

Geotechnical Assessment

Harras Dyke Farm

Whitehaven


Cumbria

G. Brownsword BSc MSc FGS

April 2021

Document Reference No. SG-Harras-001b



Document History and Revisions			
Site Location	Harras Moor, Whitehaven, Cumbria, CA28 6SQ, NGR 298875E, 518394N.		
Full Title	Foundation and Mining Assessment, Harras Dyke Farm - Former Opencast Coal Site, Whitehaven, Cumbria.		
Issued To	Ian Storey, Genr8 Land Ltd	Document Ref. No.	SG-Harras-001b
Date Issued	22 nd April 2021	Report Version	Final
Originator	Garth Brownsword BSc MSc FGS	Signature	
Authorised	Ian Storey	Signature	

Revision No.	Date	Details of Revision	Authorised By
1a	03/02/2021	Incorporation of comments	
1b	22/04/2021	Incorporation of Coal Authority's Coal Mining and Mine Entry Reports with comments	

BASIS OF TECHNICAL ASSESSMENT

Sword Geotechnical confirm that the geotechnical assessment was undertaken within the scope of the fee proposal and that tasks were desk-based (apart from the site visit) and that the information and guidance within is solely based on desk studies and a review of existing information. No intrusive works and/or contracting works were carried out by Sword Geotechnical. This assessment was undertaken by Garth Brownsword in the capacity of 'advisory geotechnical engineer' and all assessments and commentary are made on the basis that there is no liability regarding the chosen development, construction design, construction methods and long term condition of the site.

LIMITS OF LIABILITY

The use of the information in this geotechnical assessment is to the reader's/user's own risk and liability for using the information remains the sole responsibility of the reader/user. The originators of this assessment accept no liability for any losses, damages, costs and other consequences resulting directly or indirectly from using the information in this assessment.

FUTURE WORKS AND ONGOING GEOTECHNICAL ADVICE (IF REQUIRED)

If the advice in this geotechnical assessment is of interest to the reader or any future site developer/purchaser, then Sword Geotechnical is able to continue offering geotechnical advice and procurement support to assist in the appointment of consultants and firms that can design and implement appropriate groundworks and ground improvement solutions for this site.



1 Introduction

In support of Planning Application No. 4/16/2415/001 Sword Geotechnical was commissioned by Genr8 Land Ltd of Hesketh Newmarket, Wigton, Cumbria to undertake a site visit, review existing information and carry out a foundation assessment with a view to developing the site for low-rise residential use.

Engineer Garth Brownsword visited the site on 07/01/2021 and reconnoitred the relevant areas, the site's surrounding environs and the mine shaft capping.

Public domain information pertaining to the site, its history and geology were reviewed together with information supplied by Genr8 Land Ltd to Sword Geotechnical, i.e. geotechnical, site investigation, coal mining and desk study reports, and the site layout plan.

An annex is presented at the end of this document comprising site visit photographs and aerial view delineation of the 'Phase Areas' as discussed below, a sketch of the recommended type of stiff raft foundation¹, and in Annex D the draft drawing of the site layout plan showing the 'No Build' Exclusion Zones for the Highwall and Mine Entry (in relation to planning condition 12(ii), 4/16/2415/001, Copeland BC, dated 28/11/2016). Annex E comprises the Coal Authority's Mine Entry Interpretive Report and Coal Mining Reports (in relation to planning condition 12(i)).

2 Geotechnical and Coal Mining Assessment

For the whole site and based on the Coal Authority's coal mining and mine entry reports (refs. 51002456437001 and 51002472947001 respectively, dated 20/4/21) the following conclusions are presented:

- Deep underground coal mining was last mined in 1961 and any ground movements associated with these coal workings will have ceased a long time ago.
- Concrete capped shaft (mine entry ref. 298518-003) located in the east of the site in-between United Utilities' pipeline and the public highway can be seen in Site Photographs, Annex A. According to the Coal Authority (refer Annex E) this 3m diameter shaft has a 'very small' risk of subsidence. As bedrock is only 3.2m from surface in the unlikely event of subsidence occurring this would be very localised and would be within a very small area probably affecting the highway and pipeline but not the proposed residential properties as the nearest proposed garden is at least 35m away.
- Regarding the shaft the following engineering observations have been made:
 - The concrete cap was inspected by the Coal Authority on 06/09/2019 and by Engr. Mr G Brownsword on 07/01/2021 and was found to be in good condition with no signs of deterioration,
 - There is no Coal Authority fence around the cap,
 - There is concrete trig point on the cap,
 - The Rose Hill highway and United Utilities large diameter water main are within a few metres of the cap.

¹ Options for house foundations on difficult ground, Low Rise Housing Design Guide, NHBC Foundation and BRE Trust, Arup, Feb 2010, Figure 6 pp14.

Based on the supplied information, the site visit, and technical assessments the following geotechnical conclusions and recommendations are presented:

2.1 Phase 1 Area (10 residential dwellings bordering Harras Road) – (includes the area of land designated as 'Phase 1+' marked on Annex B drawing).

- The coal mining reports (refer Annex E) state that there are no shallow coalmine workings underlying the area and deep coalmine workings will have ceased causing ground movements many years ago.
- Good and strong ground conditions (outwith the backcast area and highwall edge) with relatively shallow sandstone bedrock allowing traditional strip or trench fill footings set in natural stiff clay at a minimum depth of 0.75m.
- Maximum Allowable bearing pressure, ABP = 150kPa in natural stiff clays (or weathered bedrock). Soft spots and thick deposits of Made Ground (if encountered) shall be dug out and replaced with either mass concrete or suitably compacted granular material.
- Following the above recommendations will keep settlement to less than 25mm.

2.2 Phase 2 Area (bordering Harras Road - outwith the backcast area and highwall edge)

- Same as above Phase 1 Area except the natural clay is Firm and a reduced ABP is required.
- Traditional strip/trench fill footings set at a minimum depth of 0.75m.
- Max ABP = 120kPa in natural firm clays. Soft spots and thick deposits of Made Ground (if encountered) shall be dug out and replaced with either mass concrete or suitably compacted granular material.
- Following the above recommendations will keep settlement to less than 25mm.

