and public) (holder, license number, coordinates, receiving water, quantity of discharge per day)

If all the data you have on record could be sent that would be great, if not, the last 5 years would be optimal.

Kind regards,















From: Access to Information Enquiries <foi@sepa.org.uk>

Sent: 23 October 2024 14:43

To:

Cc: Access to Information Enquiries

Subject: SEPA Access to Information Request – Response – F0197968

Attachments: CAR-R-1034215 - Registration_RR.pdf; CAR-R-1057242 - Registration_RR.pdf; CAR-

R-1062575 - Registration_RR.pdf; CAR-R-1098686 - Registration.pdf_RR.pdf; CAR-R-1104909 - Registration.pdf_RR.pdf; CAR-R-1109306 - Registration_RR.pdf; CAR-R-1110979 - Registration.pdf_RR.pdf; CAR-R-1110979 - Registration.pdf_RR.pdf; F0197968 Authorisations.xlsx; F0197968 Ecology data.xlsx; F0197968 EIR Response.pdf

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OFFICIAL

Dear

REQUEST FOR INFORMATION - RESPONSE

Please see the attached response to your request F0197968

Please quote your unique reference number in any future contact with us about your request.

Your rights

If you are not happy with our response you have the right to request a Formal Review from SEPA. You can ask for this at foi@sepa.org.uk. For the review to be valid, you must ask for it within 40 days from 23/10/2024 and tell us why you want us to review how we handled your request.

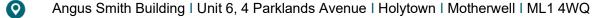
Guidance on your rights, and how to ask for a formal review, can be found on the Scottish Information Commissioner's website at the following link: www.itspublicknowledge.info/asking-for-a-review

Yours sincerely

Information Co-ordinator

Scottish Environment Protection Agency Buidheann Dìon Àrainneachd na h-Alba





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Dh'fhaodte gu bheil am fiosrachadh a gheibhear sa phost-d seo, còmhla ri ceanglachain sam bith na chois, dìomhair, agus thathar an dùil gun tèid a chleachdadh leothasan a-mhàin air an robhar ag amas. Chan eilear ag ùghdarrachadh gum faighear cothrom air an fhiosrachadh, no gun dèanar lethbhreac no ath-chleachdadh a dhèanamh dheth, le neach sam bith eile. Mur sibhse an neach ris an robhar ag amas, nach toir sibh fios thugainn sa bhad le post-d freagairte gu postmaster@sepa.org.uk. Oifis chlàraichte: Angus Smith Building, SEPA, Unit 6, 4 Parklands Avenue, Holytown, Motherwell, ML1 4WQ. Dh'fhaodte gun tèid conaltradh le SEPA a sgrùdadh no a chlàradh no a leigeil mu sgaoil gus obrachadh èifeachdach an t-siostaim a dhèanamh tèarainte agus airson adhbharan laghail.



Appendix 2 Extracts from The Natural Power Consultants Limited Interpretive Gound Investigation Report March 2024



Berry Burn Wind Farm Extension

Interpretive Ground Investigation Report



06 March 2024 1343527

Client Confidential
Statkraft UK Itd

Document history

Author	Marc Grenow, Geotechnical Engineer	29/01/2024
Checked	Adam Buchanan, Senior Geotechnical Engineer	30/01/2024
Approved	Allan Rutherford, Principal Geotechnical Engineer	30/01/2024

Client Details

Chris McMath Contact Client Name Statkraft UK Itd

Address 320 St. Vincent Street

19th Floor, 22 Bishopsgate, London EC2N 4BQ

Issue	Date	Revision Details
Α	19/01/2024	Interpretive report – First Issue
В	06/03/2024	Final report including additional laboratory results and groundwater monitoring data

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The Natural Power Consultants Limited

Reg No: SC177881 VAT No: GB 243 6926 48

Table 7.1: Groundwater levels

			28 to 30/11/2023	29/01/2024
Borehole ID	Date of Install	Base of Install (m)	Water le	evel mbgl
BH-T01	08/11/2023	15.00	9.56	9.45
BH-T02	16/11/2023	18.00	13.24	13.12
BH-T03	30/11/2023	10.00	-	6.35
BH-T04	22/11/2023	18.00	4.60	4.38
BH-T05	23/11/2023	15.00	10.49	12.45
BH-T06	05/12/2023	11.00	-	3.03
BH-T07	29/11/2023	15.00	14.85	Dry
BH-T08	21/11/2023	18.00	Dry	Dry
BH-T09	15/11/2023	18.00	Dry	17.88
BH-M1	30/10/2023	12.00	7.54	1.08
BH-SS	19/11/2023	10.20	9.43	1.91
BH1-BP1	25/10/2023	12.00	1.62	12.84
BH2-BP1	27/10/2023	12.00	1.10	7.45
BH3-BP1	27/11/2023	15.10	-	9.1
BH1-BP3	05/12/2023	15.10	-	7.02

Source: NPC

The groundwater monitoring standpipes have been left in place on site to allow the BoP contractor / designer to utilise these to carry out any additional monitoring they may require, to confirm the appropriate foundation design.

The BoP contractor should allow for grouting / decommissioning these installations prior to the main foundation excavation works.

In addition to the above monitoring data, daily water level observations were recorded on the borehole logs during drilling.

8. Laboratory Testing

Selected soil and rock samples were sent to a UKAS accredited laboratory MAT test Limited (UKAS testing laboratory No. 2643) for geotechnical testing. The following testing schedules were issued;

- 18212UKC Berry Burn WF SI Batch 01 241023
- 18212UKC Berry Burn WF SI Batch 02 031123
- 18212UKC Berry Burn WF SI Batch 03 211123
- 18212UKC Berry Burn WF SI Batch 04 041223
- 18212UKC Berry Burn WF SI Batch 05 061223
- 18212UKC Berry Burn WF SI Batch 06 181223

A suite of geotechnical testing was scheduled by Natural Power to aid strata descriptions and characterise geotechnical behaviour.

Sample test depths were chosen to allow all the strata at the site to be characterised throughout the ground profile.

The soil tests classify the soil characteristics and provide design parameters.

The rock tests classify rock strength and suitability for use as a rock aggregate.

B. Borehole Logs



Project Name: Berry Burn Wind Farm Extension Client: Statkraft Date: 29/11/2023 - 05/12/2023 Co-ords: E309892.07 N844899.71 Location: Moray, Scotland Contractor: Natural Power Proiect No.: 18212UKC Crew Name: DN.AH Drilling Equipment: Fraste PL3 Borehole Number Hole Type Level Vertical Scale Logged By Page Number BHT06 RC 363.72m AoD ВР 1:25 Sheet 1 of 3 Recovery (SPT) Coring Depth (m) / Depth Level Well Water Legend Stratum Description Min, Ave, Max (FI) Discontinuity Detail (m) (m) TCR SCR RQD Firm dark brown fibrous PEAT (H4/B3) -. عاد عاد عاد gradually becoming plastic / pseudofibrous with increasing depth (H7/B3). . عاد عاد عاد sile 0.00 - 1.00 75 0 0 عادد عاد sile ماد عاد ، عاد عاد عاد ، عاد، عاد، عاد ، عالا، عالا، عالا (2) N=2 (0,0/0,0,1,1) sile عادد عاد sile . عاد عاد . عاد عاد عاد 362.32 Highly weathered and destructured brownish grey PSAMMITE (Nethybridge 1.00 - 2.00 0 0 Psammite Formation).

1.40 to 2.00m - Comprises angular to subangular fine to coarse GRAVEL sized fragments of moderately weak to medium strong PSAMMITE and much matrix of orange-brown fine to medium (36) N=36 (5,4/5,8,8,15) 2.00 to 2.50m - Comprises pinkish and greyish brown very gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse of extremely weak to weak weathered PSAMMITE. 0 92 0 2.00 - 2.50 2.50 361.22 Sample from SPT (3.00-3.18m) comprises light brown gravelly fine to medium SAND. Gravel subangular fine to medium weak PSAMMITE. Driller describes "brown/grey weathered psammite". Open-holed (no recovery). 3.00 50 (25 for 85mm/50 for 95mm) 3 4.00 359.72 Weak very narrowly foliated purplish grey Non-intact PSAMMITE (Nethybridge Psammite Formation). Non-intact and destructured due to weathering, recovered as angular gravel-sized material with orange and dark brown staining to fracture surfaces. Traces of fine to medium sand infill. 100 4.00 - 5.20 6 0 4.80 to 5.20m - Slight increase in strength to moderately weak. 5 Type/FSp TCR SCR RQD R/(SPT) Casing Diameter Shift Details Inclination and Orientation Drilling Flush Hole Diameter Depth Base Diameter Depth Base Diameter BH Depth epth Water Depth Top Depth Base Inclination Orientation Depth Top Depth Base Min (%) Max (%) Date Time Colour 05/11/2023 17:00:00 29/11/2023 17:00:00 30/11/2023 09:00:00 30/11/2023 17:00:00 4 00 168 12 55 0.00 12.55 90 Dry Dry 2.1 4 2.00 9.55 05/12/2023 09:00:00

Remarks:

Dynamic sampling 0.00m to 2.50m. Open-holed and cased to 4.00m. Rotary cored 4.00m to 12.55m. No groundwater strikes recorded.





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	n: Moray, S							or: Natural Power				Co-ords: E309892.07 N8448		
	No. : 1821					С	rew Nar	me: DN.AH				Orilling Equipment: Fraste PL	1	
В	orehole Nu BHT06		Ho	le Type RC	•		36	Level 63.72m AoD	1	ged By BP		Vertical Scale 1:25	Page Numbe Sheet 2 of 3	
Vell	Water	Depth (m)	Type/ FSp (mn Min,Ave	n)	Coring		covery SPT)	Depth Discontinu	(m) /	Level (m)	Legend			Ī
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_ _ _ _		6-	- - -						6.00			Medium strong increasi strong very narrowly fol brown PSAMMITE (Net Psammite Formation).	iated greyish hybridge	
		6.10 - 6.90	25 80	96	81	40		Occasional fragmentation	paced, planar to			dips 55-60deg. Disconticlosely to closely space dark brown surface stal fragmentation of discontomp penetration.	inuities very d with moderate ning. Localised	
-		6.90 - 7.15 7-	210	100	100	0		0-30deg, c	6.90 ties typically dip close to medium oderate surface	356.82		Strong very narrowly fo purplish brown PSAMM occasional quartz veins bands parallel to foliatic	ITE with and migmatic	
		7.15 - 8.35 8-	0 120 190	100	96	65		discontinuity v penetration: random in Discontinuities d occasionally 60 spaced, plan rough with mode surface stain weakening and f)-90deg, closely ar to undulating rate dark brown ing. Occasional			dips variably 60-90deg. 6.90 to 9.15m - Discontinuit 0-30deg, close to medium surface staining and occasi fragmentation of discontinuit penetration. Closely spaced fractures	ies typically dip spaced with moderate onal weakening/ ity walls up to 5mm	
		8.35 - 9.55 9-	-	100	84	76		close to medium to undulating n dark brown s Strong Discontinuities o spaced with	ough. Moderate surface staining, otherwise clean. g to very strong.			8.58 to 8.70m - Non-intact. 9.15 to 11.00m - Strong to v. Discontinuities close to med moderate dark brown surfaction. Closely spaced rando	dium spaced with ce staining, otherwise	
n Bas		Casing Diam	neter	Date	SI	hift De	3H Depth	otherwise clean. random inc	Closely spaced cipient fractures.	ination Orie			g Flush	Ma
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Remarks:

Dynamic sampling 0.00m to 2.50m. Open-holed and cased to 4.00m. Rotary cored 4.00m to 12.55m. No groundwater strikes recorded.





