Cloud Hill Wind Farm

Technical Appendix 10.3 Preliminary Borrow Pit Assessment

August 2023

Project No.: 0669769

The business of sustainability

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1. INTRODUCTION

1.1 Preparation of the Borrow Pit Assessment

This Preliminary Borrow Pit Assessment (BPA) for Cloud Hill Wind Farm (the Proposed Development) has been prepared initially to provide details of potential borrow pit locations or aggregate extraction areas required for the construction of the wind farm.

It is anticipated that all of the turbine bases will be founded on bedrock composed of in-situ sedimentary rock types.

The purpose of the BPA is to:

- Assess potential borrow pit locations;
- Estimate available aggregate from the source location;
- Identify overlying superficial soils and define the materials that will be excavated as a result of the Proposed Development;
- Identify underlying rock types;
- Set out proposals for adequate intrusive investigations; and
- Detail management techniques for handling, storing and depositing peat for reinstatement.

National Planning Framework 4[1] states that "Development proposals for borrow pits will only be supported where: the proposal is tied to a specific project and is time-limited; the proposal complies with the above mineral extraction criteria taking into account the temporary nature of the development; and appropriate restoration proposals are enforceable." In the case of this particular development, progressing on-site borrowing provides notable environmental gains as the traffic volume on local roads (B class, C class and unclassified) would be drastically reduced. The classes and capacity of the roads in the surrounding area is discussed in Chapter 13: Access, Traffic, and Transportation.

1.2 The Site

The Site is located approximately 4.5 kilometres (km) south of Sanquhar, within the Dumfries and Galloway Council Area. It is adjacent to the operational 25.3 MW Whiteside Hill Wind Farm, and 4.2 km north-west of the operational 37.8 MW Twentyshilling Hill Wind Farm.

The topography of the Site and immediate vicinity is relatively complex, as shown on Figure 3.2d "Application Layout" in Chapter 3: Site Selection and Design of the Proposed Development. The elevation of the Site ranges from 470 metres (m) Above Ordnance Datum (AOD) in the south-east of the Site and falls to around 150 m AOD in the north-east of the Site. Access to the Site will be taken from the A76, and minor unclassified roads located to north of the Site. The Applicant has secured all land agreements to enable access to the Site for the construction, operation and decommissioning of the Proposed Development.

The predominant land use within the Site consists of open moorland comprising rough grasses, with fields of semi-improved pasture occurring across the lower hills to the east. There are a number of forestry plantations within the vicinity of the Site. The Ulzieside Plantation, which covers approximately 41 ha, lies adjacent to the northern Site boundary. The Mains Plantation (approximately 101 ha) lies adjacent to the eastern Site boundary, as does the Brown Hill Plantation (approximately 299 ha).

Access to the Proposed Development is proposed from the A76(T) at Sanquhar, using Blackaddie Road and an unclassified road to Ulzieside Farm where a new entrance to the Site will be formed.

[1] The Scottish Government (2023) National Planning Framework 4 [Online] Available at: National Planning Framework 4 (www.gov.scot) (Accessed 06/06/2023)

The Southern Upland Way (SUW), which is designated as a Core Path (504) in the Dumfries and Galloway Core Paths Map[2], runs south-west through the centre of the Site for approximately 84 m.

The Proposed Development comprises 11 three-bladed horizontal axis wind turbines up to 180 m tip height with a total generating capacity of approximately 61.6 MW. The main components of the Proposed Development are as follows:

- 11 three-bladed wind turbines with a maximum tip height of 180 m, rotor diameters of approximately 150 m and hub heights of approximately105 m, and associated foundations and hardstanding areas;
- Network of underground cabling;
- A permanent met mast (up to 100 m);
- Access tracks linking the turbine locations;
- Substation Compound measuring approximately 100 m by 75 m including a Control Building and associated external electrical switchgear with welfare facilities, associated electrical plant and equipment, security fencing and wastewater holding tank;
- A Battery Energy Storage System (BESS) site will be located south of the substation;
- Temporary Construction Compound;
- 3 borrow pits for aggregate extraction;
- Upgraded site access

Three possible borrow pit locations were considered for the Proposed Development. Details of these borrow pit locations are summarised in this report. All three of the borrow pit locations are adjacent to existing tracks. The first borrow pit location is in the northern portion of the Site in an existing borrowing area and the second is located in the eastern portion on the existing access track, the third is located along proposed access track. The locations of the borrow pits can be viewed in Figure 10.3.1 Borrow Pit Locations, with further detail on the methodology to identify these locations included in Section 3 of this appendix. The assessment has been completed through a targeted desk-based review of geological maps, Ordnance Survey (OS) contour data, aerial photography and from visual observations during site walkovers in October and November 2022.

