

005/4273/REG/AP

24th February 2022

Mr K Atkinson
Newett Homes
Thorp Arch Grange
Walton Road
Thorp Arch
Wetherby
West Yorkshire
LS23 7BA



Registered in England 07068066

Parkhill
Wetherby
West Yorkshire

Dear Kevin

Green Road, Dodworth – Adit & shaft search

Introduction

Further to your instruction, we have completed the adit and shaft search at the above site.

It is understood that consideration is being given to redevelopment of the site with two & three storey domestic dwellings, associated gardens, POS and adoptable roads and sewers; a site layout has been provided.

It is further understood that no previous site investigation has been undertaken.

Background

In July 2011 the Coal Authority (CA) formalised their requirements in relation to planning applications and introduced some new terminology relating to coal mining development areas.

The south, centre and far north of the site are located within a Coal Mining Development **High-Risk Area** (an area with specific mining legacy risks to the surface, including mine entries; shallow coal workings etc). The remaining central portion is situated in a **Low-Risk Area** (within the defined coalfield, but no known defined risks have been recorded by the Coal Authority; there may still be unrecorded issues).

Geological maps and a CA report suggest that numerous coal seams underlie the site, most notably:

- Joan Coal outcropping in the north of the site
- Flockton Thick Coal (about 0.6m thick), outcropping in south of the site
- Top Fenton Coal (about 0.7m thick), c. 30m beneath the Flockton Thick
- Parkgate, Silkstone & Whinmoor Coal all lie at greater depth (likely >70m) and are therefore not of concern.

It should be noted that seam outcrops plotted on geological maps have been known to be inaccurate by distances in excess of 100m. Approximate outcrops of the Joan and Flockton Thick coals are shown on Drawing 4273/6.

Whilst some of the site lies within a Low-Risk Area, those areas of the site conjectured to be underlain by the Joan and Flockton Thick coals are shown to lie within High Risk Areas.

Review of the CA's interactive viewer (and their mining report) suggests there are known mineworkings within the Flockton Thick in the north of the site at shallow depth (c. 15m depth), and therefore an abandonment plan should be available.



It should be noted that it did not become a statutory requirement to maintain and preserve plans of abandoned mines until the Mine (Coal) Regulations Act of 1872 and consequently there may also be mineworkings beneath the site for which the Coal Authority (CA) have no records. Indeed, the CA's interactive viewer suggests there are likely to be unrecorded shallow workings (i.e. <30m depth).

CA records indicate the presence of one adit and one mine shaft on site, both targeting coal (although seam not known), and both with no record on any treatment (e.g. capping). Details taken from the Coal Authority (CA) mining report are summarised below:

CA Ref.	Location	Easting	Northing	Entry	Bearing	Depth	Diameter
431404-007	Southeast of site, about 9m south of the proposed pumping station	431448	404918	Adit	355°	Unknown	2.5m (assumed)
431404-008	Centre of the site, west of the stream and in front of Plot 42, adjacent to the road	431438	404988	Shaft	N/A		

The CA has no data on either of the entries and has only been able to provide co-ordinates and assumed diameters.

It is worth noting that CA shaft positions are often only approximate, and in some cases the same shaft has been recorded in multiple locations, or some other feature such as a chimney has erroneously been recorded as a shaft.

The CA require a search area around each conjectured shaft location dictated by "departure". In essence, departure relates to the degree of certainty regarding the entry's location (the co-ords provided on the mine entry data sheet), which in turn is dictated by the "source" of the entry's location.

Source	Degree of certainty	Departure/m
Treatment records (recent)	100%	0
1:2500 OS plans or good abandonment plans	Good	5
Most abandonment plans	Relatively poor	8
BGS maps & other sources (including NCB records, and older treatment records, pre-2005 where GPS used)	Poor	10

At this site, a Departure of 10m is appropriate for both the adit and shaft.

Wherever possible, Lithos search a minimum 10m radius from the shaft position (after setting-out by a surveyor). However, previous experience (we have found shafts c. 20m beyond their CA-conjectured location) suggests a larger search radius (c. 20m) is prudent, because it is always better to find a mine entry and avoid residual uncertainty.