Project N	lame: Ber	ry Burn Wind	d Farm E	xtension		C	Client: Sta	atkraft						[Date: 29/11/2023 - 05/12/20	23		
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Hole D Depth Base	iameter	9.55 - 11.05	Max	98 000 00 100 00 00 00 00 00 00 00 00 00 0	S Time	68 S66	R/(SPT) etails 3H Depth	Near ver closely spaced with hear 50-60de spaced, plans Partially not vertic fractures - spaced. brown fracture was	Partia tical v d, und vy sur ar smooth	illy non-int rery closel dulating ro face stain se to med coth to rou t due to r dulating ro y very clos y dark ora e staining ome locali ragmentat	y to ugh ing. iium ugh. sely nge g on ised iion.	351.17			Strong very narrowly for purplish brown PSAMM occasional quartz vein bands parallel to foliati Psammite Formation). dips variably 60-90deg 11.40 to 11.45m - Non-inta 11.45 to 12.55m - Partially vertical undulating rough frostely spaced. Heavy dar staining on fracture walls: fragmentation. End of Borehole	oliated grey ITTE with a and migmon (Nethyb Planar folia ct. non-intact of actures - lo Some locali Some locali	natic ridge ation due to near cally very own surface sed	-
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Remarks:

Dynamic sampling 0.00m to 2.50m. Open-holed and cased to 4.00m. Rotary cored 4.00m to 12.55m. No groundwater strikes recorded.





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		-		100	78	60		deg, very close spaced, planar stri	ely and closely ated, tight and			band.	o 13.50m SCHIST d	- Moderate ominated	ely weak a zone.	and medium	
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	-	- - 14— - -	100					striated, tight, c s 13.50 - 13.70m: deg, undulating occasional clay s localised heavy da (pene 13.90 - 14.10) drilling indu	recasional clay mear (<1mm). fracture dip 80 smooth, tight, mear (<1mm), fr red staining trating <1mm). m: sub-vertical uced fractures.			13.75 t	o 13.90m	<u>- Mediu</u> m	strong SC	HIST band.	
		14.30 - 15.40 - - - -						fracture, undulatir no infill, localised I staining (pene 14.85 - 15.20 fracture, undulatir no infill, localised I staining (pene 15.25 - 15.40	ng rough, tight, neavy dark red trating <1mm). m: sub-vertical neavy dark red trating <1mm). m: very closely ertical incipient								
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			19————————————————————————————————————	pe/FSp	TCR	SCR	RQD	R/(SPT)												19
Hole D Depth Base	iameter	Casing Depth Base			Doto		nift De		Denth Water		lination an				Denth Ta-	Depth Base		Flush	Min (9/)	May (0/)
2.90 15.40	Diameter 168 101	реріп Base	Diamete	24/ ⁻ 25/-	10/2023	11me 3 17:00 3 08:45 3 17:00	:00	8.55 8.55 8.55 15.40	1 1.3 1.5	0.00	15.40	9	o Ori	0	2.90	15.40	Type Water	Colour	Min (%) 90	Max (%) 100





						-		. Notes 15			-		F0075-	40.110.1=	00.00		
	n: Moray, S					-		or: Natural Power						40 N8451			
	No. : 1821					С	rew Nar	me: DN, AH	Т					Fraste PL			
Bo	orehole Nu BP1BH2		Ho	le Type RC	•			Level 62.88m AoD	1	ged By AS		V	ertical Sca 1:25	ale		Page Numb Sheet 1 of	
/ell	Water	Depth (m)	Type/ FSp (mm Min,Ave Max (FI	<u>'</u>	Coring SCR		Recovery (SPT)	Depth (i Discontinuit		Level (m)	Legend		St	ratum Des	scription		
		1-	Was (1)	ICK	SCR	KQD	α		1.00	361.88	allic	Mec small	recovery - dium dens all gravels	EAT (Drille copenhole se grey me and cobb No recove	edium SAI	ND with	
	▼	2-	- - - - - - - - -						2.20					red PSAM No recove			
			-						2.70	360.18		hard	d bands ([red PSAM Driller's de			
		2.90 - 4.10	- - - - - 10 40 180	100	33	16		undulating re inc Randomly ori				Med ban PS/ Forr Fred frac Occ	ded light AMMITE (mation). quent hea ture surfa asional lo	emoled ig to stron pink mottle Nethybride vy dark re- ces (pene ss of strer ily fracture	ed grey fe ge Psamn ed staining trating 1-2 ngth to mo	Ispathic nite on 2mm).	
		4.10 - 5.60	-	100	70	47	DWSST	5.20 - 5.40m: ext to very cosely sp	edium spaced, onal silt smear (<2mm). tremely closely paced incipient vage fractures.			folia light Psa Loca stro	ated grey I t pink fels mmite Fo alised los ng on frac mm).	ery narrow PSAMMIT pathic ban rmation). s of streng cture walls	E with oco ds (Nethy oth to med	casional bridge lium	
ole	Diameter	Casing Diam	Type/FS neter	TCR		RQD nift De	R/(SPT)	Inc	clination and C	rientation	<u> </u>			Drillin	g Flush		\perp
n Bas			meter	Date 5/10/202	Time	В		Depth Water Depth Top			entation D	Depth Top 2.90	Depth Base		Colour	Min (%)	Max

Remarks:





cation	ı: Moray, S	Scotland				c	Contracto	or: Natural Power				Co-ords: E	307377.4	40 N84513	32.60		
											-						
_	The comment of the co																
					_					-						•	
/ell	Water		FSp Min,	(mm) Ave.			Recovery (SPT)				Legend		Str	ratum Des	cription		
		5.60 - 7.10	6	100				5.60 - 6.30m: randincipient frac closely and cl 6.35 - 6.55m: fractures, undulatin 6.55 - 6.80r fracture, undulating s 7.10 - 7.50m: drillir of closely s	infill. lomly oriented tures are very osely spaced. pair of 60 deg g rough, tight, no infill. n: sub-vertical g smooth, clay mear (<1mm). g disturbance paced 60 deg			foliate light Psan Loca stron 1-2m NET! 5.20 to 5 dominate	ed grey F pink felsp nmite For lised loss g on frac im). H 5.40m - M ed zone.	PSAMMITE pathic band rmation). s of strengture walls	with occ ds (Nethyl th to medi (penetrati	asional oridge um ng	
		7.10 - 8.60	8	100	66	41			8.10	354.78		Modi	um etron	a to otropo	LVORV POR	ovly to	
								fractures dip 15-3	0 deg, closely			narro	wly foliat	ed dark gr	ey mottle	d pink	
			5	0				smooth, tight	and incipient,			stron (Neth	g SCHIS rybridge	T bands (5 Psammite	50-200mm Formatio	n thick) n).	
		8.60 - 9.80	1	100				Fracture'se fractures are closel spaced, undulating occasional clays: 8.80 - 11.00m: flocally very cl Randomly oriente and extremely cl undulating refractures thro includi 8.80 - 11.00m: flocally very cl Incipient fracture	t 2: 50-60 deg y and medium smooth, tight, mear (<1mm). Fracture set 2: osely spaced, d very closely spaced, ough, incipient ughout strata, ng intact core. Fracture set 2: osely spaced res extremely			Frequency fractuon fractuon of structuon orien Loca weak NETI 8.10 to 8.70mm frincipient 8.60 to 8 incipient 8.80 to 1	uent heavare walls ength to extremely ted incipilised loss to in schisted loss to in schisted loss. The sagments. The sagments of the sagments	vy dark red (penetratii medium si y closely s ient fractur s of strengi tose zones lecovered i Probably s lon-intact. I	d staining and 1-2mm trong in 20 paced ran res. the to mode s	on). Loss ones domly erately as up to turbance of turbance of	
	Diametor	Casina Di		/FSp TCF				Inc	lination and O	rientation				Drilling	ı Eluch		L
Bas	e Diamete				e Time	E	3H Depth	Depth Water Depth Top	Depth Base Incl	nation Orie				Туре	<u> </u>	Min (%)	Ma
90 .10	168 101			26/10/20 27/10/20			11.30 11.30	2.1 0.00	15.10	90	0	2.90 13.50	13.50 15.10	Water Water		100	1







roject N	Name: Ber	rry Burn Wir	nd Farr	n Exten	sion		c	Client: St	atkraft				Date: 26/10/2023 - 27/10/202	3	
ocation	ı: Moray, S	Scotland					C	Contracto	r: Natural Power				Co-ords: E307377.40 N8451	32.60	
roject N	No. : 1821	2UKC						Crew Nar	me: DN, AH				Drilling Equipment: Fraste PL	3	
Во	rehole Nu	ımber		Hole	е Туре				Level	Lo	gged By		Vertical Scale	Page Numbe	r
	BP1BH2	2			RC I				62.88m AoD		AS		1:25	Sheet 3 of 4	1
Well	Water	Depth (m)		Type/ FSp (mm) Min,Ave, Max (FI)		SCR		Recovery (SPT)	Depth (n Discontinuity		Level (m)	Legen	d Stratum Des	cription	
		9.80 - 11.3	- - - - 30 - - - 11		100	45	24						Medium strong to strong narrowly foliated dark g PSAMMITE with occasi strong SCHIST bands ((Nethybridge Psammite Frequent heavy dark re fracture walls (penetrati of strength to medium s with extremely closely s oriented incipient fractu Localised loss of streng weak in schistose zone: NETH	rey mottled pink onal medium 50-200mm thick) Formation). d staining on ng 1-2mm). Loss trong in zones paced randomly res. th to moderately	11
		11.30 - 11.	-	10 100 160	100	80	66	_					11.90 to 12.05m - Non-intac	t. Drilling disturbance	
			12	10 40 160	400	9	04						12.40 to 12.70m - Moderate	ly weak pelitic zone.	12
		11.90 - 13.	13—		100	60	24								13
		13.50 - 15.	14—	10 70 180	100	95	41						13.70 to 15.10m - Frequent felspathic bands.	strong light pink	14
late 5	Diam-ri			Type/FSp	TCR			R/(SPT)		lineti	Orionte			a Chuch	15
pth Base		Casing [r Depth Base		ter		Time		3H Depth	Depth Water Depth Top		clination Ori	ientation	Depth Top Depth Base Type	Colour Min (%)	Max (
2.90 15.10	168 101	, 223		26/ 27/	10/202 10/202 10/202	3 17:00 3 08:00	0:00	11.30 11.30 15.10	2.1 0.00 3 3.25	15.10	90	0	2.90 13.50 Water 13.50 15.10 Water	100	100