No intrusive site investigation works have been undertaken to date.

2. GEOLOGY

2.1 Superficial Soils

Available British Geological Survey (BGS)[3] mapping indicates the superficial soils beneath the Site area to comprise Glacial Till. There are also areas of Glaciofluvial and Alluvial deposits, identified as being Sand, Silt and Gravel, throughout North-eastern areas of the Site.

Figure 10.2 the superficial soils across the Site.

2.2 Bedrock Geology

Published mapping by the BGS[4] provides information on the soils and geology present at the Site location. The bedrock geology is identified as being a Kirkcolm formation – Wacke, a sedimentary bedrock, in the Northwest of the Site; whereas the Eastern areas of the Site are underlain by a Scottish Lower Coal Measures formation, also a sedimentary formation. The South of the Site sits upon a Portpatrick Formation – Wacke, another sedimentary bedrock.

[2] Dumfries and Galloway Council (2019) Core Paths: Walking and Cycling in Dumfries and Galloway [Online] Available at: https://info.dumgal.gov.uk/mapviewers/pathsmap.aspx (Accessed 06/06/2023)

[3] British Geological Survey (2019) Geology of Britain [Online] Available at: GeoIndex - British Geological Survey (bgs.ac.uk) (Accessed 06/06/2023)

[4] British Geological Survey (2019) Geology of Britain [Online] Available at: GeoIndex - British Geological Survey (bgs.ac.uk) (Accessed 06/06/2023)

BGS GeoIndex[5] data details that there is a reverse or thrust fault at the rockhead running through the Site, according to BGS mapping there are two further bedrock formations present in the vicinity of the fault; Crawford Group – Chert and Moffat Shale Group – Mudstone.

In addition to the strata discussed which covers most of the site area, there are small, isolated areas within the site that are underlain by North Britain Siluro-devonian Calc-alkaline Dyke Suite – Microgranodiorite, an igneous formation.

Figure 10.1 illustrates the bedrock geology across the site area.

2.3 Peat

Peat depths ranged from 0 m to 5 m depths across the Site. The deeper areas of peat were in isolated areas with only 22 of the 1,247 probes confirming peat in excess of 2 m.

An area containing peat in excess of 2 m was identified in the location of the proposed access track between turbine 3 and turbine 4, on a flatter portion of the track located in a fairly hilly area. This area confirmed peat up to depths of 5 m. This area contained grassy vegetation and was located in a wet area. Floating track may be required in order to minimize the excavation of peat..

A second area where peat in excess of 2 m was recorded is at the proposed access track leading to turbine 11, where peat was recorded up to 2.9 m deep. The vegetation in the area was grassy, but located on a flatter slope towards the top of a hill. The access track in this area may require some micrositing to avoid this deeper area of peat.

Figure 10.5 illustrates the 'Interpolated Peat Depths' across the site area.

2.4 Hydrogeology

The Site topography is fairly complex, with elevations ranging from 470 m Above Ordnance Datum (AOD) in the South-East to 150 m AOD in the North-East. This results in a topography which generally slopes from south to north. From west to east across the Site, the topography presents as several valleys. As such, water would drain into Euchan Water, which in turn drains into River Nith, north-east of the Site. There are a number of notable hilltops and watercourses present within the Site boundary, including:

Hilltops:

- Corridow Hill.
- Mid Rig.
- Cloud Hill.
- Whing Head.

Watercourses:

- Whing Burn.
- Glenmaddie Burn.
- Glen Burn.
- Glenlarie Burn.

The Proposed Development is bound by the Euchan Water to the north of the Site, while the southern aspect of the Site is bound by the topographical high points which divide the hydrological catchments of Euchan Water and Scaur Water. The eastern Site boundary is bound by the areas of forestry.