2.3 Phase 2 Area (bordering the water pipeline - outwith the backcast area and highwall edge)

- Deep coalmine workings will have ceased causing ground movements many years ago as confirmed in the Coal Authority's Mining Reports (Annex E).
- Presence of shallow coalmine workings (bell pits / coal crops) have a medium risk in this area as 'Unnamed G' seam was mapped in the opencast as 'workings'. Risk area along this strip between the highwall and water-pipe is middle and north of the site. To mitigate this it is recommended to carry out window sampler / probing to 5m (maximum 10m) or to refusal on strong ground/bedrock. It is anticipated this would take approximately 3 days and up to 10no. intrusive locations. Once this strip of land is cleared of the risk of bell pits the following footing solution should be adopted:
- Traditional strip/trench fill footings set at a minimum depth of 0.75m.
- Maximum Allowable bearing pressure, ABP = 100kPa in natural clays. Soft spots and thick deposits of Made Ground (if encountered) shall be dug out and replaced with either mass concrete or suitably compacted granular material.
- Following the above recommendations will keep settlement to less than 25mm.



- The soil profile logs show that the highwall is buried below existing ground level from 1.8m to approximately 3m depth. Allowing for a 'zone of influence' slope of 45° from the subsurface highwall edge, an acceptable 'No Build' Exclusion Zone is 3m.
- Regarding In line with Coal Authority advice, an acceptable 'No Build' Exclusion Zone is 20m from the boundary of the Mine Entry, i.e. approximately 25m from the centre of the mine shaft.
- A suitable standoff distance from United Utilities' pipeline shall be strictly adhered to, i.e. 10m.

2.4 Phase 2 Area (inside the highwall and overlying the backcast area - i.e. within the area of the former opencast coal site which is now backfilled). Part 1.

- Deep coalmine workings will have ceased causing ground movements many years ago.
- The maximum depth of backcast is approximately 40.7m in the south eastern part of the area. The minimum depth of backcast is approximately 21.3m bordering the eastern highwall mid-site.
- The opencast coal excavation was backfilled *circa* 35 years ago with backcast, i.e. gravels/cobbles/boulders comprising mudstone, siltstone, and sandstone. Ground settlements caused by 'self-consolidation' of the backfill will have reached equilibrium.
- The backcast has standard penetration 'N' values generally well above 10, in fact the average values for the site would be at least 15 to 6mbgl, 21 from 6mbgl to 10mbgl, and 35 deeper than 10mbgl. This is representative of strong ground with relatively low compressive (settlement characteristics). However, due to the variable distribution of cobbles and large boulders, the 'stiffness' of the ground is very variable both laterally and depth-wise, therefore a foundation solution will be required to mitigate this material characteristic and the risk of differential settlement.
- The top *circa* 2m 'capping' overlying the backcast is described as 'firm sandy gravelly clay' (made ground) and is susceptible to variable settlements as evidenced by the maintained load tests carried out at the site.

Considering the above geotechnical ground conditions the following foundation solution is recommended:

- Reinforced concrete 'stiff' Raft footings set at a minimum of 500mm depth and underlain by at least 300mm of double layered biaxial geogrid reinforced granular material suitably compacted. The reinforced 300mm layer shall extend at least 2m beyond the RC raft. A sketch of a typical RC raft foundation is presented in the annex.
- Base Course to highways, car parking areas and pathways shall be underlain by a double layered biaxial geogrid reinforced granular layer.
- ABP (averaged over the entire RC raft) shall not exceed 20kPa to keep settlements within tolerance of 50mm.
- Service and utility connections shall be flexible or of the 'hanging' type to allow for acceptable differential ground movements between structure and services.



2.5 Phase 2 Area (inside the highwall and overlying the backcast area - i.e. within the area of the former opencast coal site which is now backfilled). Part 2.

- As section 2.4 above except this sub-area is defined by a sunken and boggy wet area to the south west of the site (see site photograph in annex). This sub-area coincides with the deepest mined area and may still be consolidating/settling.
- It is recommended that this area be surcharged with a stockpile at least 3m to 4m high for at least 8 months and an accurate set of surveys be done to determine if settlement is on-going, minimised or ceased.
- Once the settlement characteristics are known it is recommended that a RC raft footing be used with the same reinforcing and sub-base as above recommendations in section 2.4.

3 General Recommendations

It is recommended that no foundation straddle the 'highwall edge' without carrying out significant ground treatments and reinforcements in the backcast to appropriate depth to mitigate potential differential settlements.

Where highways, car parking, and footways cross or straddle the highwall edge it is recommended to employ additional soil reinforcement such as biaxial geogrids within compacted sub-base to mitigate differential settlements.

In reference to where services and utilities cross the highwall edge, an allowance for differential settlement in the design and alignment shall be allowed for.

The existing capped mine entry (ref. 298518-003) should be fenced off to prevent public entry. In the event that United Utilities and Highways Dept. would require confirmation that the shaft has been treated, it may be possible to agree with these parties to the shaft being concrete cored and checked for integrity, and a specialised drilling rig installed to prove depth to the bottom of the shaft (i.e. bedrock) and to verify if the shaft has been grouted or backfilled. If untreated, then the shaft could be remediated to the satisfaction of all parties including the Coal Authority.

As the site is generally boggy with predominantly soft clay at surface, for preliminary assessment purposes a CBR of 2% or less should be allowed for.

It is recommended that a suitably qualified and experienced geotechnical engineer confirms ground conditions during groundworks and inspects the footings prior to pouring of concrete.