Remarks:





Project N	ame: Ber	ry Burn Win	d Farm	Extens	sion		С	lient: Sta	atkraft						С	Date: 26/	10/2023 -	27/10/202	23		
Location:	Moray, S	cotland					С	ontracto	r: Natural	Power					С	Co-ords:	E307377.4	40 N8451	32.60		
Project N	o. : 1821:	2UKC					С	rew Nan	ne: DN, A	Н					D	Prilling E	quipment:	Fraste PL	.3		
Bor	ehole Nu BP1BH2				Type RC	•		36	Level 32.88m Ad	oD			ed By AS			V	ertical Sca 1:25	lle		age Numb Sheet 4 of	
Well	Water	Depth (m)	M	Type/ Sp (mm) lin,Ave, lax (FI)		Coring SCR		Recovery (SPT)	Di	Depth (r scontinuity			Leve (m)	Leç	gend		Sti	atum Des	scription		
Hole D Depth Base	iameter	Casing	16—	pe/FSp	TCR	SCR	RQD hift De	R/(SPT)		Inc	elination ar		347.7	n		nar PS/ strox (Ne Fre frac of s with orie Loo wea NE	rowly foliation of the control of th	ed dark g ith occasi T bands (Psammite yy dark re (penetrati medium s y closely s ent fractu s of streng Borehole	g Flush	d pink um thick) n). on n). Loss ones idomly erately om	16 — 17 — 19 — 19 — 19 — 19 — 19 — 19 — 19
2.90	168	Depth Base	iamete	26/1	Date 10/2023	3 17:00	0:00	11.30	2.1	Depth Top 0.00	Depth Base 15.10	inclir	nation C	rientati 0	ion E	2.90	13.50	Type Water	Colour	Min (%)	Max (%)
15.10	101			27/1	10/2023	3 08:00 3 12:00	0:00	11.30 15.10	3 3.25							13.50	15.10	Water		100	100
		1								1	1				_1_		1			1	

Remarks:





Project N	lame: Ber	ry Burn Win	d Farm E	xtension		Cli	ient: Sta	atkraft						Date: 23	/11/2023 -	24/11/2023	3		
Location	: Moray, S	cotland				Co	ontracto	r: Natural	Power					Co-ords	E307532.8	39 N84524	13.91		
Project N	lo. : 18212	2UKC				Cre	ew Nan	ne: RS.JC	:					Drilling E	Equipment:	Fraste SL	-G		
Во	rehole Nu BP1BH3			Hole Type RC	Э		38	Level 88.91m Ac	oD			ged By BP		,	/ertical Sca 1:25	lle		age Numb	
Well	Water	Depth (m)	Min	.Ave.	Coring		Recovery (SPT)	Dis	Depth (r scontinuity	n) / y Detail		Leve (m)	Lege	nd	Str	atum Des	cription		
Hole E Depth Base 7.00 15.10	Diameter Diameter Diameter 168 102	Casing E Depth Base		e/FSp TCR	SCR Sh Time 33 17:00:33 09:00:00	RQD I iff Deta	R/(SPT)	Depth Water 8.5 8 10	Inc Depth Top 0.00	Slination a Depth Bas 15.10	and O			Sa boo sai saiz (www.we	ndy GRAVI ulders (Drill mple provic dy angula ed fragmer eathered be athered roo	EL with col er's descri led -recove fine to co tsts of stron sdrock) . D skhead und	obles and iption). Bu ered as sli arse GRA g PSAMM epth to	lk ghtly VEL-	2 — 4 — — — — — — — — — — — — — — — — —
				27/11/202	.5 11.00:	.50	13.10	10											

Remarks:





Proiect	Name: Be	rry Burn Wir	ıd Farm	Extension		c	Client: Sta	atkraft						Date: 23	/11/2023 -	24/11/202	23		
-	n: Moray, S							r: Natural	Dower						E307532.				
	-																		
_	No. : 1821 orehole Nu			Hala Ton		-	rew Nan	ne: RS.JC	;			-l D			quipment:		1) Ni h -	
В	BP1BH			Hole Typ RC	е		38	Level 38.91m Ac	рD		.ogge BF	-		٧	ertical Sca 1:25	aie		Page Numbe Sheet 2 of 4	
Well	Water	Depth (m)	M	Type/ ip (mm) in,Ave, ax (FI)	Coring	-	Recovery (SPT)	Di	Depth (m			Level (m)	Legend	t	St	ratum Des	scription		
			6	ax (r) I CF	SCR.	RQD	x							bou sar sar size (we	ndy GRAV/ ulders (Dril nple provic dy angula ed fragmer athered b	ler's desci ded -recov r fine to co nts of stroi edrock) . [ription). Bu vered as sloarse GRA ng PSAMN Depth to	ılk ightly VEL-	6 -
		7.50 - 8.6	8	10 110 150 100 0 0 0 50	81	60		very planar P. Occasion Discording to the colore to	ontinuities y close to continuities ontinuities medium spath with part	dip 25-30d close spaci rith partings mi attly non-inte to 50n dip 25-30d bacing, pla	eg, ng, s of ica. act. up nm.	381.41		Strong very narrowly foliated dark purplish grey to pinkish brown magmatic PSAMMITE (Nethybridge Psammite Formation). Occasional weaker non-intact zones and occasional bands of granitic migmatite 20-50mm thick. 7.50 to 8.10m - Discontinuities parallel to foliation with partings of weathered mica. Dark brown discolouration penetrates discontinuity walls up to 20mm with strength reduced to weak. 8.10 to 8.40m - Predominantly non-intact with strength reduced to medium strong. Occasional weak friable micaceous bands up to 20mm. 8.40 to 9.30m - Close to medium spaced discontinuities parallel to foliation. Discolouration and partings of this cap of discontinuities walls. Very constitutive walls. Very constitutive walls. Very constitutive walls.			8 -		
		8.60 - 9.7	9	0 140 320 100 100		52 RQD	R/(SPT)	Se spac Se spacing, orange	et 1: dip 20 cing, plana	ting fractur i-30deg, clo ir smooth v rtings of mi i-65deg, clo gh with hea rface staini	e to res: ose with ca. ose avy ng.			and partings of mica on discontinuity walls. Very closely spaced incipient fractures dipping 60-80deg. 8.90 to 8.95m - Weak non-intact band, heavily brown stained. 9.30 to 9.50m - Predominantly non-intact with strength reduced to medium strong. Occasional weak friable micaceous bands up to 20mm. 9.50 to 11.10m - Locally non-intact due to intersecting discontinuities. Discontinuity walls moderately orange-brown stained and locally very weak friable up to 3mm penetration with partings of weathered mica. Occasional very weak micaceous bands up to 25mm thick. Drilling Flush					
	Diameter	Casing [Diameter		S	i hift De	etails			lination and				1			-		
7.00 15.10	168 102	Pr Depth Base	r Dat 23/11/20 24/11/20 24/11/20	23 09:00	0:00	9.70 9.70 9.70 15.10	Depth Water 8.5 8 10	0.00	Depth Base 15.10	90		entation 0	Depth Top	Depth Base	Туре	Colour	Min (%)	Max (%)	







Project	Name: Bei	rry Burn Wind	d Farm Ex	xtension		C	lient: Sta	atkraft					Date: 23	3/11/2023 -	24/11/202	3		
Location	n: Moray, S	Scotland				С	Contracto	r: Natural	Power				Co-ords	: E307532.	89 N8452	43.91		
Project	No. : 1821	2UKC				C	rew Nar	ne: RS.JC	;				Drilling	Equipment:	Fraste SL	-G		
В	orehole Nu			Hole Type	е			Level	_	L	ogged By	,		Vertical Sca	ale		age Numb	
	BP1BH:		Тур	RC De/	Coring			38.91m Ad			BP .	.		1:25			Sheet 3 of	<u> </u>
Well	Water	Depth (m)	FSp (Min, Max	mm) Ave.	SCR		Recovery (SPT)	Di	Depth (n scontinuity		Lev (m		end	St	ratum Des	cription		
		9.70 - 11.20	- - - - - - 13	0		48		close sp	oacing, pla	s dip 5-20de nar smooth	to		pt Pi	rong very n rplish grey sAMMITE (I rmation). Cones and oc gmatite 20- to 10.30m ent fractures to 12.80m ent.	to pinkish Nethybridg Occasional ccasional b .50mm thic - Very clos s. Core par	brown ma ye Psamm weaker n ands of gr k. ely spacec tially fragn	gmatic ite on-intact anitic d 60-80deg nented.	11
		11.20 - 12.70		00 100	80	52		Occa 60-7 moderat	asional fra 70deg, plar te orange-l	rtings of mictures dippi nar rough w brown surfa al fragment ban	ng ith ce ed		12.05	to 12.10m dant mica. to 12.60m redominants of brown s	- Non-intad	et band, fra zed maten	gmented	12
		12.70 - 14.20	13	20	93	70		undi occ Occa 60-70d 13.!	close spaculating smo asional parasional fractieg, planar 95-14.40m ing rough	12. dip 15-30dcing, planar ooth. Clean ritings of mictures dippir rough, cleir, rough, cleir, racture - diffacture - difface staining	eg, to or ca. ng an. cal	11	fo m. Ps of Di ty:	rong to very iated dark pagmatic PS ammite Fo granitic mig granitic mig scontinuitie sically clear ained with a ca. Otherwi	ourplish gr AMMITE (rmation). (gmatite 20- s are close n to moder occasional	ey to pink Nethybride Occasiona -50mm this ely spaced ately brow thin partin	ge I bands ck. I, vn	13 -
		14.20 - 15.10	-	100		80						\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\$					
Hole	Diameter	Casing Di	Type.	/FSp TCR		RQD hift De	R/(SPT)		Inc	lination and	 Orientat	ion	\perp		Drilling	g Flush		
Depth Bas	se Diamete				Time	E	3H Depth		Depth Top	Depth Base	nclination	Orientatio	n Depth To	p Depth Base		Colour	Min (%)	Max (%)
7.00 15.10	168 102			23/11/202 24/11/202 24/11/202	23 09:00	0:00	9.70 9.70 15.10	8.5 8 10	0.00	15.10	90	0						