The groundwater units underlying the Site are identified by Scotland's Environment mapping service as the Upper Nithsdale groundwater body[6]. These units have an overall SEPA classification of 'Poor'.

[5] British Geological Survey (2019) Geology of Britain [Online] Available at: GeoIndex - British Geological Survey (bgs.ac.uk) (Accessed 06/06/2023)

[6] SEPA (undated) Groundwater classification [Online] Available at: https://map.environment.gov.scot/sewebmap/ (Accessed: 06/06/2023)

BGS 1:50,000 digital mapping and the BGS GeoIndex[7] mapper shows the bedrock aquifer underlying the north of the Site to consist of sedimentary rock cycles of the Scottish Lower Coal Measures Formation, while the north-western aspect of the Site is underlain by Wacke of the Kirkcolm Formation. A large thrust fault runs through the Site from south-west to north-east. Along this fault line, the underlying bedrock geology consists of Chert and basaltic-rock of the Crawford Group as well as mudstone of the Moffat Shale Group. To the south and south-east of the fault line, the bedrock geology consists of wacke of the Portpatrick Formation. Across the Site intrusions of microdioritic-rock and microgranodiorite of the North Britain Siluro-Devonian Calc-Alkaline Dyke Suite are present as well as microgabbro of the Mull Dyke Swarm and wacke of the Glenwhargen Formation. The majority of the bedrock underlying the Site are classified as a "low productivity aquifer" in which "flow is virtually all through fractures and other discontinuities". There is a small area to the north-east of the Site which is underlain by a "moderately productive aquifer".

The bedrock groundwater units to the north-east of the Site are overlain by deposits of alluvium and glaciofluvial deposits. Across the northern and central aspects of the Site, superficial deposits of till are common, however much of the central and southern aspects of the Site are not mapped. There are intermittent superficial deposits of peat within the Site boundary which are concentrated to the south-eastern boundary of the Site.

Further details of the hydrogeology are included in Chapter 11 - Hydrology & Hydrogeology of the EIAR.

2.5 Mining and Quarrying

The Coal Authority interactive map viewer[8] indicates that the northern extent of the Site does fall within a coal authority reporting area. No infrastructure is proposed in this area other than the access track leading to the main body of the Site.

A Consultants Coal Mining Report (Ref no. 51003324066001 attached in **Appendix B: Consultants Coal Mining Report**) was obtained from the Coal Authority. This report indicates that there is a coal outcrop and a geological fault within the Site boundary, however there is no history of mineworking on the Site and no risk to the Proposed Development was identified.

There is a history of quarrying at the Site with one of the proposed borrow pit sites located in the remnants of an old quarry. More information on this quarry is included within Section 3 of this BPA.

3. BORROW PIT ASSESSMENT

3.1 General

This section of the BPA identifies potential borrow pit locations within the Site boundary that could be utilised in provision of aggregate for construction. This will be used in the construction of site access tracks, crane hardstanding areas, upgrades of existing tracks and potentially concrete batching.

The proposed borrow pit locations have been selected based on their:

- Topography;
- Previous uses;
- Accessibility from existing or proposed access tracks;
- Orientation with respect to visibility;
- Potential aggregate volume; and
- Proximity of rock to the surface.

Steeper topography is preferable for quarrying, where soils coverage will be limited. Careful consideration was given to landscape and visualisation impacts.

[7] British Geological Survey (2019) Geology of Britain [Online] Available at: GeoIndex - British Geological Survey (bgs.ac.uk) (Accessed 06/06/2023)

[8] The Coal Authority (2022) [online] Available at: Interactive Map Viewer | Coal Authority (bgs.ac.uk) (Accessed 06/06/2023)

Other considerations included proximity to watercourses, places of archaeological interest, areas of recorded coal mining and forestry. The borrow pit locations are in areas where the peat cover is thin or vacant and where bedrock outcrops and aggregate reserves are expected to occur near the surface.

No intrusive site investigation works have been undertaken into the quality of rock that might be recovered at the time of preparing this BPA. However, it is anticipated that a full ground investigation will take place in advance of construction of the Proposed Development. The investigation will include the testing of material from within the proposed borrow pit areas to assess its suitability for reuse.

