

**Geoff Briton
C/O Stone Croft,
Hall Royd Lane
Silkstone Common
Barnsley
S75 4PH**

**LYONS CMC
COAL MINING & GEOTECHNICAL
CONSULTANCY**

Web: www.lyonscmc.co.uk
Email: mark@lyonscmc.co.uk
Mob: 07887555580

Date: 8th May 2025
Your ref: (S75 4PH)
My Ref: SI 00391.2

FOR THE ATTENTION OF GEOFF BRITON

Dear Sir,

**COAL MINING RISK INTERPRETATION REPORT – FOLLOWING THE SITE
INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT STONE CROFT, HALL
ROYD LANE, SILKSTONE COMMON, BARNSELEY S75 4PH**

I am pleased to supply the following report for the above named project and trust that this satisfies your requirements. Please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,

M Lyons

M. Lyons
Consultant Mining Engineer
BSc CSci MIMMM

THIS REPORT IS BASED ON AND LIMITED TO THE INFORMATION IN MY RECORD AT THE TIME THE ENQUIRY IS ANSWERED. It is based on my professional opinion in line with the guidelines set out in CIRIA Special Publication 32 - "Construction Over Abandoned Mine Workings. Copyright in this report belongs to M.A.Lyons. All rights are reserved and unauthorised use is prohibited. Copyright is not transferred to external parties by possession of this report, however, those for whom the report is compiled have the right to use it. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the author does not owe them any Duty of Care or Skill.

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1. Introduction

Planning permission is being considered for residential development at the above location (following the demolition of the large existing single storey stone dwelling which includes an old games room and swimming pool), subject to the mining legacy risks been fully realised and mitigated from on site, if necessary. Cape Site Services has now undertaken this work via an intrusive site investigation of 6 boreholes and 4 probe holes, the location of which is outlined on plan no. 00391/B – as attached and illustrated in appendix 5.2. The site is centred at OS NGR: 429407E / 404622N.

2. Scope of the Report

The mining legacy risks to the development are as follows:

- Instability from shallow underground coal workings
- Instability from known mine entries
- Fugitive gas emissions

A search of the Mining Remediation (Coal) Authorities interactive viewer indicates that this site is located in a high risk referral area due to the presence of past shallow coal workings and two disused mine shafts. Up to date BGS records, along with local historic mining information, indicates that the 'Parkgate' coal seam is conjectured at/close to the surface centrally within the site, dipping at a rate of 6° (1 in 10) to the north-east in this vicinity. The former 'New Sovereign' colliery (some 1.2km away to the east) shaft section detail indicates the Parkgate seam as around 1.5m thickness at that location (including a 0.45m dirt band); with the next workable seam below being the 'Thorncliffe' coal seam, again of around 1.5m thickness, some 26m deeper. Given best practice (CIRIA C758D) it is considered that the Thorncliffe seam will not interact with the Parkgate seam from a void migration aspect; therefore, boreholes were decided to be taken to 20m deep maximum to check the shallow mining position. Mine shaft (MRA ref: 429404-006) which is located within the site, will require adequately proving and locating in order to safely develop around – particularly considering that the MRA have little detail of any shaft cap or treatment to the feature, other than records indicating it is to 64m deep and named as 'Silkstone Main'. Mine shaft (MRA ref: 429404-017), located just to the north, will not require investigating for as it is considered that development can be sited clear of its zone of influence from a stability aspect – 10m departure radius as indicated on the MRA's interactive viewer information – and illustrated on the attached plan no. 00391/B.

Consequently, the risks need to be properly determined to ensure sound stability for the development (*note: informative(s) in appendix 5.6*). A borehole investigation consisting of 6 holes was deemed a reasonable level of investigation in the outset regarding the shallow mining position and given the large remaining property on site; along with various probe holes to natural ground to determine the location of the mine shaft ref: 429404-006. A watching brief would also be implemented for any signs of other uncharted mine entries.

It should be noted that this investigation is focused mainly on determining stability from potential shallow historic coal workings and the known mine entry, it will only provide limited information regarding the risks of uncharted mine entries. The report will not consider other geotechnical and/or geo-environmental issues, such as contamination from past land use - however, it is noted from an old county sheet map from circa 1960 that a 'Council Depot' building appears to have been built over/close to the mine shaft to be investigated for.