Annex A

Site Photographs



Looking North East to South East



Looking North West to North East (note boggy sunken area mid image)



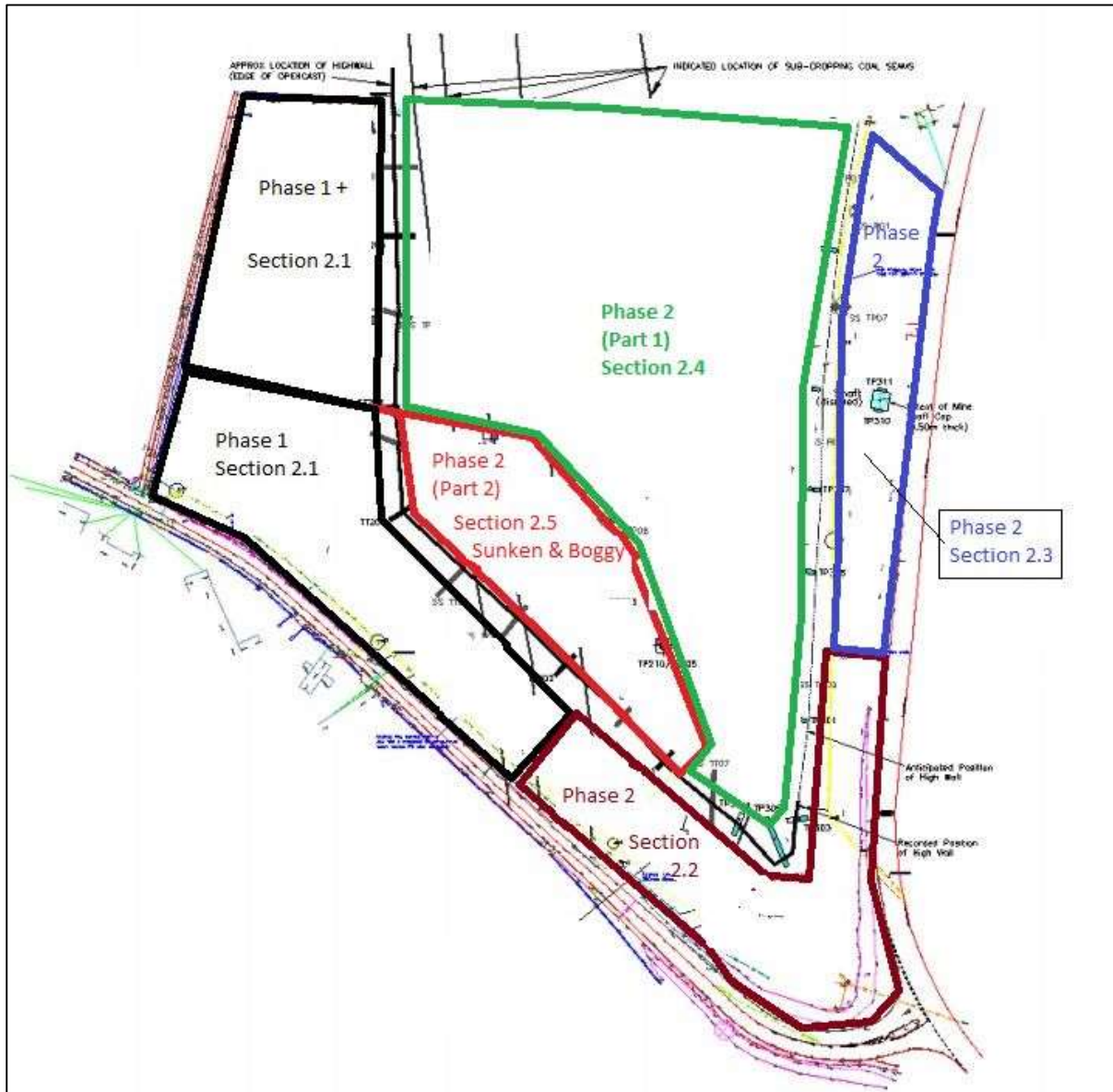
Looking South East - Boggy sunken area



Capped Mine Shaft

Annex B

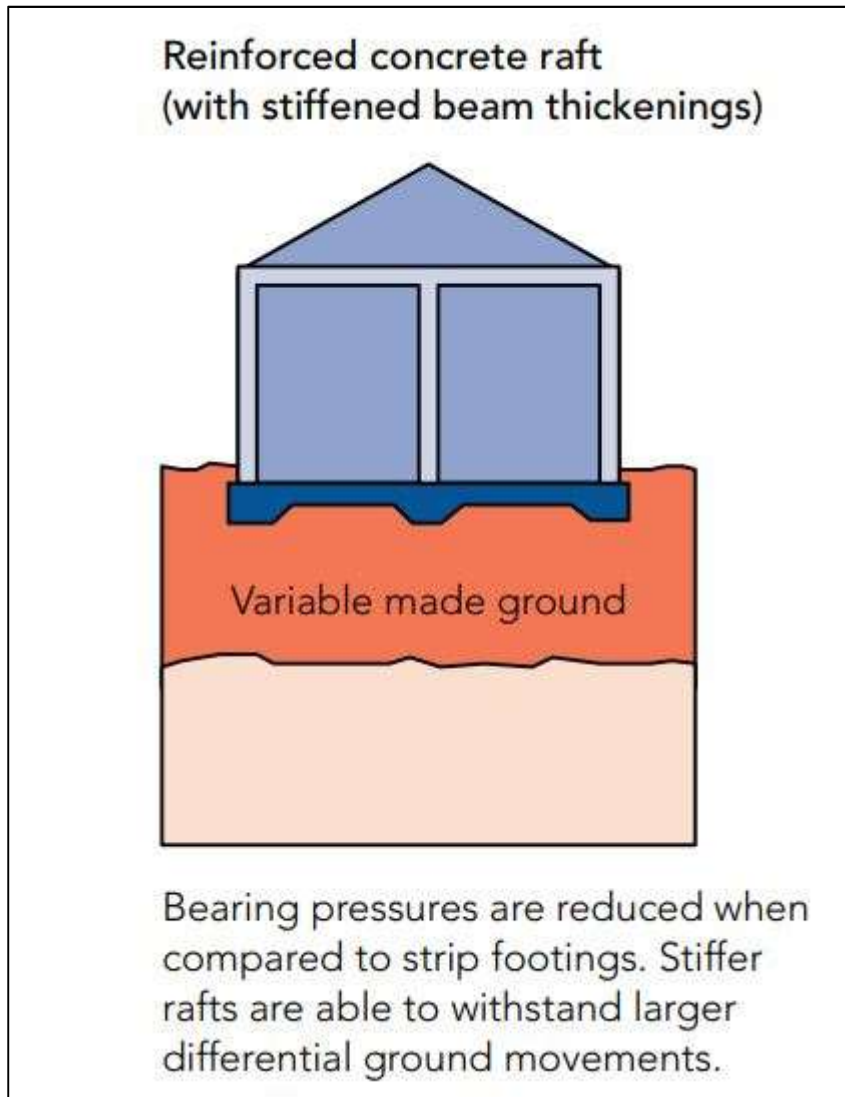
Phase Areas 1 and 2 and Sub-Areas Parts 1 & 2