3.2 Borrow Pit Locations and Considerations

Three borrow pit search areas were initially identified from a combination of desk-based assessment of mapping and topography and site walkover survey. Other environmental constraints were also considered, including watercourse buffers and peat depths.

A summary of the considered borrow pit locations are given below.

3.2.1 Borrow Pit Location 1

Borrow Pit 1 is located in the northern sector of the site, approximately at 276637, 607813. The slope in the vicinity of the borrow pit ranges between 0˚ in the northern portions of the Borrow Pit and 8.53˚ towards the southern areas of the Borrow Pit. The site was selected as it is on the location of an existing abandoned quarry and is in close proximity to the access track. Furthermore, previous quarrying activities have taken place in the area meaning that, bedrock can be accessed more readily and the effects of the borrow pit are minimised. Figure 4.12 (a) in Chapter 4: Description of the Proposed Development shows the Indicative Borrow Pit Layout.

The BGS superficial soils information indicates that this area of the Site is underlain by Till from the Devensian Stage. Peat Probing in the area indicates that the area is underlain by less than 0.5 m of peat. The solid geology mapping indicates that the bedrock in this area is Chert from the Kirkcolm Formation. This bedrock is from the Caradoc Series and is estimated to be 4.5 m thick.

No geological faulting is present within the borrow pit search area, although a fault at rockhead is recorded running east to west approximately 100 m south of the search area, The location does not encroach any other environmental development constraints.

Figures 3.1 and 3.2 - Existing conditions at Borrow Pit Search Area 1

3.2.2 Borrow Pit Location 2

Borrow Pit 2 is located adjacent to the east of the existing access track at the approximate centre point 275433, 606385. The slope in the vicinity of the borrow pit ranges between 0˚ in the north eastern portions of the Borrow Pit and 8.53˚ towards the south western areas of the Borrow Pit. The

site was selected due to its proximity to the existing tracks, the topography and the absence of peat recorded in the area. Figure 4.12 (b) in Chapter 4: Description of the Proposed Development shows the Indicative Borrow Pit Layout.

BGS superficial soils information indicates that this area of the Proposed Development is primarily vacant of any significant superficial soil cover. Peat probing undertaken recorded depths of less than 0.5m in the general vicinity of this borrow pit search area. The solid geology mapping indicates the underlying bedrock to be of the Portpatrick Formation belonging to the Scaur Group which is a bedrock formed in the Caradoc Series. This formation principally consists of Wacke and siltstone turbidite succession and is recorded to be a thickness of 2,000 m in the type section.

No geological faulting is present within the borrow pit search area, although a fault at rockhead is recorded running east to west approximately 800 m north of the search area. The location also does not encroach any other environmental development constraints.

Figures 3.3 and 3.4 - Existing conditions at Borrow Pit Search Area 2

3.2.3 Borrow Pit Location 3

Borrow Pit 3 is located to the south of the proposed access track to Turbine 8, at the approximate centre point 275128 , 605785. The slope in the vicinity of the borrow pit ranges between 0˚ and 11.3˚ underneath the Borrow Pit search area. The site was selected due to its proximity to proposed track, the topography and the absence of superficial soils recorded in the area. Figure 4.12 (c) in Chapter 4: Description of the Proposed Development shows the Indicative Borrow Pit Layout. This location is in close proximity to the SUW, more details of this can be found in Section 4 of this report.

BGS superficial soils information indicates that this area of the Proposed Development is primarily vacant of any significant superficial soil cover. There is peat indicated to the south of this borrow pit location. Peat probing was not undertaken in this borrow pit location, but probing that was completed directly to the north of this area as part of the access tracks indicate generally peat less than 0.5 m with isolated areas of deeper peat (approximately 1.3 m depths). The solid geology mapping indicates the underlying bedrock to be of the Portpatrick Formation belonging to the Scaur Group which is a bedrock formed in the Caradoc Series. This formation principally consists of Wacke and siltstone turbidite succession and is recorded to be a thickness of 2,000 m in the type section.

No geological faulting is present within the borrow pit search area, although a fault at rockhead is recorded running east to west approximately 750 m north of the search area. The location also does not encroach any other environmental development constraints.