3. Site Investigation

3.1 Methodology

Prior to the intrusive site investigation, a search for utilities was undertaken both via online data providers and physically on site using a Cable Avoidance Tool (CAT). Boreholes were marked out with tape measure from boundary lines as illustrated on plan no. 00391/B outlined in appendix 5.2. As part of the mine entry watching brief, a pre survey was undertaken with no visible evidence of either the known mine shaft or any other uncharted mine entries.

An investigation utilising a tracked Beretta Rotary Drill Rig equipped with 2m long 75mm diameter drill rods was deemed appropriate in this instance along with water flush techniques to analyse returns and minimise any risks associated with mine gas emissions and spontaneous combustion. Gas monitoring equipment would be employed during works for risks associated with Methane, Carbon Monoxide, Oxygen, Carbon Dioxide and Hydrogen Sulphide. Prior agreement had been secured for these works from the Coal Authority -permit ref: 29666 – as attached for reference in appendix 5.4.

The works were to be supervised by the Drilling Engineers Mr. S. Fish and Mr I. Wiles, and overseen by the Principal Engineer Mr. M. Lyons.

3.2 Interpretation of Findings – Boreholes (shallow mining voids)

Borehole number 1 proved 0.3m of topsoil, 0.9m of made ground/spoil, followed by 0.2m of orange/brown clay before a coal seam at 1.4m deep. The coal seam was recorded in-tact at a thickness of 0.9m with light brown/grey silty mudstone beneath. Firm mudstones and sandstones were then encountered to a second in-tact coal seam at 18.9m deep, recorded as two leaves at: 0.7m thickness top leaf; 0.5m mudstone parting; 0.2m thickness bottom leaf to 20.3m deep. The borehole was terminated in firm mudstone at 21m.

Borehole number 2 proved 0.2m of topsoil, 1.2m of made ground/spoil, followed by 1.2m of orange/brown clay before a coal seam at 2.6m deep. The coal seam was recorded in-tact at a thickness of 0.5m with light brown/grey silty mudstone beneath. Firm mudstones and sandstones were then encountered to the in-tact top leaf of the second coal seam at 19.1m deep, recorded again as 0.7m thickness. The borehole was terminated in firm mudstone parting at 20m.

Borehole number 3 (around 1.5m lower in elevation than BH's 1 & 2) proved 0.3m of topsoil, 1.5m of made ground/spoil, followed by 0.9m of orange/brown clay before mudstone bedrock at 2.7m deep. Further mudstones and sandstones were then encountered to the in-tact top leaf of the lower coal seam at 16.9m deep, recorded as: 0.8m thickness top leaf; 0.6m mudstone parting; 0.2m thickness bottom leaf to 18.5m deep. The borehole was terminated in firm mudstone at 20m.

Borehole number 4 proved 0.3m of topsoil, 2.5m of made ground/spoil, followed by 1.1m of grey/brown clay with mudstone before the top coal seam at 3.9m deep. The coal seam was recorded in-tact at a thickness of 0.7m with light brown/grey silty soft mudstone beneath. Firm mudstones and sandstones were then encountered from 7m to 20m deep where the hole was terminated, before reaching the second/lower seam.

Borehole number 5 proved 0.2m of topsoil, 1.9m of made ground/spoil, followed by 0.9m of grey/brown clay before mudstone bedrock at 3m deep; continuing to the in-tact top coal seam at 6.4m deep. The coal seam was recorded as a thickness of 0.6m with light brown/grey silty soft mudstone beneath. Firm mudstones and sandstones were then encountered from 7m to 20m deep where the hole was terminated, before reaching the second/lower seam.

Borehole number 6 proved 0.2m of topsoil, 1.1m of made ground/spoil, followed by 1.2m of grey/brown clay before mudstone bedrock at 2.5m deep; continuing to the in-tact top coal seam at 3.0m deep. The coal seam was recorded as a thickness of 1.0m with light brown/grey silty soft mudstone beneath. Firm mudstones and sandstones were then encountered from 4m to 20m deep where the hole was terminated, before reaching the second/lower seam.