Prior to finding recorded shafts (i.e. those referenced on a CA mining report), the CA will expect developers' layouts to assume a potential no-build "zone of influence" around each shaft based on the following calculation:

$$(0.5 \times \text{assumed shaft diameter}) + \text{departure} + \text{drift depth} = \text{zone of influence}$$

Shaft Ref.	Source	Departure/m	Diameter /m	Depth to bedrock/m	Zone of influence (circle of radius)/m	Remarks
431404-007	BGS Maps & abandonment Plans	10	N/A	2	12	
431404-008		10	≈2.5	2	14.5	Possibly located in gorge

Fieldwork and ground conditions

Fieldwork was supervised by Lithos between the 19th and 21st of January 2022 and comprised the excavation of panels approximately 2m wide and 20m long in the vicinity of the adit and mine shaft. The search areas are shown on Drawing 4273/6, which is appended to this letter report.

Excavation commenced at the anticipated position of the **adit** in the southeast of the site, using a back-hoe wheeled excavator. An area of approximately 70m² was stripped of topsoil, and where present made ground, to expose the underlying in-situ natural weathered Coal Measures subsoil. In-situ subsoil was encountered at 0.5m below existing ground level (bgl) across the majority of this search area. The Flockton Thick coal was encountered in the central east-west trench from 0.5m to 0.8m bgl, underlain natural weathered Coal Measures (firm to stiff slightly gravelly Clay).

Locally, a deeper north-south channel of made ground was encountered in the far east of the central trench; this is believed to be the adit. The made ground was excavated to an approximate depth of 1.5m bgl, where a vertical channel could be seen in the trench face, cutting through the Flockton Thick coal seam. The channel had been infilled with reworked natural clay and sandstone cobbles stacked on top of each other to fill the adit. At the base of the adit, mudstone flagstones had been laid to create a floor within the adit, beneath which at c. 1.7m bgl, natural weathered Coal Measures (gravelly Clay) were encountered.

The adit was recorded by survey, and further details are summarised in the table below:

Adit (431404-007)	Remarks
Location & bearing	E: 431448, N: 404917, Bearing: 349°
Construction	Channel cut into the Flockton Thick Coal seam and surrounding natural clays. At 1.5m bgl, mudstone flags placed on the floor of the adit creating a 1.4m wide path, below which natural firm grey gravelly Clay was present. The channel had been infilled with stacked tabular sandstone cobbles and reworked natural clay.
Approx. dimensions	Width: 1.4m Height likely > 1.5m

The adit location and bearing is shown on Drawing 1978/6 appended to this letter report.

Excavation to search for the **shaft** commenced at the anticipated position in the centre of the site, again using a back-hoe wheeled excavator. An area of approximately 270m² was stripped of topsoil, and where present made ground, to expose the underlying in-situ natural weathered Coal Measures subsoil. In-situ subsoil was encountered from between 0.5m below existing ground level (bgl) to > 2.8m. In some locations at c. 1m depth, a paved floor comprising mudstone flagstones was broken through to reveal natural strata below.

Whilst the shaft was not located, strong evidence of coal extraction activity was encountered, in the form of colliery spoil and other made ground, typically comprising grey or black clayey gravels of mudstone and coal, situated within orangish brown natural gravelly clay.

Land directly north of the plotted shaft position comprises a steep bank down to the stream and safe excavation was not possible in this area; see Drawing 4273/6. Land to the east & west could not be searched either due to a private (terraced) garden to the west and the stream to the east making access to the northern portion of the site unavailable. Clearly, the shaft could lie within these inaccessible areas.



Photo 1: The stacked sandstone cobble and reworked natural clay backfill cutting through the Flockton Thick coal seam. Large cobbles in the base of the pit as part of the former adit floor.



Photo 2: The stacked sandstone cobble and reworked natural clay backfill cutting through the Flockton Thick coal seam with natural grey clay beneath the former adit floor.

Discussion & conclusions

Review of the proposed layout suggests the **adit** runs beneath a proposed pump station, heading towards Plot 12.

The adit should be made safe by treatment in accordance with an appropriate Specification (Lithos can prepare this) and a Coal Authority Permit to Enter or Disturb Coal Authority Mining Interests.

At this stage, it is expected that treatment would involve excavation until there is a minimum cover of 3.0m above the roof. A 300mm thick wall would then be constructed to seal the adit and the excavated area backfilled with clean inert fill. That section of adit not overlain by ten times the adit height of competent strata should then be pressure grouted.

If the adit does run beneath Plot 12, bespoke foundation design may be required.

No "standard" ground investigation has been commissioned to date, but if/when it is, one aim should be to confirm the line of the adit, its height, depth etc.

Review of the proposed layout suggests the **shaft** could lie beneath Plots 42 & 43. However, it is understood that this is only a preliminary, indicative layout and to date no account has been taken of topography. Plots 42 & 43 lie on the western bank a steep valley associated with the watercourse; it seems unlikely houses will actually be built in this location and consequently even if ultimately proven to be present, any no build zone associated with the shaft is likely to impose a far less significant layout constraint than topography.