Figures 3.5 and 3.6 - Existing conditions at Borrow Pit Search Area 3

3.3 Findings and Recommendations

The ground modelling of BP1, BP2, and BP3 informs the assessment summary as set out in Section 3.4. It should be noted that further investigations would be required to fully understand the feasibility of these options which would comprise rotary percussive drilling and rock sampling through coring and suitable geotechnical testing.

From here on in, borrow pit search areas 1, 2, and 3 will be named Borrow Working 1, Borrow Working 2, and Borrow Working 3 respectively, in line with the referencing in the EIAR.

3.4 Design

Based on the identified search areas, a three-dimensional outline design was undertaken to establish the target capacity required from the proposed borrow pits. This involved a civil design taking account of the overall proposed site layout levels and both existing and proposed access tracks in order to develop a viable borrow area. The outline design of each borrow working included a main worked area with earthwork batters and indicative drainage cut-off ditches, and therefore was finalised as a total area situated within the initial search areas. The details of the outline borrow working design is summarised in Table 3.1 while Borrow Working Plans and Profiles are shown in Figure 2 in Appendix A.

Table 3.1: Borrow Working - Assessment Summary

Borrow Working No.	Surface Area (m^2)	3D Model Total Cut Volume (m^3)	Interpolated Peat Depth (m)	Estimated Peat Volume (m^3)	Estimated Aggregate Available (m^3)
1	5,172.56	25,249.81	0.10	517.26	24,732.55
2	9,386.02	38,340.35	0.15	1,407.90	36,932.45
3	14,233.18	87,188.29	0.66	9,393.90	77,794.39
TOTAL	**28,791.76**	**15,0778.45**	-	**11,319.06**	**139,459.39**

For the purposes of this outline borrow pit assessment, the volumes indicated in the table above are based on the following parameter:

- Borrow Working floor levels taken from the levels associated with the existing access track; and
- Cut profile at 63° from borrow pit floor to 1st tier, followed by 2.0m wide benching and 63° from benching to intersection point of existing terrain.

4. METHODS OF WORKING

The requirement to produce various grades of aggregate will necessitate the use of mobile quarrying plant and equipment. This operation will comprise a number of different elements which are summarised in the following sections.

It is possible that the quarried material will require blasting methods should testing prove relatively high strengths and competencies. Where this is required, it is proposed that a lightweight crawler mounted blast hole drill rig is employed together with an attendant compressor. Explosives will need to be considered in detail by the Contractor at construction stage relating to safe operation, transportation and storage. The Contractor may also wish to consider alternative methods suitable to the quality of the rock. All aggregate materials won in borrow pits will be subject to crushing and screening. The primary component of this operation will consist of a mobile crushing and screening system. In the case that blasting is required a Blast Management Plan will have to be prepared by the contractor.

The borrow pits are in close proximity to the SUW. During construction, mitigation measures may be required in order to ensure the safety of SUW users. These mitigation measures will be confirmed and implemented if required before construction commences. The SUW and construction works will be clearly demarcated in order to mitigate risks of users coming into contact with the construction works. An Access Management Plan is provided in Technical Appendix A14.1

Acrotelmic peat excavated from the Site during construction will be used to ‘sensitively reprofile’ the borrow pits to tie in with the surrounding landform as far as reasonably practicable, with turves reused to allow natural regeneration wherever possible. However, where insufficient turves are available, or there is a risk of erosion then reseeding with a suitable upland seed mix to match surrounding habitats will be undertaken.

The Contractor will provide a plant setup that meets the Proposed Development requirements processing the rock to produce the quantities, quality and sizes of the material required. The construction of the Proposed Development access tracks will be undertaken utilising the majority of the aggregate produced from the borrow pit operations. It is intended that the access tracks will be constructed on the basis of normal best practice for the accommodation of wind turbine components.

The Contractor should undertake testing of the materials as the borrow pits are worked to ensure material quality is maintained, with particular reference to the ability of the materials to resist freezing/thawing and wetting/drying, and therefore serve the lifespan of the Development.

The appointed Contractor will provide a detailed risk assessment and method statement to cover the working methods employed within the borrow pits for approval during the construction phase.

4.1 Overburden Handling

Prior to progressing works at borrow pits, the areas will require to be stripped of superficial material which lies above bedrock. Material storage areas should be identified and the superficial soils carefully placed in segregated stockpiles within the appropriate storage area.