No signs of underground shallow coal workings were encountered at any of the three borehole locations with no loss of flush encountered. This appears consistent with the fact that no visible signs of significant settlement issues could be seen on the existing large stone building, thought to have been built circa 1970. The top coal seam appeared to be of a relatively poor weathered quality, hence it having been historically left un-worked. No fugitive gases were detected at any point during the drilling operations.

3.3 Interpretation of Findings – Probe holes (mine shaft ref: 429404-006)

Upon commencing the probing works, a concrete slab was immediately encountered beneath between 0.2m to 0.3m of topsoil, for which it seemed a more pragmatic solution to utilise the client's small excavator to expose the extent of - from a safe distance away and via the use of tethering of both plant and personnel. The concrete slab measured 3.2m square, with what appeared to be 'older' foundations of old red brick, slabs and thinner concrete on the northern, eastern and southern edges, but with a brickwork edge directly beneath the concrete slab in excess of 1.5m deep on the western side - considered as extending to the firmer ground/bedrock. As the concrete slab was suspected as a potential shaft cap, it was decided to probe around the feature by 2m or so away to prove the depth to natural ground/bedrock. This was achieved on the 3 sides as indicated on the attached plan (to the west, north and east), which proved topsoil and made ground/spoil to between 1.2m deep to 1.8m deep; with what was believed to be the bottom section of the top coal seam (as encountered in the wider

boreholes previous) in probe holes nos. 2 & 3 recorded as 0.5m thickness at 2.1m / 1.8m deep respectively.

Given the very limited records held by the MRA for this shaft, notably any treatment and/or capping details (and considering the possible presence of a former building foundation from circa 1960), it was felt imperative that we proved the concrete slab was indeed the shaft cap via a probe hole through its centre to check the nature below. A 0.2m diameter core was taken through the slab which proved it to be re-enforced (1 layer of mesh) concrete at the top to circa 0.3m followed by concreted red brick fill to 0.8m which broke up upon follow up probing; proving spoil fill to 7m deep – thus concluding the mine shaft. Gas monitoring equipment was held directly at the hole entrance for a few minutes with no dangerous levels of gases noted. The hole was immediately filled and sealed with bentonite to the surface with concrete re-instated. The shaft cap is illustrated on the attached photographs in appendix 5.5.

Using GPS equipment on-site along with back up measurements from the adjacent highway kerb and existing property corners for triangulation, followed by extrapolation into mapping software, the OS national grid reference for each corner of the shaft cap are calculated as follows (*to an accuracy of +/-0.5m*):

3.2m x 3.2m Cap Corner	Eastings	Northings
NE	429383.4	404625.1
NW	429380.2	404626.1
SW	429379.3	404622.7
SE	429382.6	404622.0

4. CONCLUSIONS AND RECOMMENDATIONS

- 1) Given the findings (weathered in-tact coal at/close to surface followed by a second/lower in-tact coal seam that should not affect stability be it worked or otherwise)) it is considered that the risks of shallow coal mining for this specific site is very low. It is considered that the 'past shallow workings' within the MRA information will relate to deeper coal seams in excess of 20m deep which (given the likely coal seams below this horizon) should not cause a stability aspect at the surface be they worked or otherwise - according to best practice as outlined in CIRIA C758D 'Abandoned mine working manual' – in that the site is very likely to have at least 10 times the thickness of any shallow coal seams in these parts of competent overlying strata. This also applies to the second/lower seam encountered in boreholes 1, 2 & 3 of this investigation (of overall 1.5m thickness). As such no further works or considerations regarding shallow coal workings will be necessary for the development and therefore usual foundations can be considered in line with the advice from the appointed architect/structural engineer & building control department at the time of development - *note the following conclusions however.*