Approximate Locations of Phased Areas, Surcharging and Foundation Zones

Annex C

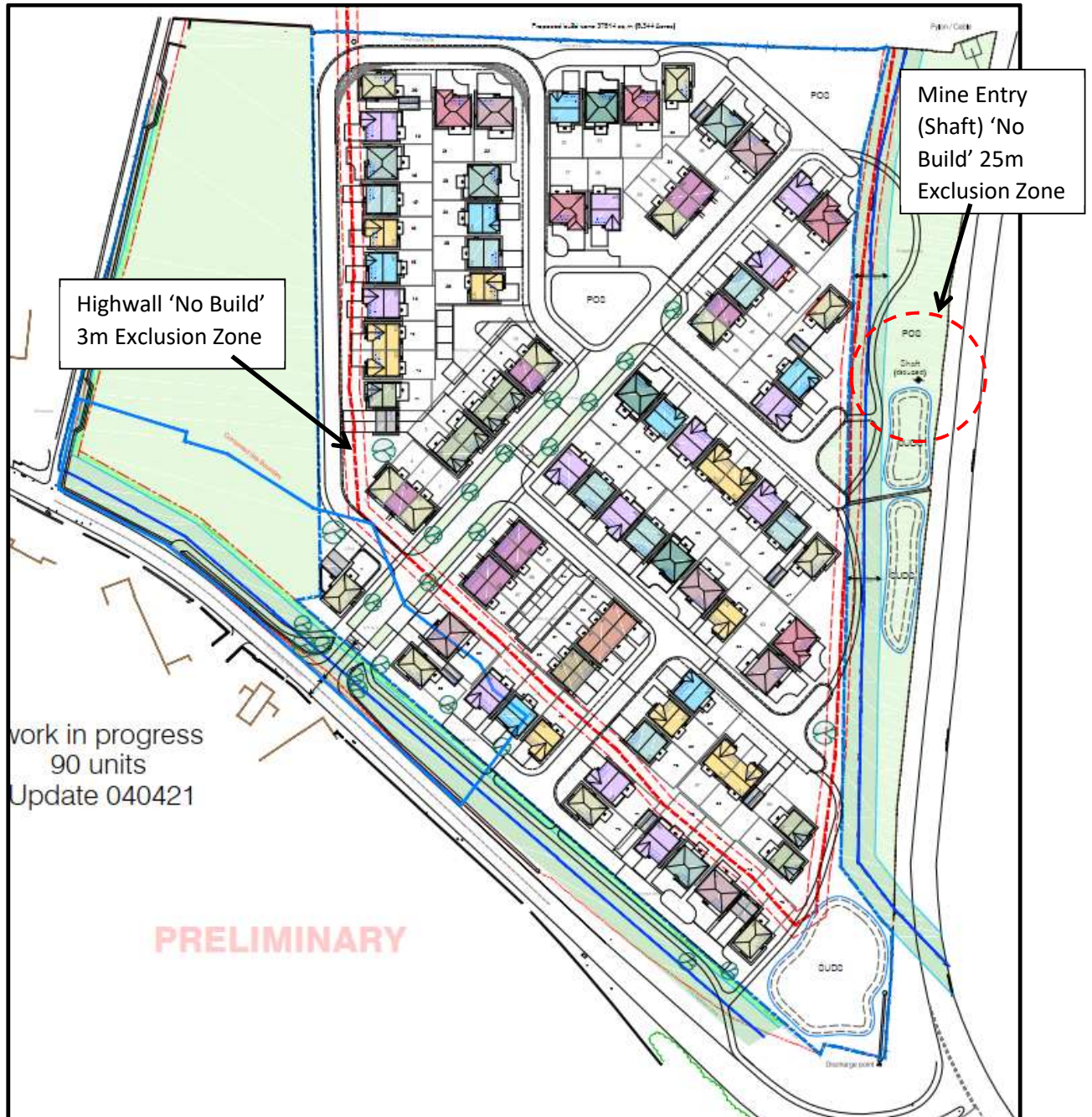
Example of Reinforced Concrete Raft



Source: *Options for house foundations on difficult ground, Low Rise Housing Design Guide, NHBC Foundation and BRE Trust, Arup, Feb 2010, Figure 6 - pp14*

Annex D – Layout Plan

Extract of Manning-Elliott Drawing (dated March 2021)