Access routes to the borrow pits will form part of the enabling works prior to the mobilisation of quarry plant. The main items of mobile quarry plant will be tracked, typically low ground pressure capable of traversing surfaces which have had only limited surface preparation.

4.2 Drainage of Borrow Pits

Temporary interception/peripheral bunds and cut-off drainage ditches (‘clean water drains’) should be constructed upslope of the borrow pits and cuts to prevent surface water runoff entering the excavation. Swales to collect runoff should be placed on the downslope of borrow pits and overburden / stockpiles and will be designed to treat potentially silty runoff before discharging back into the drainage system.

A drainage and surface water management system will be required in order to control surface water run-off from borrow pit areas. Due to the nature and size of the proposed excavations, the drainage system should consist of a peripheral cut-off ditch together with attenuation features and soakaways. Drainage ditches should be installed using a tracked excavator and, where necessary, a hydraulic breaker.

Waste water discharge onto vegetated surfaces from borrow pits and earthworks areas should be directed away from watercourses and drainage ditches to avoid direct discharge. Any sediment suspended within the treated water should be deposited amongst the rough surface vegetation.

Additional mitigation measures for the drainage of borrow pits can be found in Technical Appendix A11.2: Water Construction Environmental Management Plan.

4.3 Reinstatement Proposals

It is envisaged that overburden/soils will be carefully stored adjacent to the extraction areas for re-use. The SUW will need to be considered when determining storage locations for the overburden/spoil. There should be no material storage within the SUW or within an area that would require the movement of heavy machinery from the works to the storage area (thereby requiring machinery to cross the route and posing a risk to users of the SUW). Once reinstatement is complete there will be no impact to users of the SUW.

Each borrow pit should be suitably re-instated with topsoil and any available peat, peaty soils and turves to re-establish hydrological and ecological conditions and reduce any potential visual impacts. There is a potential for till or sands and gravels to be available for reinstatement purposes.

The reinstated peat/soil surface would be profiled to allow drainage and the re-introduction of appropriate vegetation cover would tie into existing topography. The upper part of the quarry face would remain exposed and would be allowed to become weathered. It is envisaged that this face would acquire an appearance similar to that of other natural rock exposures in the locality.

The reinstated profile will be of varying thicknesses above the base of the borrow pit and will be gently sloping from the track edge to the quarry face, generally with thicknesses representative to that of the peat and soils initially stripped from borrow pit areas. TA 11.2 outline Peat Management Plan gives more information on the reinstatement of peat and methodology to do so.

4.4 Borrow Pit Working Programme

Of the possible borrow pits recommended, Borrow Working 1 is located closest to the Site entrance and will be worked earliest in the construction programme. This borrow pit could be utilised for initial track construction, upgrade of existing tracks and any general enabling works from the site entrance including track widening where required.

Borrow Working 2 is also located along existing track and could be utilised for the creation of new tracks associated with the Proposed Development.

Borrow Working 3 is the largest and is located on the access track, this Borrow Working can therefore be utilised for the construction of new tracks and other infrastructure on Site.

5. CONCLUSION

The siting of the borrow pits within the Proposed Development has been made on the basis of proximity to the existing and proposed access tracks, consideration of topography, geology and identified constraints. Based on the desk-based assessment, it is anticipated that there are adequate locations on site to position proposed borrow pits which would achieve the required aggregate quantities for the development.