Project Name: Berry Burn Wind Farm Extension	Client: Statkraft	Date: 23/11/2023 - 24/11/2023
Location: Moray, Scotland	Contractor: Natural Power	Co-ords: E307532.89 N845243.91
Project No. : 18212UKC	Crew Name: RS.JC	Drilling Equipment: Fraste SL-G
Borehole Number Hole Type BP1BH3 RC	Level Logged By 388.91m AoD BP	Vertical Scale Page Number 1:25 Sheet 4 of 4
Well Water Depth (m) Type/FSp (mm) Coring Min.Ave. Max (FI) TCR SCR RG	Depth (m) / Level Legen	
16— 16— 17— 18— 18— 19— 19— 17— 17— 17— 18— 18— 18— 18— 18— 18— 18— 18— 18— 18	15.10 373.81 AD R/(SPT)	magmatic PSAMMITE (Nethybridge Psammite Formation). Occasional bands of granitic migmatite 20-50mm thick. Discontinuities are closely spaced, typically clean to moderately brown stained with occasional thin parting of mica. Otherwise rock material is fresh. End of Borehole at 15.100m 16 —
Depth Base Diameter Depth Base Diameter Date Time	Details Inclination and Orientation BH Depth Depth Water Depth Top Depth Base Inclination Orientation	Drilling Flush Depth Top Depth Base Type Colour Min (%) Max (%)
7.00 168 23/11/2023 17:00:00 15.10 102 24/11/2023 09:00:00 24/11/2023 17:00:00	9.70 8.5 0.00 15.10 90 0 9.70 8 15.10 10	

Remarks:





Project Name: Berry Burn Wind Farm Extension Client: Statkraft Date: 30/11/2023 - 05/12/2023 Location: Moray, Scotland Co-ords: E309966.40 N844817.97 Contractor: Natural Power Project No.: 18212UKC Drilling Equipment: Fraste SL-G Crew Name: RS.JC Borehole Number Hole Type Level Vertical Scale Logged By Page Number BP3BH1 RC 372.47m AoD ВР 1:25 Sheet 1 of 4 Type/ FSp (mm) Min,Ave, Max (FI) Recovery (SPT) Corina Depth (m) / Depth Level Well Water Legend Stratum Description Discontinuity Detail (m) (m) TCR SCR RQD PEAT (Driller's Description). . عاد عاد عاد ، عاد، عاد، عاد ، عاد عاد عاد د ماند ماند ماند sile عاد عاد 371.77 Light coloured gravelly SAND with cobbles (Driller's Description). 2 3 368.77 Medium strong to strong purplish grey PSAMMITE (Nethybridge Psammite Non-intact Formation). Non-intact due to weathering, recovered as angular gravel and cobble sized material with heavy dark brown surface staining and occasional traces orange-brown fine sand. 0 Strong narrowly foliated purplish grey PSAMMITE (Nethybridge Psammite Formation). Planar foliation generally dips 70-80deg. Predominantly non-intact due to very closely spaced random factures 3.70 - 5.10 96 32 16 with moderate dark brown to black 367.82 surface staining and occasional spalling of fracture walls up to 3mm. Occasional Randomly dipping closely spaced planar rough fractures. Heavy dark orange-brown fragmented bands and occasional discontinuous solid core lengths. 90 200 surface staining. 4.65 to 5.30m - Largely intact section - closely fractured. 5 Type/FSp TCR SCR RQD R/(SPT) Casing Diameter Shift Details Inclination and Orientation Drilling Flush Hole Diameter
 Depth Water
 Depth Top
 Depth Base
 Inclination
 Orientation
 Depth Top
 Depth Base

 3.2
 0.00
 15.10
 90
 0
 0
 Depth Base Diameter Depth Base Diameter Date Time BH Depth D Min (%) Max (%) 30/11/2023 17:00:00 04/12/2023 09:00:00 04/12/2023 17:00:00 3.2 4.3 4.6 5.2 6 3.70 168 7.80 10.70 10.70 05/12/2023 09:00:00 10.70 05/12/2023 17:00:00

Remarks:





	ı: Moray, S								r: Natural					Co-ords: E309966.40				
	No. : 1821 orehole Nu			I I a I a '	T		С	rew Nar	ne: RS.JC	;	1-	and Div		Orilling Equipment: Fi) Ni h	
Во	BP3BH			Hole R				37	Level 2.47m Ac	οD	LO	gged By BP		1:25	,		Page Numbe Sheet 2 of 4	
Well	Water	Depth (m)	FSp Mir	ype/ o (mm) n,Ave, ax (FI)	C TCR	SCR		Recovery (SPT)	Di	Depth (m scontinuity		Level (m)	Legen	Stra	tum Desc	cription		
		5.10 - 6.40	,	0 0 0 150	100	38	22		ragment are pla with he surfa solid con	closely sp fractures tation. Fract anar to und eavy dark of ace staining re lengths of	n-intact due to paced randor and localise sture surface stulating roug prange-brow g. Occasiona up to 150mn	n d s h n n al		Strong narrowly PSAMMITE (Ne Formation). Pla 70-80deg. Pred to very closely s with moderate c surface staining of fracture walls fragmented ban discontinuous s 5.30 to 7.15m - Pre occasional solid con	ethybridge nar foliati lominantly spaced ra dark brow g and occ s up to 3n nds and o colid core	e Psamm fon gener y non-inta andom fac in to blac asional s nm. Occa ccasiona lengths.	itte rally dips ract due ctures k palling asional il	6 -
		6.40 - 7.80	7—	0 50 250	100	42	25		dippin wi	g planar ro ith modera	ced random bugh fracture te dark brow aining. Local fragmented	s n y j.		6.65 to 6.80m - We reddish brown sand gravel of moderatel	dy subang l <u>y we</u> ak p: Omm solid	gular fine sammite. I stick. (ra	to medium	7 —
		7.80 - 8.80	8—	0 0 0	100	24	18		Non-inta	act due to fi	ragmentation	1.		Medium strong PSAMMITE (Ne Formation), rec coarse gravel-s occasional trace	ethybridge overed as ized mate es of sand / foliated SAMMITE	e Psamms angular erial with d. light grey	ite fine to	8
				0 0 0 2000					(8.50-8	3.70m; solid es dip 15-3 undulating	8.5 tly non-intac d core length 35deg; close rough. Heav	t. i) y y		Psammite Form dips 70 ♠. 8.50 to 8.80m - Ver infilled 6mm with second length). 8.70 to 9.00m - Not 9.00 to 9.85m - Lan fractured. Very closmicipient fractures. Medium strong	tical undu andy clay. n-intact. gely intac sely space to strong	llating rou (8.50-8.7 st section ed near ve very nar	ugh fracture 70m; solid - closely ertical rowly	9 —
	8.80-9.80 - 0 100 70 - 170 260 - 100 70			70	61		stainir near ve	ng. (Very c	black surfactions black surfactions black surfactures black tractures black surfactures black surfactures black surfactures black surface blac	d (s) (5) (5) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6		foliated grey to (Nethybridge Ps Planar foliation Predominantly r close random fr fragmentation. I predominantly s cobble sized ma bands of weake material. Patchy surface staining occasional trace	sammite dips 50-6 non-intactoring acturing a strong and aterial with a sandy of the control on fractures of sand sand sand sand sand sand sand sand	Formatio 60deg. t due to v and ed as gular gra th occasio gravel-siz -brown to ure surfac d infill.	n). very vel and onal ted o black ces and			
			1	o/EO:	TCB	900	BOD	D//CDT	Predom	ninantly no	n-intact. Mor	e	***	9.85 to 10.30m - Pr coarse gravel-sized			ar tine to	10 —
Hole [Diameter	Casing D		e/FSp	ICR		RQD nift De	R/(SPT) etails		Inc	lination and	 Orientation			Drilling	Flush		
Depth Base	Diamete					Time	Е	3H Depth		Depth Top	Depth Base In	clination Ori		Depth Top Depth Base	Туре	Colour	Min (%)	Max (%)
3.70 10.70	Diameter Casing Diameter Casing Diameter Diameter Diameter Date Time 168 30/11/2023 17							7.80 7.80 10.70 10.70 15.10	3.2 4.3 4.6 5.2 6	0.00	15.10	90	0		*1		(3)	







Project	Name: Ber	ry Burn Win	nd Farm	Exten	sion		С	lient: Sta	atkraft					Date: 30	/11/2023 -	05/12/202	3		
ocation	n: Moray, S	cotland					С	ontracto	r: Natural	Power				Co-ords:	E309966.	40 N8448	17.97		
Project	No. : 18212	2UKC					С	rew Nan	ne: RS.JC	;				Drilling E	quipment:	Fraste SL	-G		
В	orehole Nu			Hole	е Туре)			Level		Lo	gged By		\	/ertical Sca	ale	P	age Numb	er
	BP3BH1				RC				72.47m Ac	DD.		BP			1:25		;	Sheet 3 of	4
Well	Water	Depth (m)	F.	Type/ Sp (mm) Min,Ave, Max (FI)		SCR		Recovery (SPT)	Di	Depth (r scontinuity		Leve (m)		nd	St	ratum Des	cription		
	_	9.80 - 10.7	70 -		100	16	0		angular	gravel and al. Occasion	agmented in d cobble-size onal solid co up to 150mi	ed re		folii (Ne Pla Pre clo fra pre cob bar ma sur	dium stron ated grey t ethybridge nar foliatio dominantly se random gmentation dominantly able sized in ds of wea terial. Pato face staini assional tra	o purplish Psammite In dips 50- In non-intage In recover In strong ar In strong ar In material w In sandy In sa	grey PSA Formatio 60deg. ct due to v and ed as ngular gra ith occasio gravel-siz n-brown to ture surface	MMITE n). very vel and onal sed black	
		10.70 - 11.	- 11— - 70 – - - -	0 0	100	16	16						\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	11.00 non-in	to 11.40m - tact.	· Medium s	trong, con	npletely	11
		11.70 - 12.1	- - 12 - 70 - - - -	150	100	14	0						\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		to 12.30m avel-sized				12
		12.70 - 13.	- - 13 - 70 -		100	33	17				13.		07	Predoi materi calcite	to 13.40m minantly mal with trac	edium stro es of sand	ng gravel- and weati	sized hered	13 —
			-	0 80					sp I	oaced, pla moderate	45deg, close nar rough wi brown surfa ally non-inta	th ce	**************************************	gre For Par with	y PSAMM mation). P tially non-i n reduced	ITE (Nethy lanar folia intact and strength.	bridge Ps tion dips 5 locally fra	sammite 50deg. gmented	d
		13.70 - 15.	14—	0 0 0 0 75 150	100	47	26		cl undula	losely to c ting rough	Non-intade 5-35deg, ve losely space . Patchy bla J. Locally no inta	ry d, ck n-	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	14.30 and st		- Non-intac uced to me	et. Brown o dium stror ractured w	ith	14
			+		TCD	900	BOD	R/(SPT)			inia	J		<u> </u>					15 —
Hole	Diameter	Casing E		ype/FSp r	TCR		RQD nift De			Inc	lination and	 Orientat	on	1		Drilling	g Flush		
3.70 10.70				30/ 04/ 04/ 05/	11/202 12/202 12/202 12/202	Time 3 17:00 3 09:00 3 17:00 3 09:00 3 17:00	:00 :00 :00 :00		3.2 4.3 4.6 5.2 6	-	Depth Base II			Depth Top	Depth Base		Colour	Min (%)	Max (%)