- 2) It is usual practice not to build over a mine shaft or to within a line taken at 45° back from where the shaft/cap side intersects rock-head – according to the best practice of CIRIA C758D. Given the proven mine shaft cap of the former ‘Silkstone Main’ mine shaft (MRA ref: 429404-006), and considering depth to competent bedrock around the cap has been determined as 2.5m max., it is recommended that any proposed building foundation should be sited clear of the cap by at least 3m (*of the given OS National Grid References detailed within this report for each corner of the cap*). As the shaft has been proved to be filled, it may be acceptable for soft landscaping (gardens for example) to be maintained (like present) as the use above the cap itself; any other uses, such as hard standings/driveways, over or in close proximity (within 3m), will require the prior design approval from the Mining Remediation Authority (*as owners of the mine shaft and its cap*), who may require other mitigation measures to be carried out to ensure: a) safety for the development from their liabilities; and b) maintain the integrity of their property.
- 3) Development (buildings or other) should be avoided from the small area of the ‘zone of influence’ of the adjacent mine shaft ref: 429404-017 to the north of the site, as outlined in the attached plan – which equates to a 10m radius (MRA ‘departure’) drawn from the plotted shaft position. This situation could change however, subject to a further site investigation (following site clearance), that ‘disproves’ the mine shaft within the site itself to the boundary line in that zone. If this is determined, then building foundations should be sited away from the boundary line by the same distance to bedrock/formation level (to achieve the 45°rule should the shaft be present directly adjacent the site boundary to the north).
- 4) It would be advisable to consult an appropriately qualified geotechnical engineer to determine any specific requirements for future ground/foundation works in relation to the quite substantial colliery spoil which has been encountered beneath surface soils across the site as a whole, ranging between 0.9m to 2.5m in thickness. Issues around contamination and waste removal for example will need to be competently considered and mitigated from where necessary. Future STP (standard penetration tests) will also prove beneficial for a structural engineer to competently design any future foundation solutions from, considering the made ground and underlying clay deposits.
- 5) Any exposed coal should be blinded off to help prevent chemical attack and reduce the risks of spontaneous combustion of the seam; with foundations sited on firm underlying strata.
- 6) Although no fugitive gases were encountered during this investigation, it would be prudent (*given the mine entries, shallow coal and colliery spoil*) that associated protection measures (such as a methane membrane for example) are included within future building foundation designs; which could also protect from radon issues if required. All usual safety precautions should be employed regarding possible fugitive gases in any deep excavation work taking place (*note informative no. 3 in appendix 2*).

- 7) No signs of any other 'un-recorded' mine entries were observed during the investigation. Watching briefs are always prudent however during future ground works for any associated signs of either an old mine shaft or adit. The Coal Authority should be notified where any such feature is suspected.

Note: should there be any uncertainty of actual conditions during future ground works Lyons CMC or indeed the Coal Authority themselves can be further consulted for on site assessment if necessary.

A suitably qualified and competent professional should be employed to use this report to determine the conditions on site, and ultimately advise on what action, if any, is necessary to safeguard the development. It should be noted that any future works to investigate any coal seam, mines of coal or associated mine entries will need the prior consent of the Coal Authority via their permitting procedure.

I trust that this satisfies your requirements, however please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,

M Lyons

M. Lyons

Consultant Mining Engineer
BSc CSci MIMMM

Enc.

THIS SITE INVESTIGATION INTERPRETATIVE REPORT IS BASED ON AND LIMITED TO THE INFORMATION IN MY RECORD AT THE TIME THE ENQUIRY IS ANSWERED. It is based on my professional opinion in line with the guidelines set out in CIRIA C758D - "Abandoned Mine Working Manual." The opinion may be overruled by Government Authorities based on other information not in my record. Further site investigations may be undertaken which would supersede the factual findings of this investigation. Copyright in this report belongs to M.A.Lyons. All rights are reserved and unauthorised use is prohibited. Copyright is not transferred to external parties by possession of this report, however, those for whom the report is compiled have the right to use it. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the author does not owe them any Duty of Care or Skill.