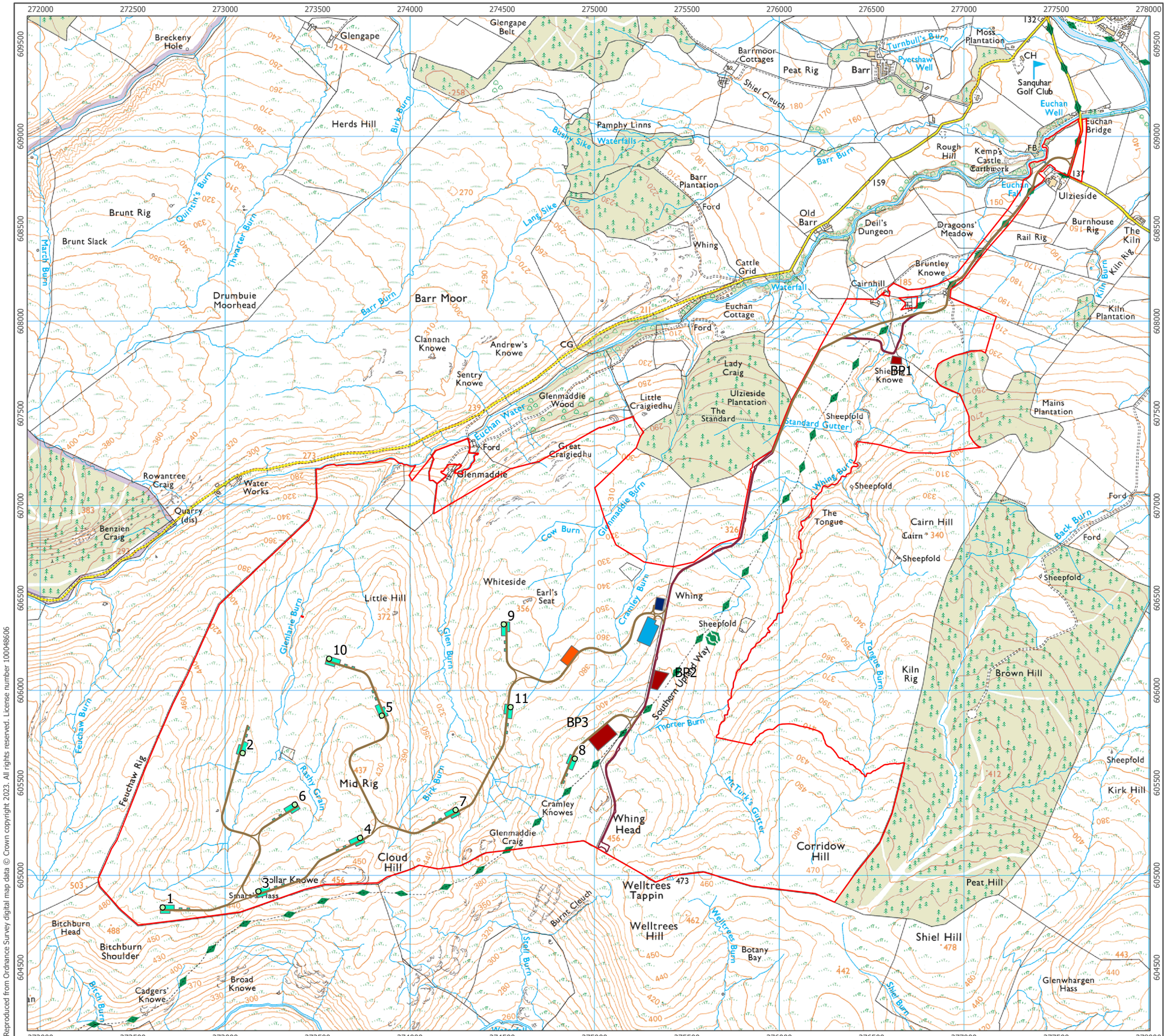
Technical Appendix A14.1: Access Management Plan contains details of the SUW that have been considered in determining the positions for the proposed borrow pits.

Considerations for the assessment of borrow pits following consent of the Proposed Development include:

- Ground investigations and relevant geo-environmental analysis undertaken prior to finalising borrow pit proposals;
- Three-dimensional design should be undertaken following detailed design and ground investigations to confirm the capacity of the proposed borrow pits; and
- Detailed profiles of borrow pit excavations including existing ground levels, proposed excavation levels and a conceptual restoration profile for each borrow pit should be produced once final borrow pit extents have been agreed.

Prior to the construction of the windfarm, design and best practices along with any required mitigation measures would be set out in full within a Construction Environmental Management Plan and agreed with the statutory bodies.

APPENDIX A FIGURES



Y:\GIS\Engineering\Projects\4254 Cloud Hill\4254 Cloud Hill.aprx\4254-REP-081 Fig10.3.1 Borrow Pit Locations

BayWa r.e.