Remarks:





Project N	lame: Beri	ry Burn Win	d Farm E	Extens	sion		С	lient: Sta	atkraft						[Date: 30/	11/2023 -	05/12/202	3		
Location:	Moray, S	cotland					С	ontracto	r: Natural	Power					C	Co-ords:	E309966.4	10 N8448	17.97		
Project N	lo. : 18212	2UKC					С	rew Nan	ne: RS.JC	;					[Orilling E	quipment:	Fraste SL	-G		
Bor	ehole Nur BP3BH1			Hole R				37	Level 72.47m Ac	oD			ed By BP			V	ertical Sca 1:25	lle		age Numbe	
Well	Water	Depth (m)	T FSp Mir Ma	ype/ o (mm) n,Ave, ax (FI)		Coring SCR		Recovery (SPT)	Di	Depth (n scontinuity	n) / r Detail		Leve (m)	Le	gend		Str	atum Des	cription		
Depth Base	iameter Diameter	Casing D	16—	e/FSp ·	TCR	SCR SI Time	RQD ifft De	R/(SPT) etails 3H Depth		Depth Top	lination ar Depth Base	nd Ori	nation C	on Drientat	ion [grey Forn Parr with	PSAMMI mation). Pi inteduced s End of	TE (Neth) lanar folia ntact and strength. Borehole	g Flush Colour	ammite 0deg. gmented	16 — 18 — 20 — Max (%)
Depth Base 3.70	Diameter 168	Depth Base	Diameter			Time 3 17:00	:00	3H Depth 7.80	Depth Water 3.2	Depth Top 0.00	Depth Base 15.10	Inclir	nation C	orientat 0	ion [Depth Top	Depth Base	Туре	Colour	Min (%)	Max (%)
10.70	102			04/12 04/12 05/12	2/2023 2/2023 2/2023	3 09:00 3 17:00 3 17:00 3 09:00 3 17:00	0:00 0:00 0:00	7.80 7.80 10.70 10.70 15.10	4.3 4.6 5.2 6	0.00	13.10		~	U							

Remarks:



Berry Burn Wind Farm Extension – T06

EXTRACT FROM SI LOCATION MAP:

TP8T6 TP7T6 TP6T6 TP346 TP3BP3 TP4T6 TP35 TP356 TP376

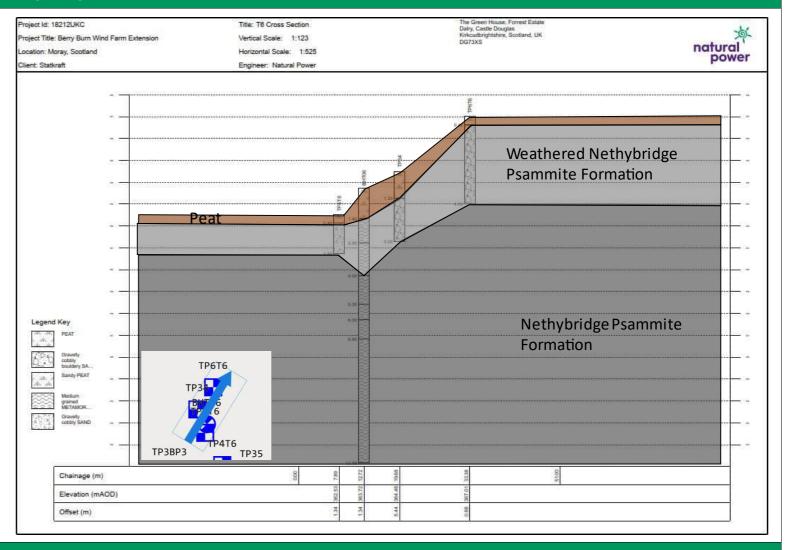
SCOPE OF WORK COMPLETED:

- 1 x boreholes
- 3 x Trial pits
- Resistivity Testing
- Laboratory testing

EXPLORATORY HOLE DATA SUMMARY:

Hole ID	Peat Thickness (m)	Glaciofluvial deposits thickness (m)	Weathered rock thickness (m)	Depth to solid bedrock (m bgl)	Groundwater depth (m bgl)
BHT06	1.40	0.00	2.60	4.00	N/A
TP5T6	0.40	0.00	1.40	1.40	N/A
TP6T6	0.40	0.00	3.60	N/A	N/A
TP34	1.20	0.00	2.00	3.20	N/A
Min	0.40	0.00	1.40	1.40	N/A
Max	1.40	0.00	3.60	4.00	N/A
Average	0.85	0.00	2.40	2.87	N/A

2D FENCE DIAGRAM:



SUMMARY OF RECORDED GROUND CONDITIONS:

Peat: Peat is recorded to a max thickness of 1.40m and generally described as a Black fibrous PEAT (H4/B3).

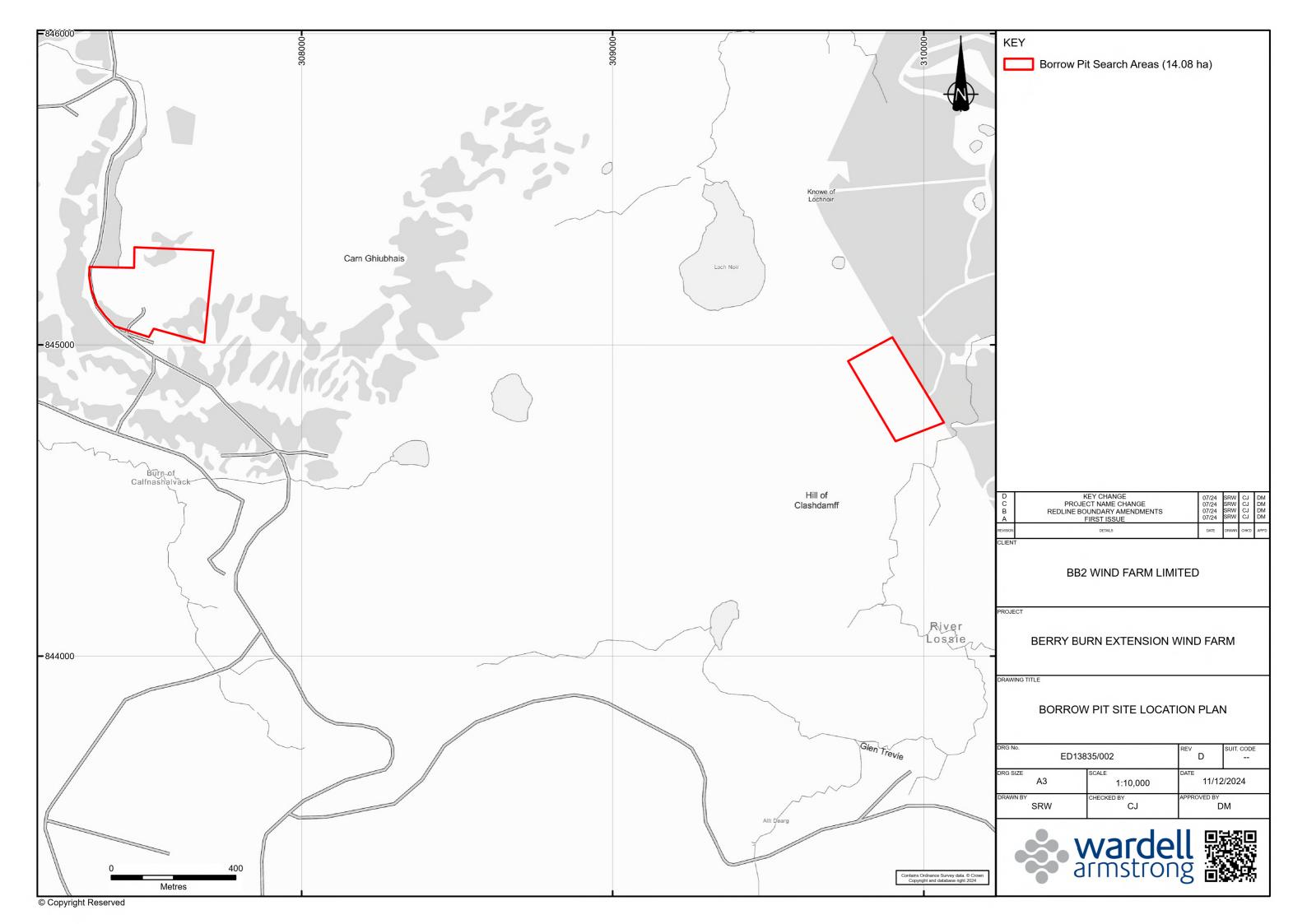
Bedrock: Solid bedrock was encountered from 1.40m, with up to 2.60m of weathered bedrock encountered at T6 generally recovered as angular GRAVEL. Bedrock is of the Nethybridge Psammite Formation and is generally described as a Medium strong to strong very narrowly foliated greyish brown PSAMMITE.