5 Appendix

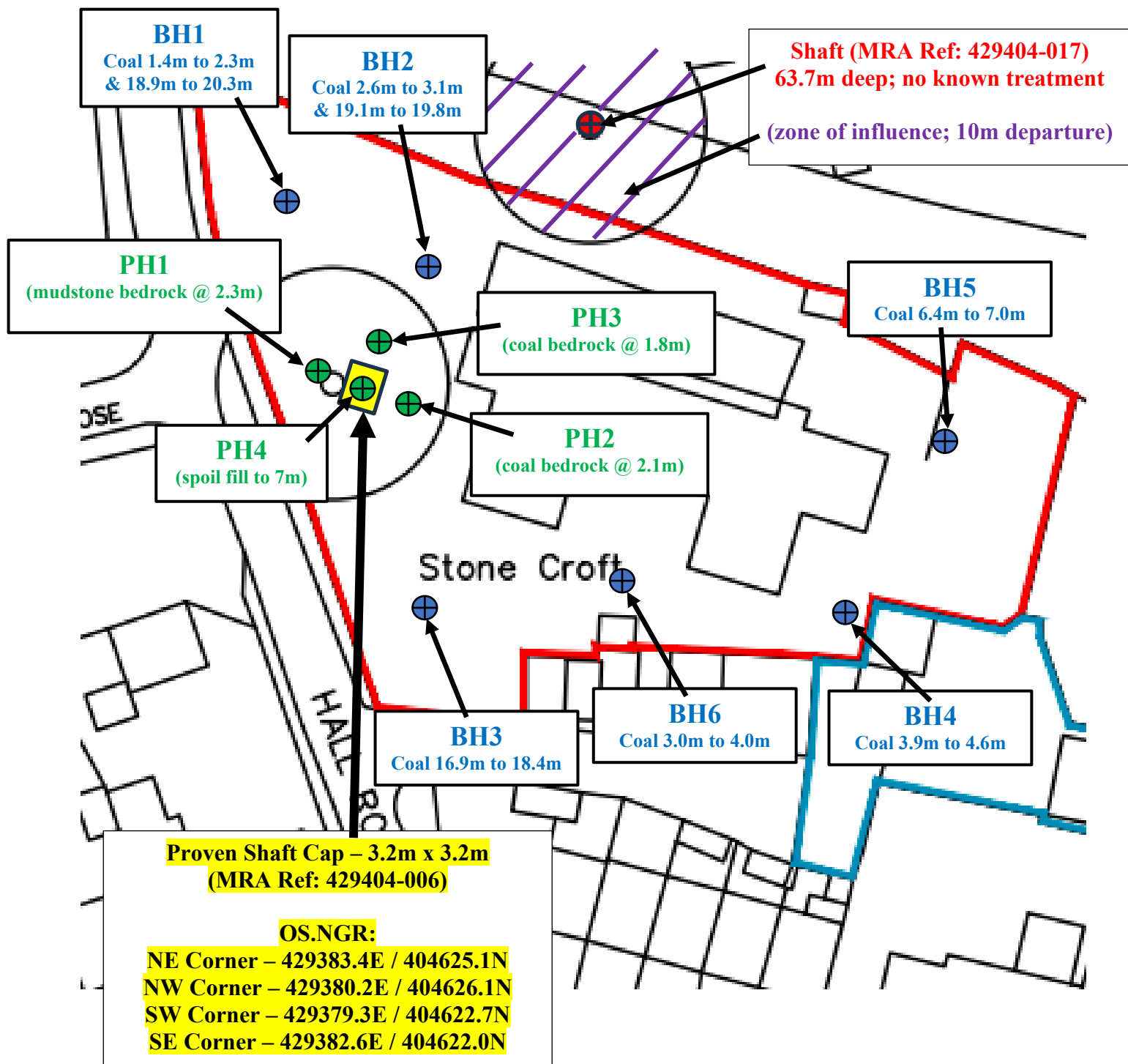
5.1 References

- 5.1.1 CIRIA C758D ‘Abandoned mine workings manual’.
- 5.1.2 British Standards Institution: BS 5930:2015 ‘Code of practice for ground investigations’ BSI 2015.
- 5.1.3 British Standards Institution: BS EN ISO 14688-1: 2002 + A1 2013 ‘Geotechnical Investigation and Testing - Identification and Classification of Soil - Part 1 - Identification and Description. BSI 2013.
- 5.1.4 British Standards Institution: BS EN ISO 14689-1: 2003 ‘Geotechnical Investigation and Testing – Identification and Classification of Rock – Part 1 – Identification and Description. BSI 2003. Incorporating Corrigendum No. 1 February 2007.
- 5.1.5 British Standards Institution: BS 10175 ‘The Investigation of Potentially Contaminated Sites. Codes of Practice’. BSI 2011+A1 2013.
- 5.1.6 British Standards Institution: BS EN ISO 22476-3: 2005 + A1 2011 ‘Geological Investigating and Testing. Field Testing. Standard Penetration Test’.
- 5.1.7 British Standard 1377:1990 Parts 1-9 ‘Methods of Test for Soils for Civil Engineering Purposes’.

5.2 Borehole/Probe-hole Location Plan No. 00391/B

LYON
COAL MINING & GEOTECHNICAL

LAND AT STONE CROFT, HALL ROYD
LANE, SILKSTONE COMMON,
BARNSELEY S75 4PH
Site Investigation
Borehole Location Plan
(NTS)



5.3 Drilling log sheets

Client: Lyons CMC	Site: Land at Stone Croft, Hall Royd Lane, Silkston Common, Barnsley. S75 4PH		Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX	
Date: 16-29/04/2025	Method: water flush	Permit No: 29666		
Driller: Ian Wiles			Driller Assistant: Richard Hawkins, Simon Fish, Jonathon Doughty	
			Page No: 1 of 3	

Measurements In Meters

BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	0.3	0.3	Topsoil grass
	0.3	1.2	0.9	Made ground mining spoil
	1.2	1.4	0.2	Clay orange brown grey
	1.4	2.3	0.9	Coal
	2.3	4.8	2.5	Mustone light brown grey silty