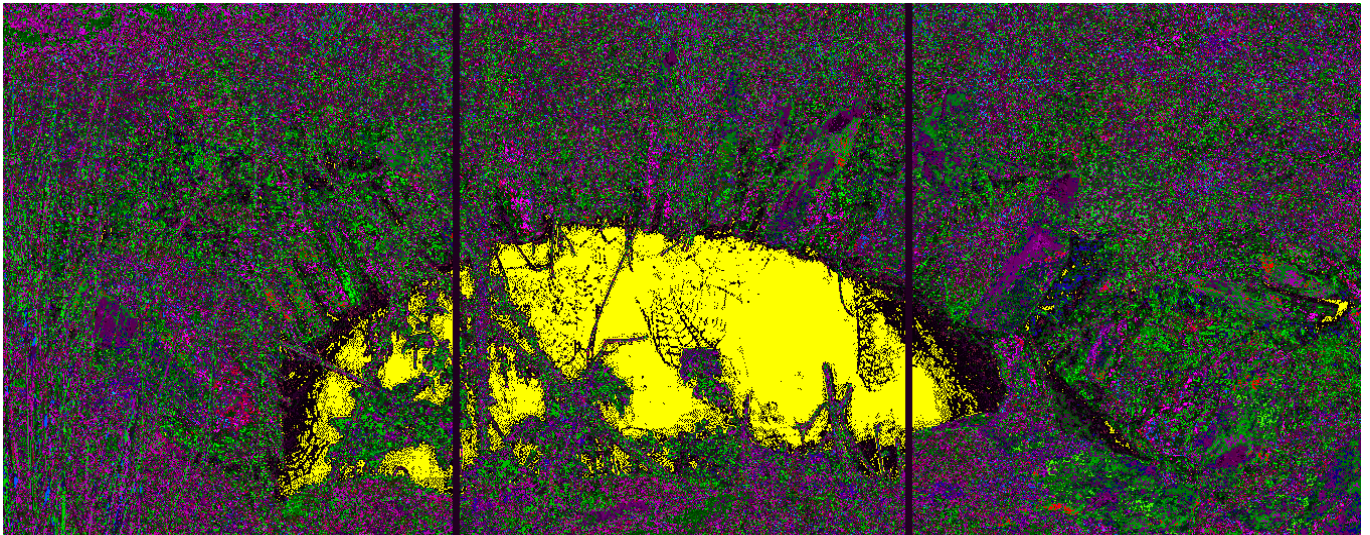




Annex E

Coal Authority Reports

Mine Entry Interpretive Report



HARRAS DYKE FARM, HARRAS ROAD, WHITEHAVEN, CUMBRIA

Date of enquiry: 20 April 2021
Date enquiry received: 20 April 2021
Issue date: 20 April 2021

Our reference: 51002456437001
Your reference: 003. HDF

Mine Entry Interpretive Report

This report has been prepared using the records held by the Coal Authority at the time the report was produced.

Client name

Ian Storey

Enquiry address

HARRAS DYKE FARM, HARRAS ROAD, WHITEHAVEN,
CUMBRIA

How to contact us

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

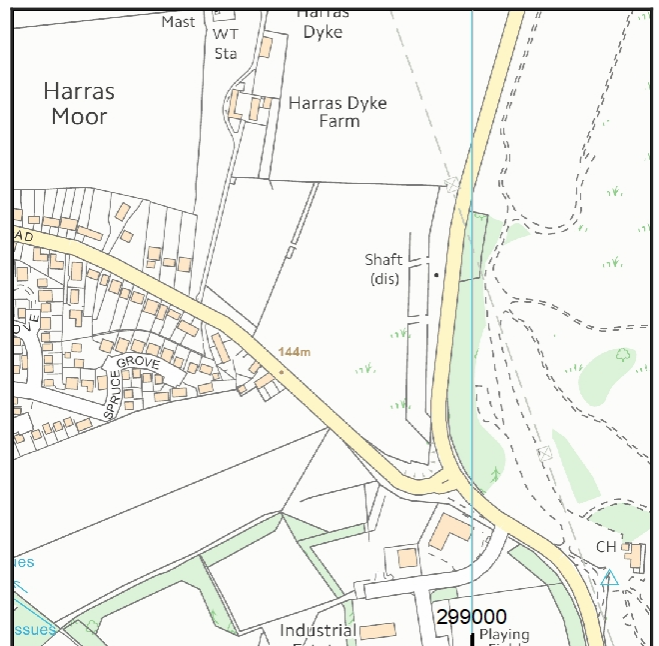
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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Mine entry information

If you live in a coal mining area there is a very small risk that your home or other property may be affected by coal mining subsidence.

To work out if your property is within the area of possible ground movement the report will take into account the actual or plotted position of the mine entry, its known or assumed diameter and the thickness of deposits above rockhead. For more information, please see our general information section.

In the unlikely event of your property being damaged by coal mining subsidence, you can, under the provisions of the Coal Mining Subsidence Act 1991, make a claim against the mine owner. The mine owner will treat the mine entry and arrange for repairs to the property to be carried out to the reasonable satisfaction of the property owner. The mine owner may also be liable to pay compensation for damage to moveable property such as furniture.

Please Note - The Coal Mining Subsidence Act 1991 does not cover subsidence damage caused by extraction of minerals other than coal.

Any insurance given with previous mining reports does not cover this report.

Mine entry reference 298518-003

Shaft or adit	Shaft
Mineral worked	Coal
Source	Ab Plan: NC 471 and 1372.. Geol: 1/10560 geological plan Cumb 67 NE - 1926 edition.
Colliery name	Unknown
Entry name	Unknown
Date abandoned	Unknown
Depth of superficial deposits (m)	3.2
Depth of shaft (m)	194.0
Diameter/maximum width (m)	3.0
Probable adit azimuth	Not Applicable
Treatment details	The shaft is located in an area that has been worked by opencast mining operations. There are no details of any treatment but it is likely that the shaft has been partially or totally removed. inspection on 06/09/2019 identified a concrete marker post at the shaft location
Conveyance	Not Applicable
Other information	Yes

The risk

If coal mining subsidence was to occur because of ground movement due to the mine entry, the main building (as shown on the plan) is within the area likely to be affected. Our opinion takes into account the thickness of the superficial deposits, the potential difference between the actual and the plotted positions of the mine entry and its diameter/maximum width.

The possibility of subsidence damage, especially given the information recorded in the treatment details above, is very small but should not be discounted completely.

The remedies

In the unlikely event of your property being damaged by coal mining subsidence, you can, under the provisions of the Coal Mining Subsidence Act 1991, make a claim against the mine owner. Depending on where you live, responsibility for dealing with your claim rests either with a mining company or the Coal Authority. Details of how to make a claim can be found on our website www.gov.uk/claim-for-subsidence-damage-caused-by-coal-mining. If you need any help or advice, please contact us.

The conclusion

In our opinion, the main building (as shown on the plan) is within the area likely to be affected if coal mining subsidence was to occur because of ground movement.

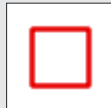
The statistical risk of the main building being damaged by subsidence especially given the information recorded in the treatment details above however is very small.

In the unlikely event of your property being damaged by coal mining subsidence, you can, under the provisions of the Coal Mining Subsidence Act 1991, make a claim against the mine owner to have the damage repaired.