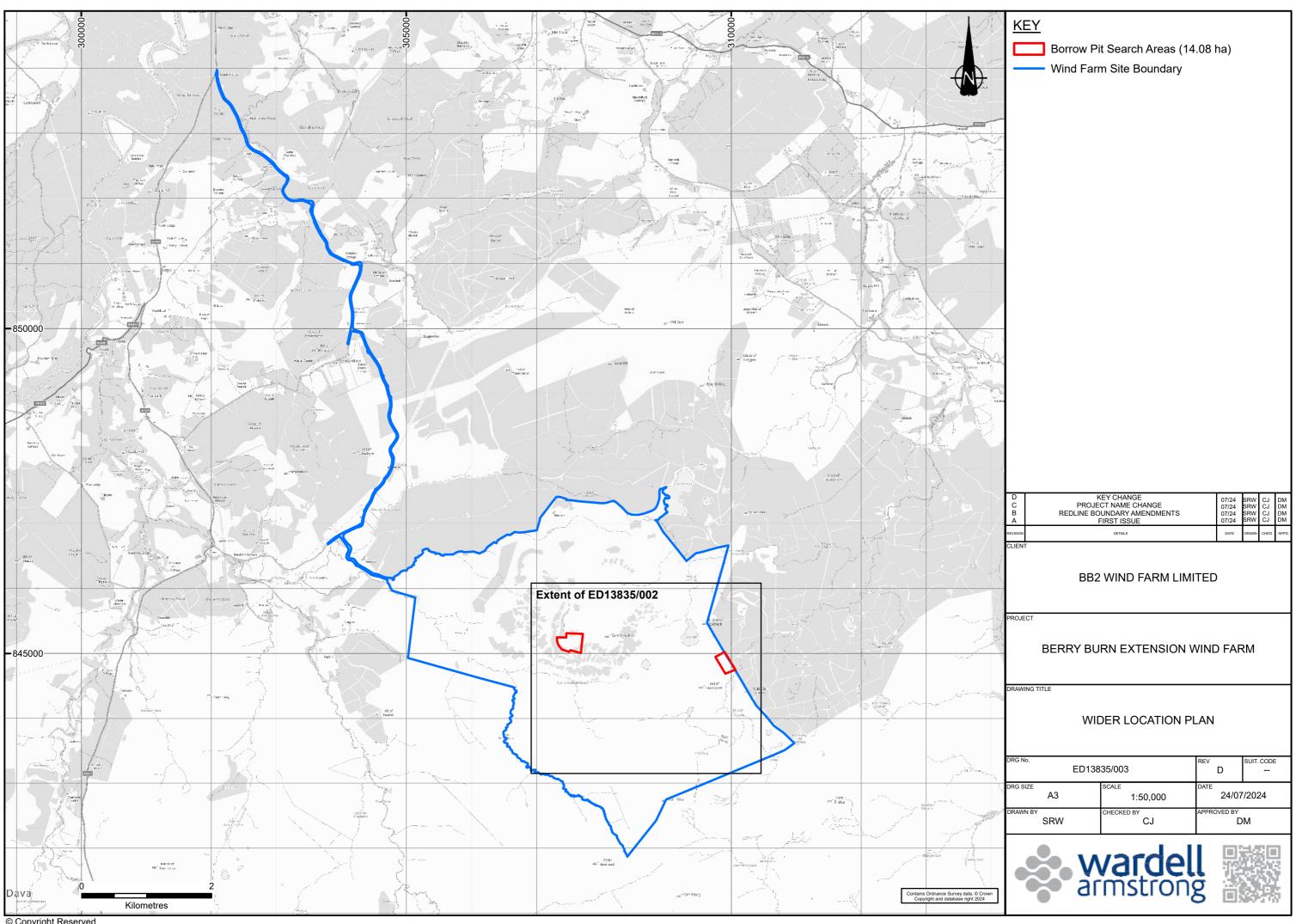
Groundwater: No groundwater was encountered during drilling. Groundwater monitoring recorded an average depth of 3.03m.

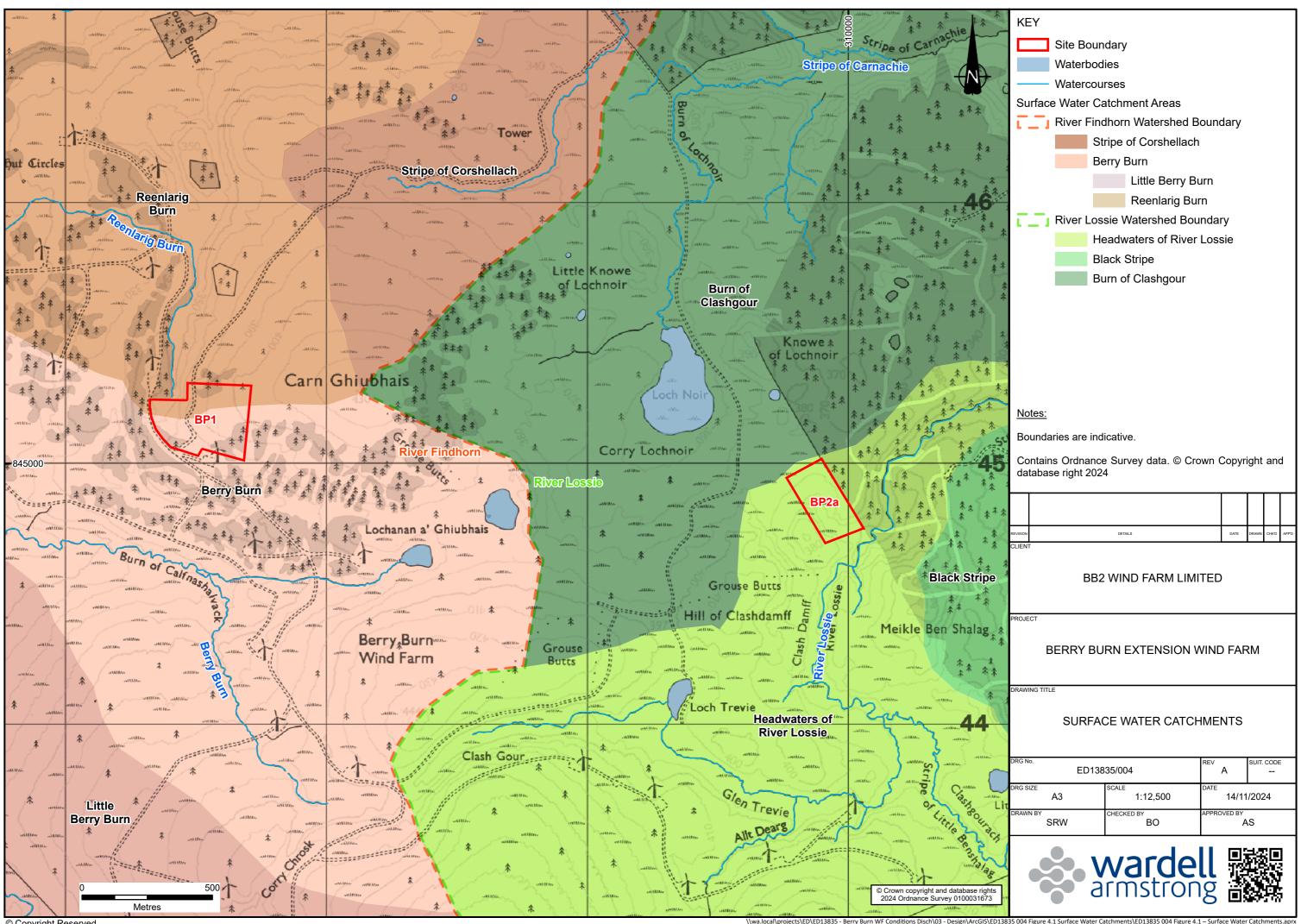
Chemical: Lab testing returned a pH of 7.5 and a maximum SO4(%) Total of 0.01. This classifies the ground as AC-1 DS-1.