	4.8	13.3	8.5	Mudstone grey silty with odd sandstone bands
	13.3	18.9	5.6	Sandstone grey silty some brown odd mudstone band
	18.9	19.6	0.7	Coal
	19.6	20.1	0.5	Mudstone grey silty
	20.1	20.3	0.2	Coal
	20.3	21	0.7	Mudstone grey silty
2				
	0	0.2	0.2	Topsoil grass
	0.2	1.4	1.2	Made ground mining spoil
	1.4	2.6	1.2	Clay orange brown grey
	2.6	3.1	0.5	Coal
	3.1	5.1	2	Mustone light brown grey silty
	5.1	13.5	8.4	Mudstone grey silty with odd sandstone bands
	13.5	19.1	5.6	Sandstone grey silty some brown odd mudstone band
	19.1	19.8	0.7	Coal
	19.8	20	0.2	Mudstone grey silty
3				
	0	0.3	0.3	Topsoil grass

	0.3	1.8	1.5	Made ground mining spoil
	1.8	2.7	0.9	Clay orange brown grey
	2.7	11.4	8.7	Mudstone grey silty with odd sandstone bands
	11.4	16.9	5.5	Sandstone grey silty some brown odd mudstone band
	16.9	17.7	0.8	Coal
	17.7	18.2	0.5	Mudstone grey silty
	18.2	18.4	0.2	Coal
	18.4	20	1.5	Mudstone grey silty
4				
	0	0.3	0.3	Topsoil grass
	0.3	2.8	2.5	Made ground mining spoil
	2.8	3.9	1.1	Clay brown grey with grey mudstone
	3.9	4.6	0.7	Coal
	4.6	7	2.4	Mudstone light brown grey silty soft
	7	15.8	8.8	Mudstone grey silty with odd sandstone bands
	15.8	20	4.2	Sandstone grey silty some brown odd mudstone band
5				
	0	0.2	0.2	Topsoil grass
	0.2	2.1	1.9	Made ground mining spoil coal ash
	2.1	3	0.9	Clay brown grey
	3	6.4	3.4	Mudstone brown grey silty
	6.4	7	0.6	Coal
	7	9.5	2.5	Mudstone light brown grey silty
	9.5	18	8.5	Mudstone grey silty with odd sandstone bands
	18	20	2	Sandstone grey silty some brown odd mudstone band
6				
	0	0.2	0.2	Topsoil grass
	0.2	1.3	1.1	Made ground mining spoil
	1.3	2.5	1.2	Clay brown grey
	2.5	3	0.5	Mudstone grey brown silty
	3	4	1	Coal
	4	6.5	2.5	Mudstone light brown grey silty
	6.5	15	8.5	Mudstone grey silty with odd sandstone bands
	15	20	5	Sandstone grey silty some brown odd mudstone band