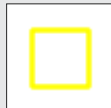
Enquiry boundary

Key

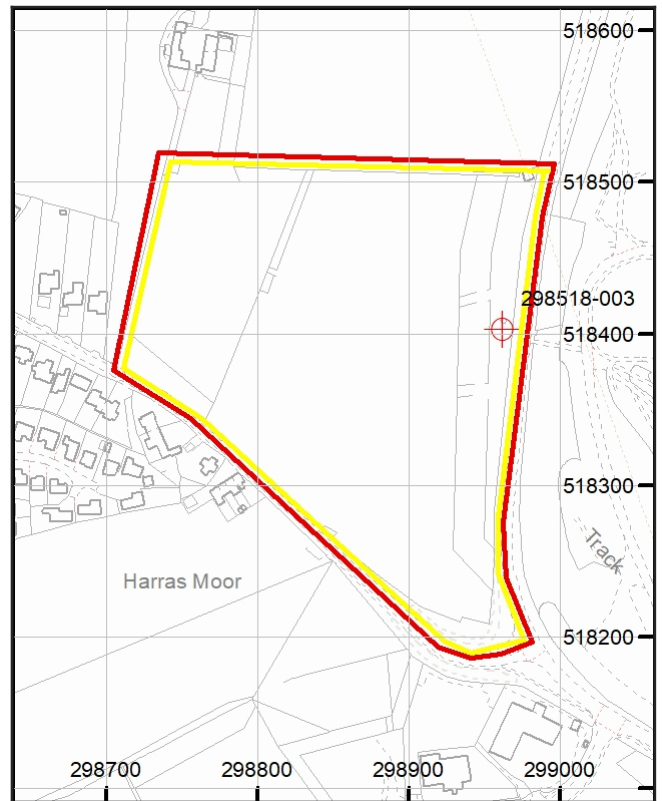
Approximate position of enquiry boundary shown



Approximate position of main building shown



Disused mineshaft



How to contact us

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

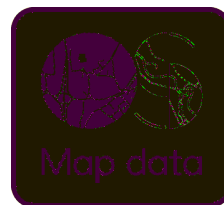
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General information

The following information is based on the Authority's interpretation of the facts in its possession at the time the report was produced and on the Ordnance Survey's (OS) improved data. A site inspection has not been carried out.

1. Some of the source documents used may be very old and can have varying standards of accuracy. As a result, the plotted positions of mine entries can be different, to varying degrees, to their actual positions.
2. The thickness of superficial deposits has been taken from the records of the Authority and/or those of the British Geological Survey. © NERC All rights reserved. Where the Authority has information about activities such as infill operations or excavation, which may have affected the thickness of deposits above rockhead, this will also be taken into account.
3. The Authority will only provide the depth of a mine entry where this is known.
4. Where information about the diameter of a shaft is not known, it will be assumed. The assumption will be based on other shafts in the vicinity, the likely date it was sunk and any other relevant information, for example the depth of seams the shaft is thought to have accessed. Where a shaft is not circular, the maximum diagonal dimension will be used.
5. The zone of possible ground movement of an adit will be calculated for the estimated position of the mouth of the adit. It will not apply to the underground length of the adit. The approximate adit direction, where applicable, will be quoted in degrees from North.
6. Where treatment details are recorded, this information will be given. Where records are not available, "Unknown" will be reported.
7. The issue of ownership of mine entries is extremely complicated. Where details of the sale of a mine are known these will be provided. Where no sale details are available, in most instances, ownership will rest in the Coal Authority. Whatever the position with ownership, if coal mining subsidence damage does occur, statute provides for the 'responsible person' to provide a remedy. The 'responsible person' is either the Coal Authority or a licensed mining operator.
8. The report has been prepared by experienced mining surveyors with knowledge in the management and interpretation of coal mining information.

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Alternative formats

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Terms and conditions

Our full terms and conditions can be found on our website – www.groundstability.com.



The Coal
Authority

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

**IAN STOREY
14 PINECROFT
CARLISLE
CUMBRIA
CA3 0DB**

Our reference:	51002456437002
Your reference:	003.HDF
Date of your enquiry:	20 April 2021
Date we received your enquiry:	20 April 2021
Date of issue:	20 April 2021

This report is for the property described in the address below and the attached plan.

Shaft Plan and Data Sheets

HARRAS DYKE FARM, HARRAS ROAD, WHITEHAVEN, CUMBRIA

I refer to the enquiry dated 20 April 2021, received 20 April 2021, in connection with the above.

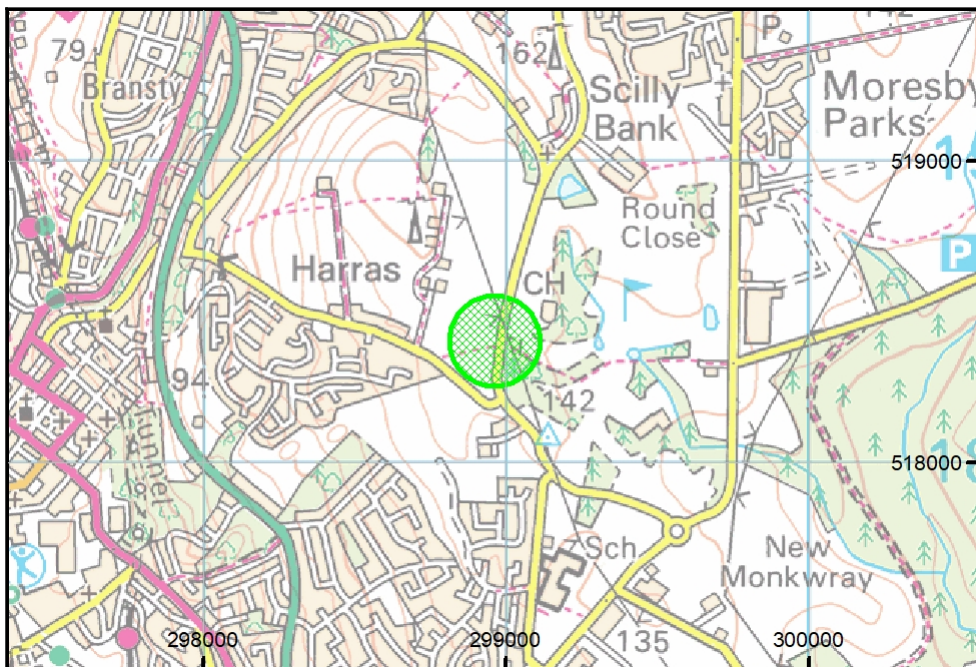
As requested I enclose the mine entry data sheet(s) held for the mine entry/entries referred to.