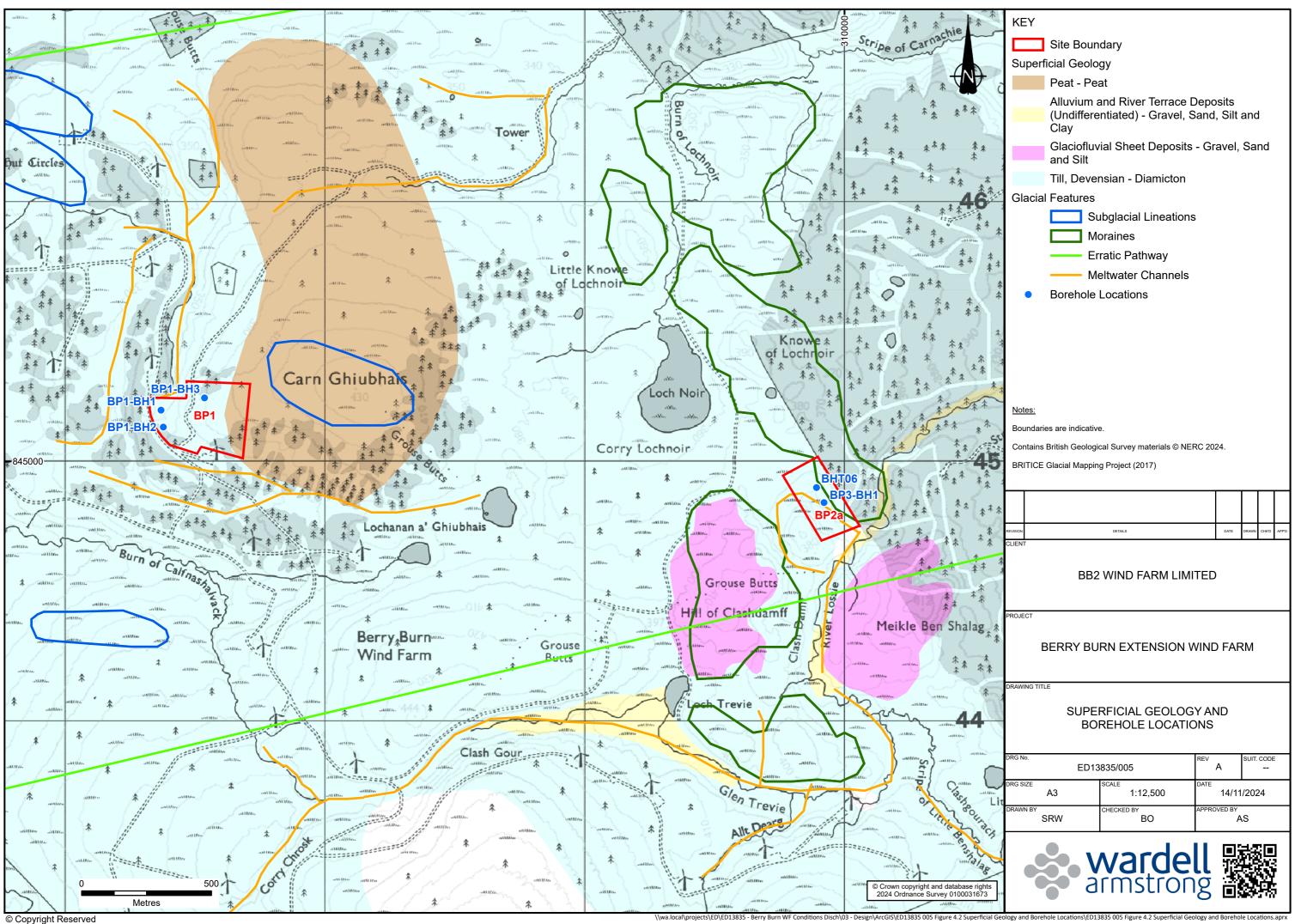


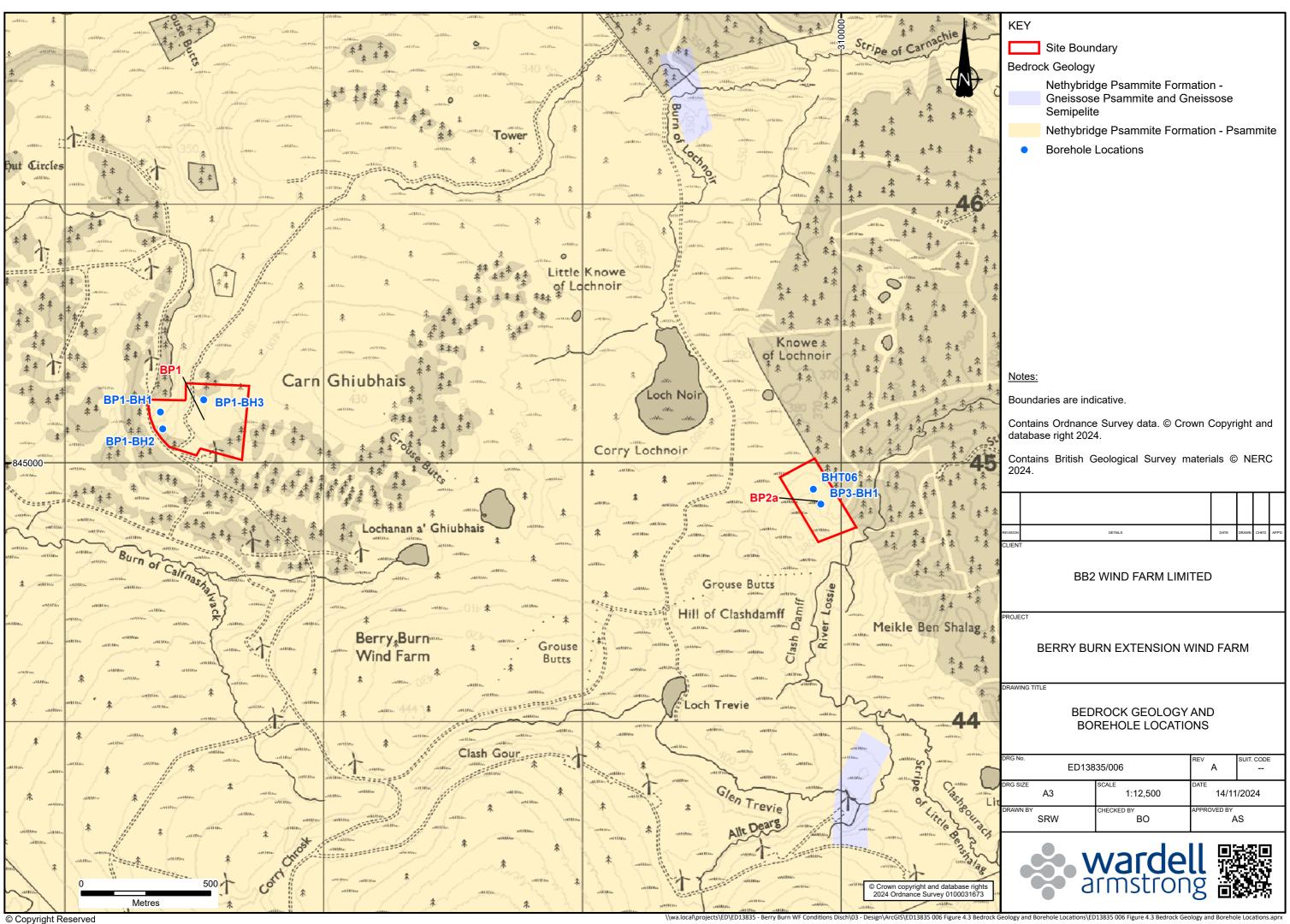
DRAWINGS

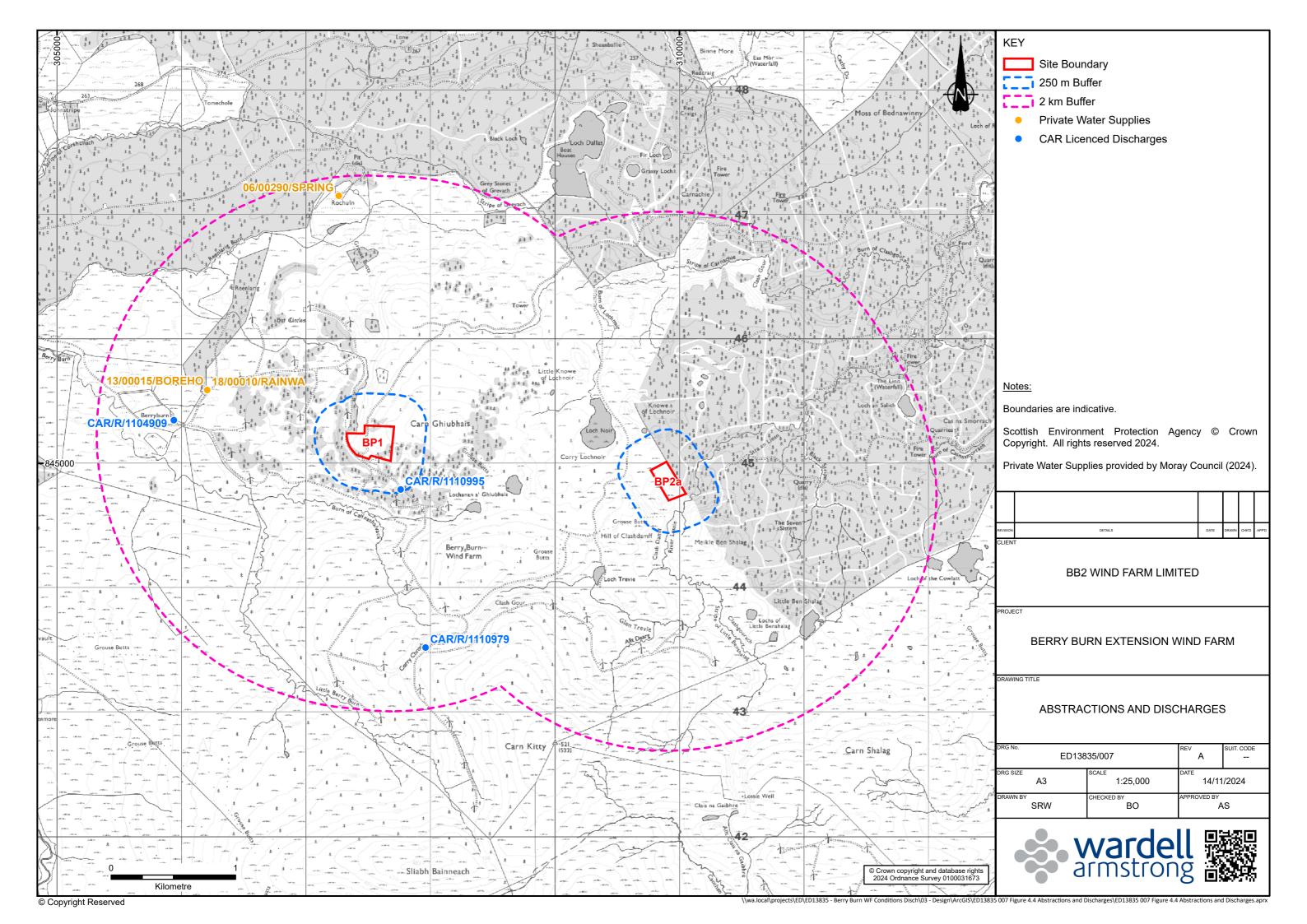


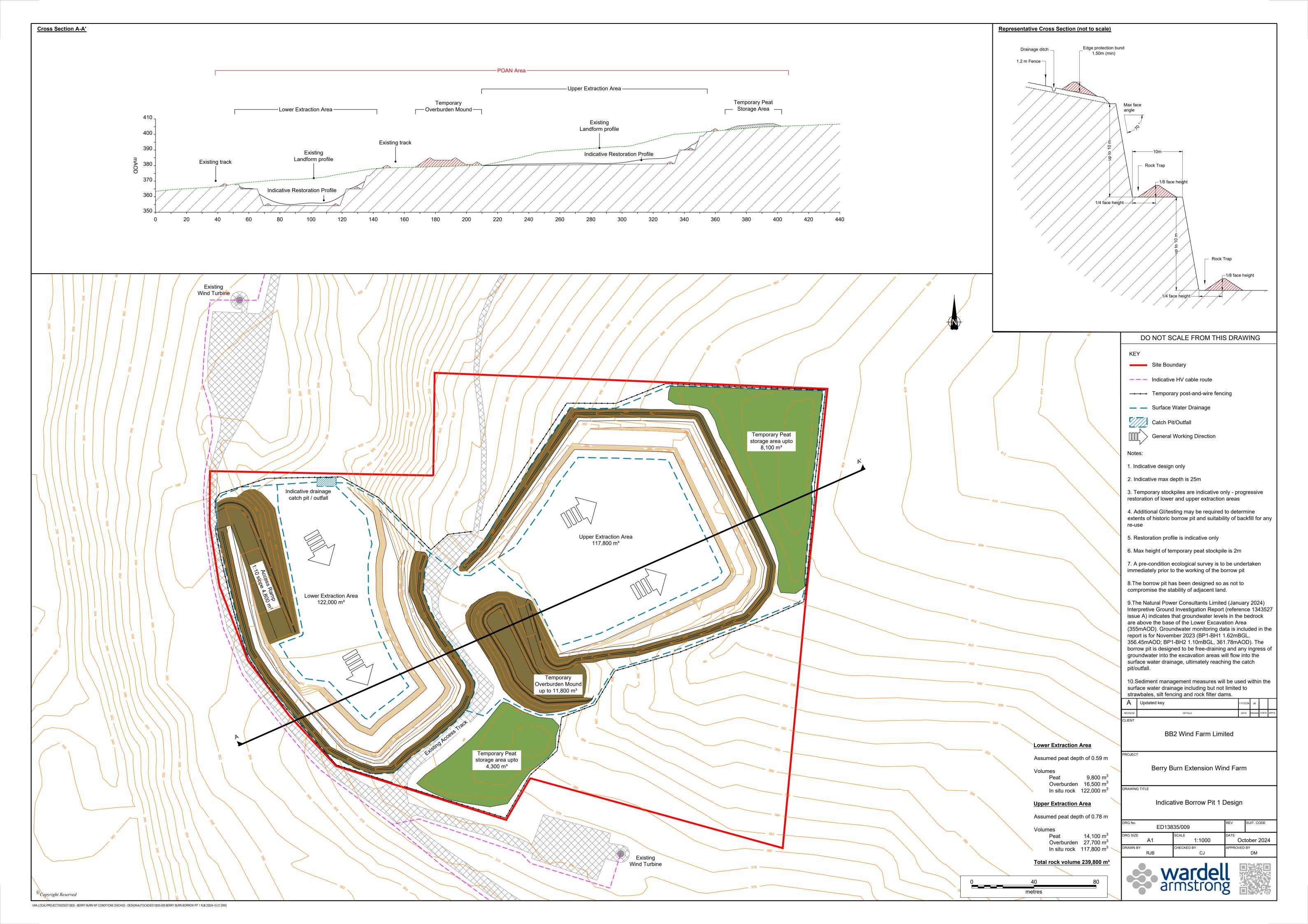


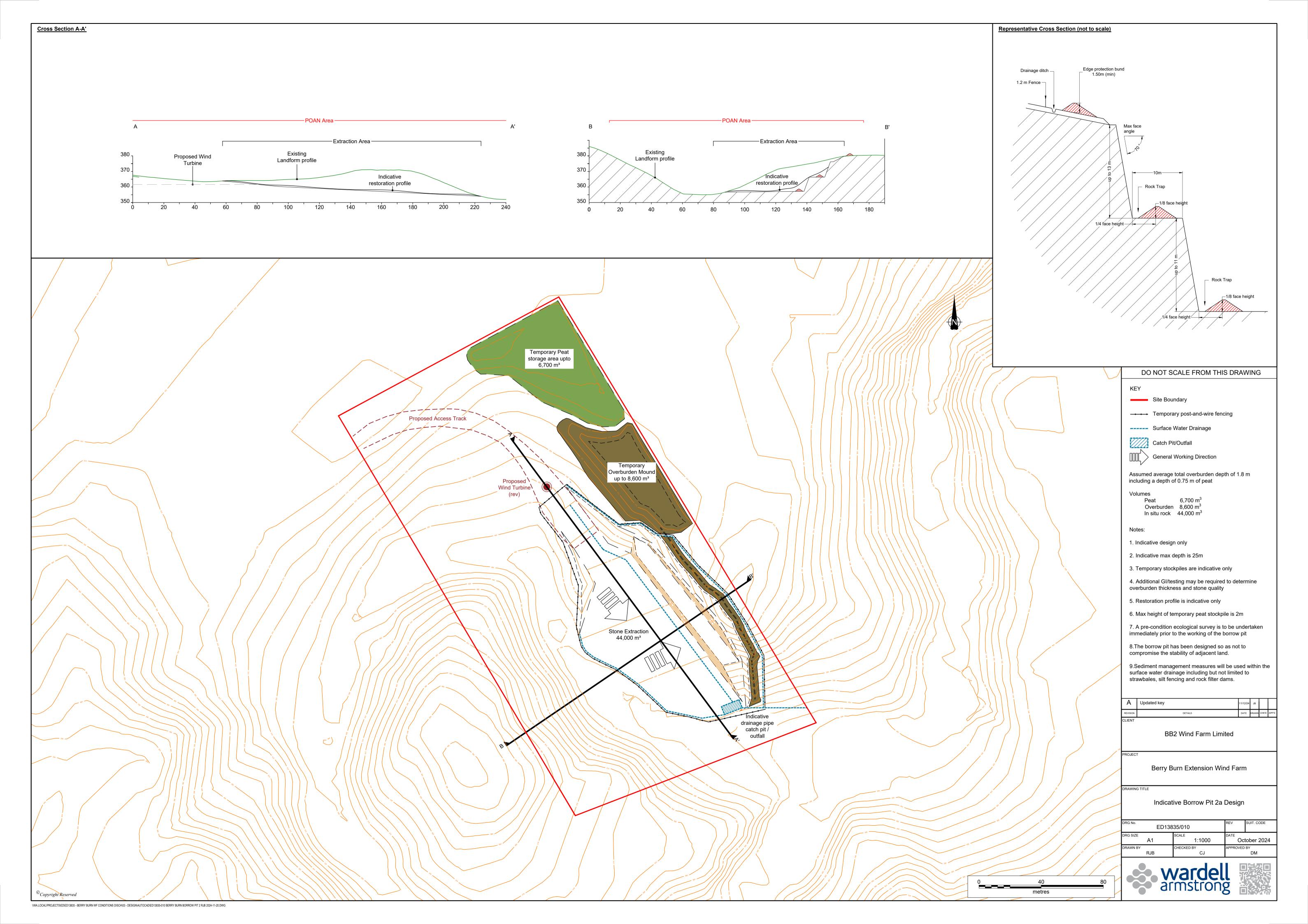


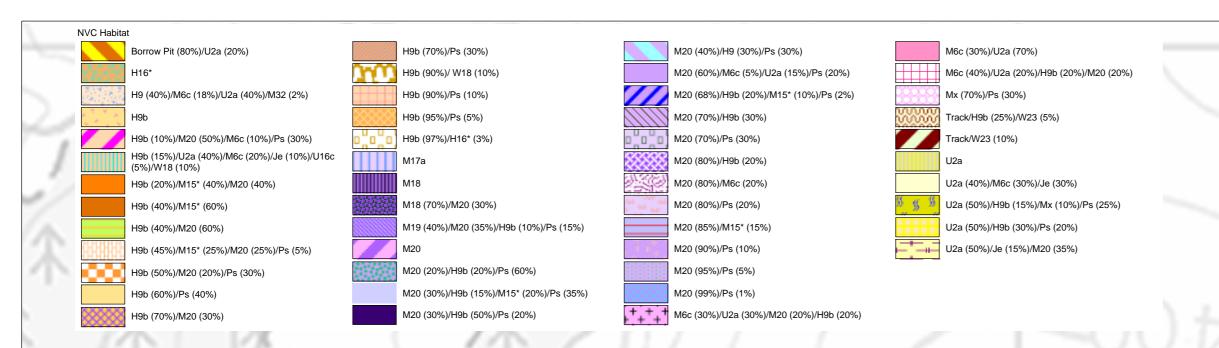


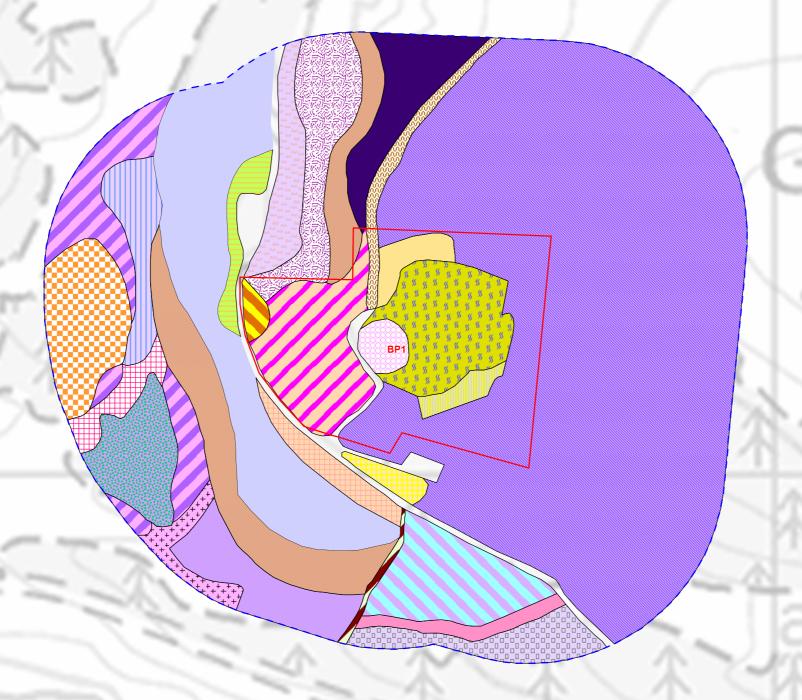


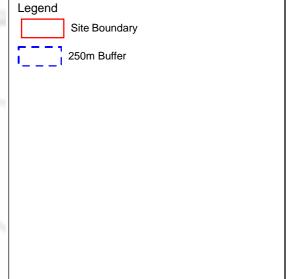












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Rev	Date	Description	De	qqA

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