The Coal Authority (and NHBC) discourage development over or adjacent to shafts (within a line drawn at 45° back from where the shaft intersects rockhead), and consequently the shaft will result in localised "no-build" sterile zones.

At this stage, the CA will expect Newett's layout to assume a no-build around the shaft based on the zone of influence calculation mentioned above (i.e. 14.5m around the conjectured location; see Drawing 4273/8).

At this stage, given the absence of significant thicknesses of made ground and superficial soils, it is expected that treatment would involve a cap at rockhead. Shaft caps are typically twice the shaft diameter. Alternatively, the full depth of shaft backfill could be pressure grouted.

Proposals to treat the adit and shaft will need to be discussed with the Local Authority, the Coal Authority and NHBC well in advance of starting works on site. Newett Homes will need to submit treatment designs to the Coal Authority, and obtain their formal approval.

Whilst the Coal Authority retains ownership of mine entries, it is understood that the Developer (Newett) is responsible for any problems associated with entries for 12 years following treatment; thereafter the CA become liable. It should be noted that even after treatment the shaft will appear on future mining reports.

Any plots built within 25m of the mine entries are likely to require Amber 1 gas protection measures.

It is hoped the above is sufficient for your present needs. However, should you require any further information, please contact the undersigned.

Yours sincerely



Mark Perrin
Director
for and on behalf of
LITHOS CONSULTING LIMITED



NOTES

- MINE ADIT (LOCATED BY LITHOS)
- MINE ADIT (FROM CA MINING REPORT)
- MINE SHAFT (FROM CA MINING REPORT)
- SEARCH AREA
- ACCESS UNAVAILABLE
- 10m SEARCH RADIUS
- 25m SEARCH RADIUS
- APPROXIMATE FAULT (CA)
- APPROXIMATE COAL OUTCROP (CA)

APPROXIMATE AREAS

- GRASS & OVERGROWN AREAS
- MATURE TREES & DENSE VEGETATION
- WALLS
- BUILDING
- GRAVEL OR HARDSTANDING SURFACING
- SURFACE WATER (STREAM)
- APPROXIMATE SITE BOUNDARY

REV.	DESCRIPTION	DATE



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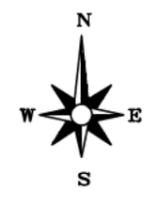
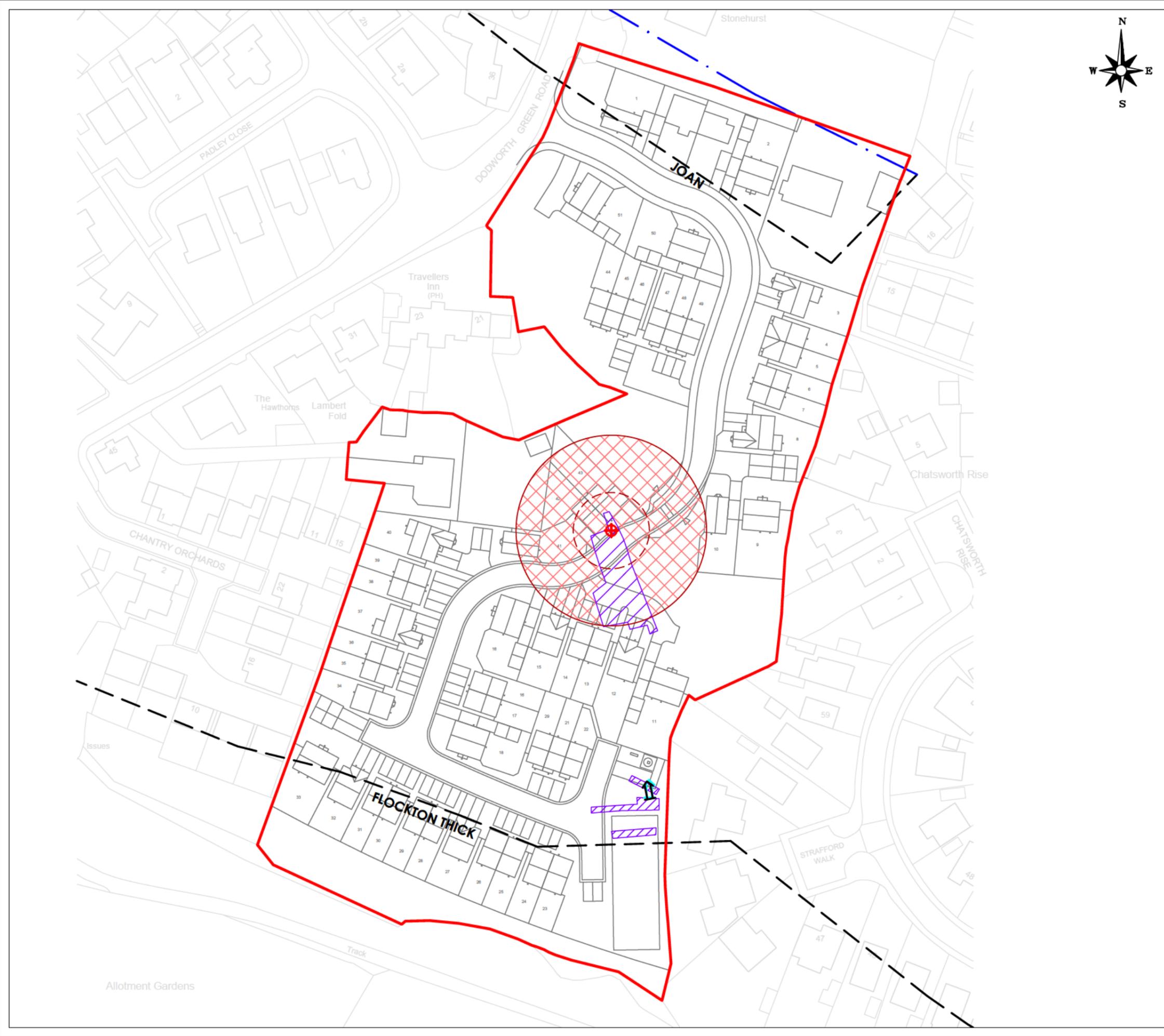
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NEWETT HOMES