ERM

Site Infrastructure

- BESS
- Borrow Pit
- Crane Hardstanding
- Proposed Temporary Construction Compound
- Substation
- Met Mast
- Turbine
- Proposed Access Tracks
- Existing Access Tracks
- Site Boundary

1:20,000 Scale @ A3

0 500 1,000 m

NORTH

Produced By: MV	Ref: 4254-REP-081
Checked By: GH	Date: 14/04/2023

Borrow Pit Locations
Figure 10.3.1

Cloud Hill Wind Farm
Borrow Pit Assessment

APPENDIX B CONSULTANTS COAL MINING REPORT

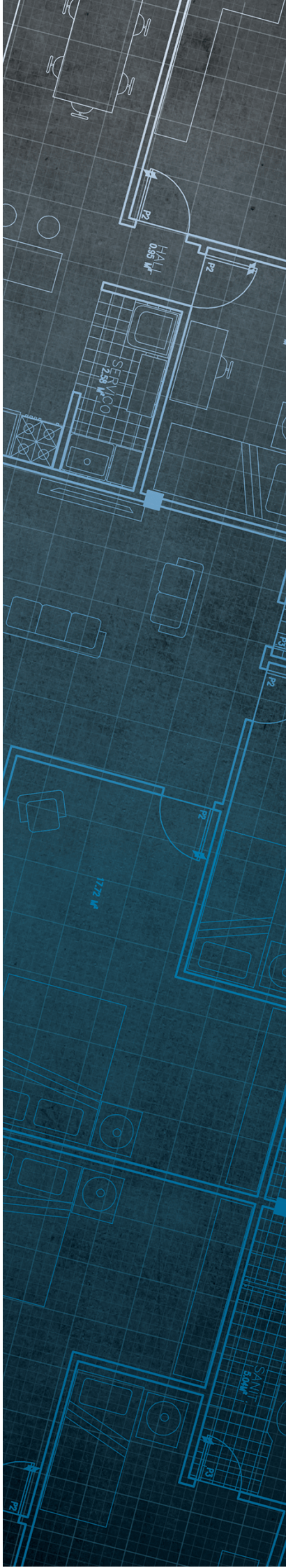
The Coal Authority

Consultants

Coal Mining Report

Site At
Sanquhar
Dumfries & Galloway

Date of enquiry:	**10 November 2022**
Date enquiry received:	**10 November 2022**
Issue date:	**10 November 2022**
Our reference:	**51003324066001**
Your reference:	**303762681_1**



Consultants

Coal Mining Report

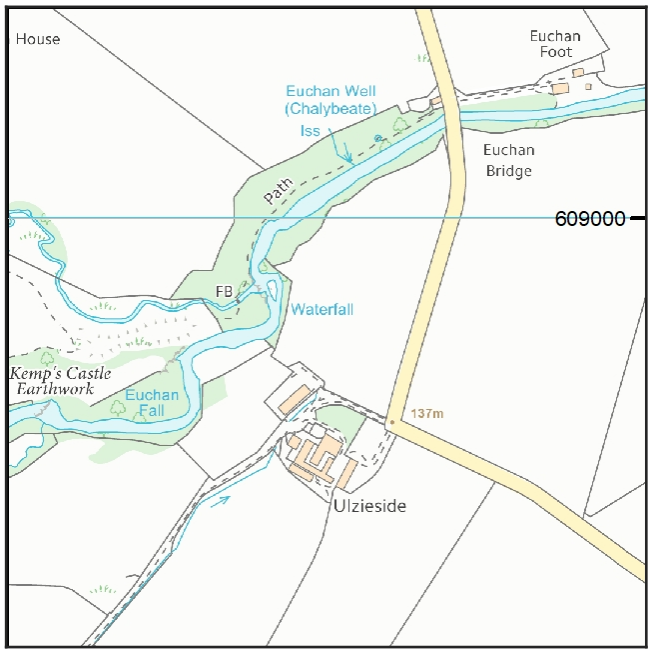
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

NLIS Hub

Enquiry address

Site At
Sanquhar
Dumfries & Galloway



Approximate position of property

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
None.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries
None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers
The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

S4858		

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
UNNAMED	Coal	Yes	Within	N/A	208
UNNAMED	Coal	Yes	Within	N/A	243

Geological faults, fissures and breaklines
Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines
None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips
None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations
None recorded within 50 metres of the enquiry boundary.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence
The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The Coal Authority

Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Outcrop (Proven)

Geological faults

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