BERRY BURN

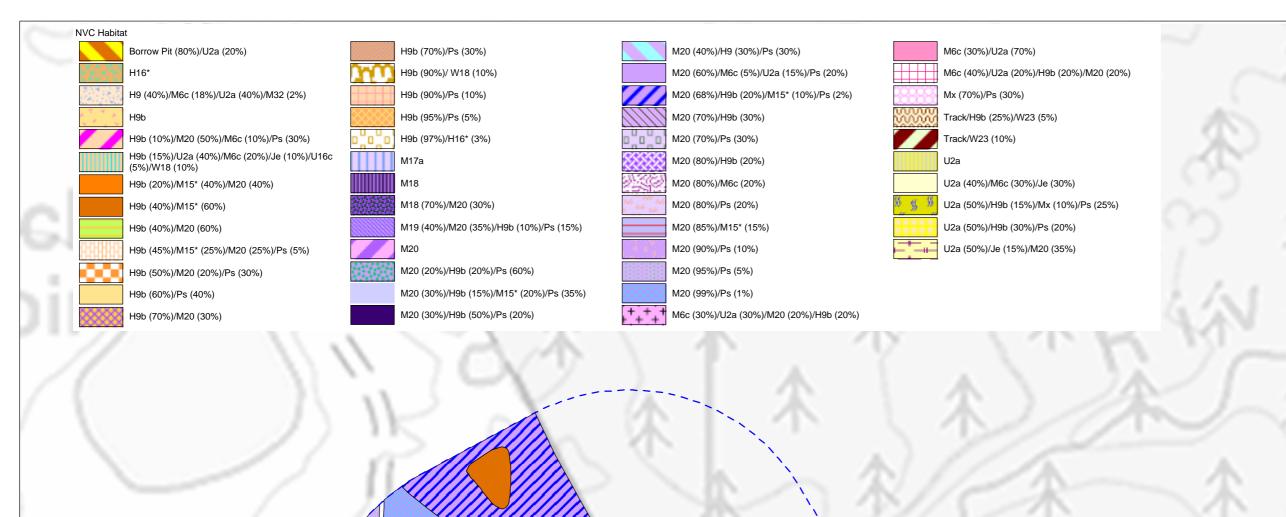
FIGURE 3A - NATIONAL VEGETATION CLASSIFICATION HABITAT SURVEY PLAN



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









Legend

Site Boundary

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

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

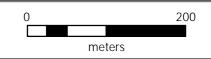


BERRY BURN

FIGURE 3B - NATIONAL VEGETATION CLASSIFICATION HABITAT SURVEY PLAN



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