DODWORTH GREEN ROAD,
DODWORTH

SHAFT & ADIT SEARCH AREAS

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CHECKED	REG	DATE	09/02/2022	FOR APPROVAL <input type="checkbox"/>	DRAFT <input type="checkbox"/>
				FINAL <input checked="" type="checkbox"/>	
SCALE	1:1000	SHEET	A3	DRAWING NO.	4273/6
				REVISION	



- NOTES
-  MINE ADIT (LOCATED BY LITHOS)
 -  MINE ADIT (FROM CA MINING REPORT)
 -  MINE SHAFT (FROM CA MINING REPORT)
 -  SEARCH AREA
 -  ACCESS UNAVAILABLE
 -  10m SEARCH RADIUS
 -  25m SEARCH RADIUS
 -  APPROXIMATE FAULT (CA)
 -  APPROXIMATE COAL OUTCROP (CA)
 -  APPROXIMATE SITE BOUNDARY

REPRODUCED FROM NEWETT HOMES
DRAWING REFERENCE 0886-EA-A-S001,
DATED 15th JANUARY 2021

REV.	DESCRIPTION	DATE



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CLIENT

NEWETT HOMES

JOB TITLE

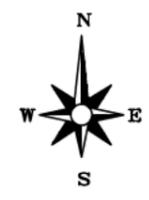
DODWORTH GREEN ROAD, DODWORTH

DRAWING TITLE

SHAFT & ADIT SEARCH AREAS WITH LAYOUT

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CHECKED	REG	DATE	09/02/2022	FOR APPROVAL <input type="checkbox"/>	DRAFT <input type="checkbox"/>
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SCALE	1:1000	SHEET	A3	DRAWING NO.	4273/6a	REVISION	
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- NOTES
-  MINE ADIT (LOCATED BY LITHOS)
 -  MINE ADIT (FROM CA MINING REPORT)
 -  MINE SHAFT (FROM CA MINING REPORT)
 -  ZONE OF INFLUENCE (NO BUILD ZONE)
 -  14.5m RADIUS
 -  APPROXIMATE FAULT (CA)
 -  APPROXIMATE COAL OUTCROP (CA)
 -  APPROXIMATE SITE BOUNDARY
- REPRODUCED FROM NEWETT HOMES
DRAWING REFERENCE 0886-EA-A-S001,
DATED 15th JANUARY 2021

REV.	DESCRIPTION	DATE



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CLIENT

NEWETT HOMES

JOB TITLE

DODWORTH GREEN ROAD,
DODWORTH

DRAWING TITLE

SHAFT & ADIT ZONE OF INFLUENCE
(NO BUILD ZONE)

DRAWN	AP	DATE	09/02/2022	STATUS	FOR COMMENT <input type="checkbox"/>
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