Measurements In Meters

PH No:	FROM	TO	THICKNESS	DESCRIPTION
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PH 1				
	0	0.3	0.3	Topsoil grass
	0.3	1.2	0.9	Made ground mining spoil
	1.2	2.3	1.1	Clay orange brown grey
	2.3	3	0.7	Mudstone grey brown Natural
PH 2				
	0	0.2	0.2	Topsoil grass
	0.2	1.7	1.5	Made ground mining spoil red brick
	1.7	2.1	0.4	Clay Mudstone grey brown
	2.1	2.6	0.5	Coal
	2.6	3	0.4	Mudstone grey brown Natural
PH 3				
	0	0.3	0.3	Topsoil grass
	0.3	1	0.7	Made ground mining spoil
	1	1.8	0.8	Wet made ground mining spoil
	1.8	2.3	0.5	Coal
	2.3	3	0.7	Mudstone grey brown Natural
PH 4				
	0	0.3	0.3	Concrete
	0.3	0.8	0.5	Red brick concrete fill
	0.8	7	6.2	Mining spoil (shaft proved – filled)

5.4 Coal Authority Permit



Mining
Remediation
Authority

Permit to Enter or Disturb Mining Remediation Authority Interests

Permit 29666

Name and Address of Permit Holder:

*Richard Richardson
Silkstone Lodge
Cone Lane
Silkstone
Barnsley
S75 4LY*

Site Location:

*Land at Stone Croft
Hall Royd Lane
Silkstone Common
Barnsley
S75 4PH*

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by thirty boreholes to 20m to determine presence of shallow mine workings, probe drilling to locate one mine entry (429404-006) within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of 12 months from the granted date shown below. The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: *Jodie Dawson* Granted Date: *01.04.25*

For and on behalf of the Mining Remediation Authority

Nominated Representative: Jodie Dawson, Permitting Manager;

Mining Remediation Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

Appendix 5.5 Site Photographs:

LYONS CMC
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Appendix 5.6 Informative(s):

- 1) The relatively recently revised CIRIA document titled ‘Abandoned Mine Workings Manual’, which replaced Special Publication 32 (1984), indicates that the use of empirical or ‘rule of thumb’ guides, as the design basis for treatment depth, has been successfully observed for many years for a wide range of abandoned mine workings and overlying rock/soil strata scenarios. As such, the guidance indicates that further design/ground stabilisation considerations will be required if there is less than 10 times the aggregate measured height of mine workings as competent rock cover above the workings.
- 2) For information, should the grouting of any mine workings be required, a 10:1 PFA/cement mix or similar would need to be injected into the workings and any other disturbed strata above it under pressure on an OS coordinated treatment grid approved by the Coal Authority (and Building Control/third-party Warranty provider as required). Specific proposals to treat any mine workings would need to be submitted in the form of a standalone ‘Specification’, with a separate permit to treat being obtained from the Coal Authority. The method of consolidation is dependent on the nature of the bedrock strata and the underground mining conditions encountered, although fissile strata, such as shales and mudstone deposits, do permit mining voids to migrate upwards to quite high levels. All grouting works would need to be supervised by a competent engineer, with a final validation report being produced to confirm what works were undertaken and whether they were successful or not.
- 3) Ground gas monitoring can be undertaken to confirm or discount the presence of an elevated gassing regime within the underlying soils. Elevated concentrations of mine gases (e.g. CO₂, CH₄) may be present within the coal seams, voids in or above any shallow mine workings, areas of made ground/opencast backfill, and in any permeable bedrock strata (and any organic rich surficial soils). The period of monitoring to be undertaken should be broadly completed in accordance with current guidance [BS8485]. Piezometers would need to be installed (during drilling works for example) to facilitate this.