Mine Entry Data

Shaft/adit:	Shaft
Reference:	298518-003
Source:	Ab Plan: NC 471 and 1372.. Geol: 1/10560 geological plan Cumb 67 NE - 1926 edition.
Colliery name:	Unknown
Entry name:	Unknown
Date abandoned:	Unknown
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	194.0
Diameter of shaft (m):	3.0
Probable adit azimuth:	Not Applicable
Treatment details:	The shaft is located in an area that has been worked by opencast mining operations. There are no details of any treatment but it is likely that the shaft has been partially or totally removed. inspection on 06/09/2019 identified a concrete marker post at the shaft location
Conveyance:	Not Applicable
Easting:	298962
Northing:	518403
Other information:	Yes

Location map

Approximate position of enquiry



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This plan shows the approximate location of the disused mine entry / entries referred to in the attached mining report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

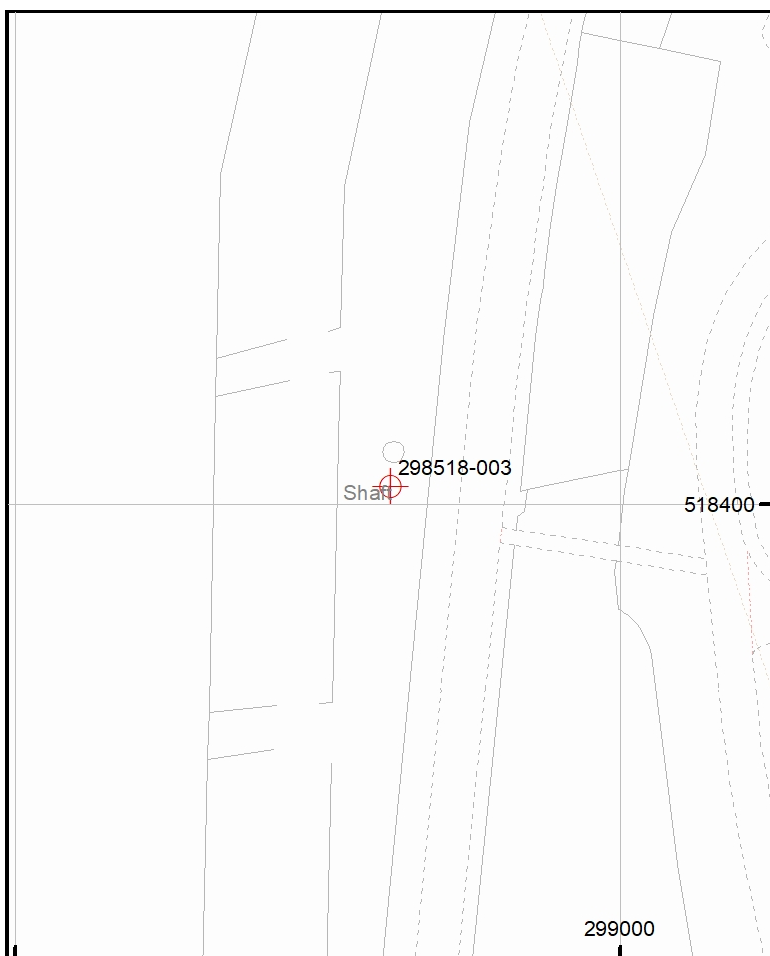
If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries).

Our emergency telephone number is 01623 646333.

Key

Disused Adit or Mineshaft





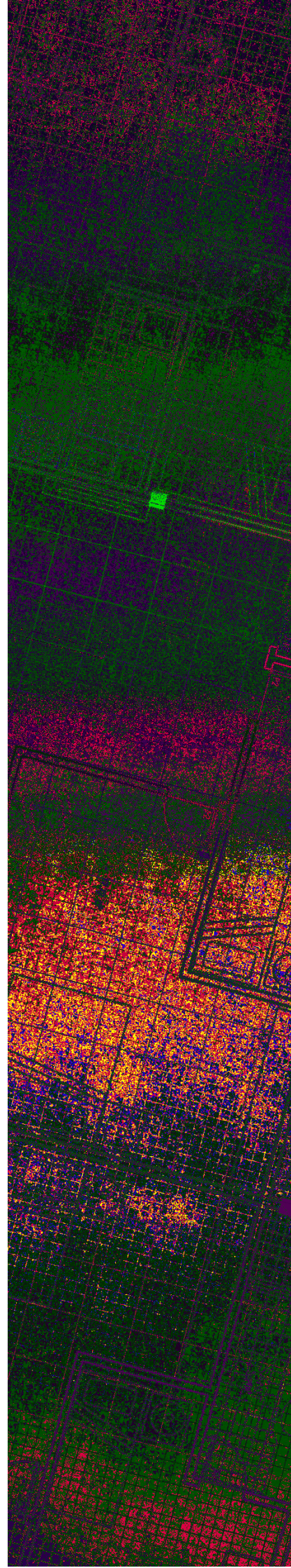
The Coal
Authority

Consultants Coal Mining Report

Harras Road
Whitehaven
Cumbria

Date of enquiry: 20 April 2021
Date enquiry received: 20 April 2021
Issue date: 20 April 2021

Our reference: 51002472947001
Your reference: 003. HDF



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

Ian Storey

Enquiry address

Harras Road
Whitehaven
Cumbria


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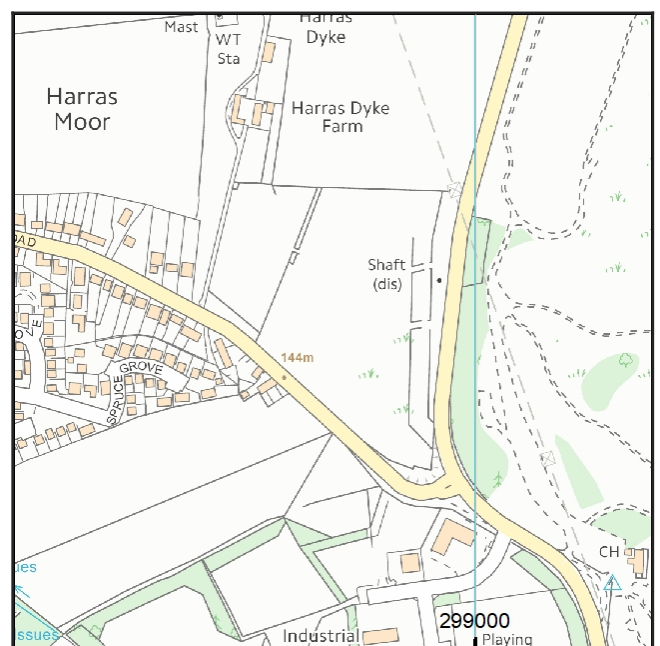
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
WHITEHAVEN	MAIN	Coal	006N	120	Beneath Property	8.2	West	182	1961
unnamed	SIX QUARTERS	Coal	009G	164	Beneath Property	4.9	North	81	1960
unnamed	MAIN	Coal	0090	176	Beneath Property	5.5	West	180	1960

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	298518-003	298962 518403	The shaft is located in an area that has been worked by opencast mining operations. There are no details of any treatment but it is likely that the shaft has been partially or totally removed. inspection on 06/09/2019 identified a concrete marker post at the shaft location	Coal	

Abandoned mine plan catalogue numbers

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

NW1454	NW1378	NC471
NC472	NW1390	NW1321
PO0	NW1395	NW1372

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas 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

Distance to site investigation (m)	Direction
Within	N/A

See Section 4 for further information.

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

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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.

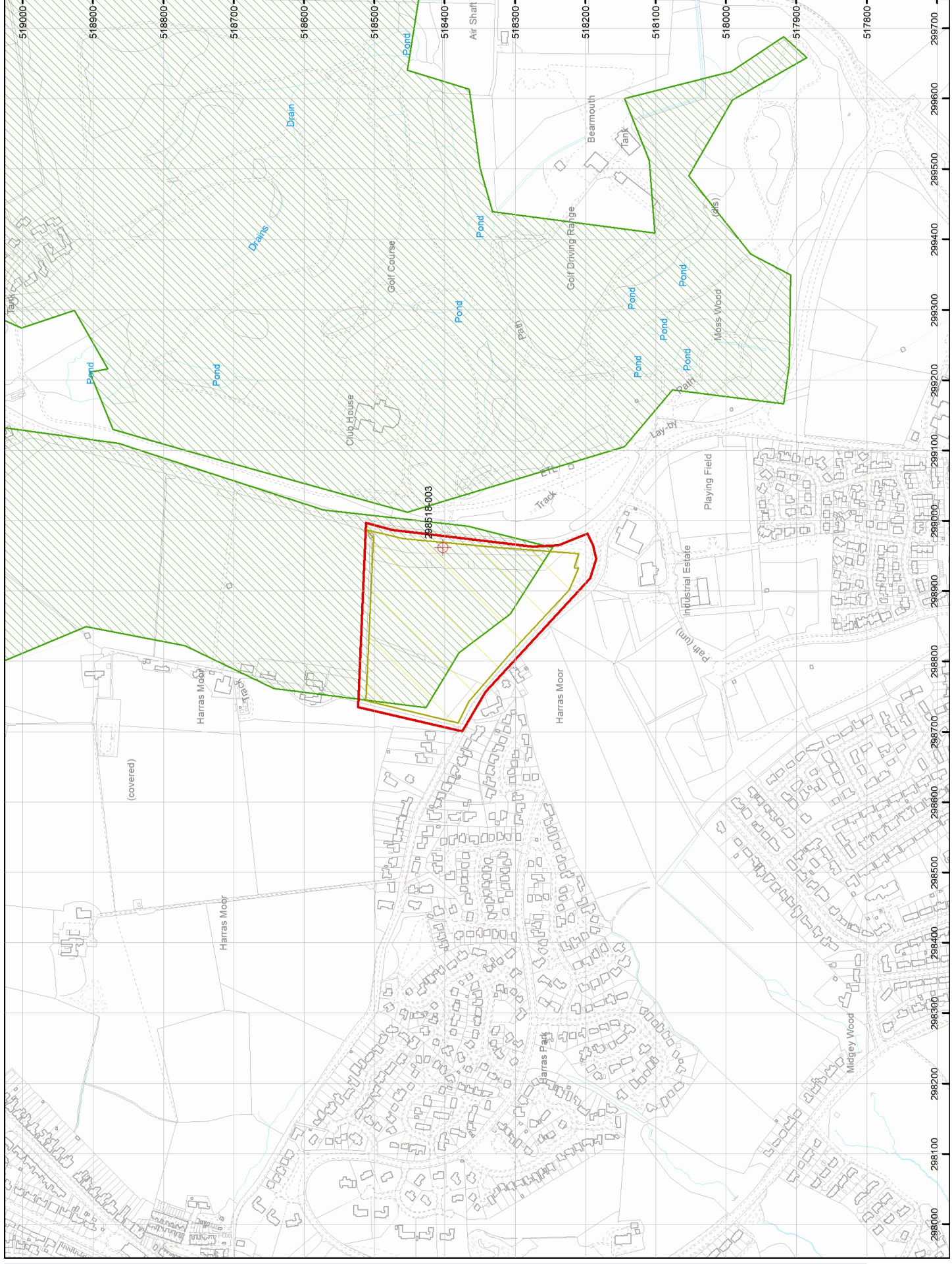
Payment to owners of former copyhold land

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.




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
-  Disused mine shaft
-  Unlicensed opencast site
-  Site investigations

How to contact us
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