



nkc Geotech Ltd

engineering geologist specialising in the investigation and treatment of disused mineworkings

25 Grosvenor Road
Wrexham
LL11 1BT

t 01352 762080
f 01352 762081
m 07515 390589

e neil@nkc.co.uk
w www.nkc.co.uk

Mining Investigation Report



Royal Oak, Ponciau, Rhosllanerchrugog

1714

29 June 2017

Pam & Paul Evans
1 Annefield Park
Gresford
Wrexham
LL12 8NS



Site

A site for two semi-detached dwellings at The Royal Oak, Fennant Road, Ponciau, Wrexham.

Investigation and site work by

Neil Catlow B.Sc F.G.S Engineering geologist.

Records inspected

Coal Authority at Mansfield.

Geological Survey.

Coal Authority Report 51001260489001 dated September 20th, 2016

Relevant previous Nkc Geotech investigations

8928 Fennant Road, Rhos in June 1989, adjacent immediately west, now known as Redwood.

Investigation results

Ground level

Unchanged throughout the investigation.

Site history

The site is a recently demolished public house with an outdoor seating area. The Royal Oak was built in 1835, the area formerly being fields east of the village of Ponciau according to the Ponciau estate map of 1826 which shows a mineshaft immediately west of the site.

Geology

The site lies on Carboniferous Westphalian rocks that form the Wrexham Coalfield, dipping to the east at 1 in 8. These rocks are predominantly shales and sandstones laid down in a tropical delta environment when Europe lay on the equator as part of the continent of Pangea. Westphalian strata contains seams of coal upto 4.5m in thickness at vertical intervals typically varying from 4.0m to 20.0m. Those coal seams which were of economic importance were given an identity when they were of sufficient quality and thickness to justify extraction by mining. Typical names for local coal seams reflect primarily on quality and thickness, for example Yard Coal, Brassey Coal and Main Coal.

Recorded mine entries on or within 20m of the site boundary

The Coal Authority Report 51001260489001 states that there are three recorded mine entries within 20m of the site. All these shaft positions are derived solely from the estate plan of the Hon. Fred West of Chirk Castle dated 1826.

Shaft 329346-280 is shown 10m west of the site within the curtilage of Redwood.

Shaft 329346-259 is shown 20m east of the site.

Shaft 329346-262 is shown 20m south of the site.

Both shafts 259 and 262 lie over 20m from the proposed buildings, off the site, and have not been investigated. In addition, Shaft 262 also lies south of Fennant Road as shown on the 1826 estate plan.

Shaft 280 was placed on the former NCB Shaft Register subsequent to my investigation of the site immediately west of the Royal Oak in June 1989 and no shaft search was carried out at that time. I encountered upto 2m of colliery derived fill during the investigation work and drilled extra probe holes over the area of the proposed dwelling to confirm there was no shaft present but the entire site was not investigated.



Past underground coal mining

Coal mining in Ponciau and Rhos is recorded in 1427 when the area was part of Bersham Waste. Industrial mining deeper than the outcrop workings and simple bell pits of the 'cole farms' in the Waste dates from the 16th century. The last recorded coal mining in Ponciau, other than unofficial strike workings in the early 20th century, was by the Ponciau Colliery which closed in 1862.

There are only records of past mining activity under the site in 3 seams of coal deeper than 30m because the shallowest workings pre-date the 1887 Coal Mine Regulations which required colliery owners to keep and preserve plans. The deeper seams for which plans survive are the Crank Coal at 40m depth, the Yard Coal at 90m depth, and the Wall & Bench Coal at 140m depth. The coal was primarily worked to supply the works at Ponkey (sic) Furnace and Aberderfyn Potteries, 350m south of the site.

Intrusive Investigation

Coal Authority Permit 14327

Permit 14327 covers the following intrusive investigation for shallow mineworkings and a search for Shaft 258. Three holes were drilled to 30m depth and a further nine holes to 24m.

Foundation soils

The 12 boreholes encountered shale fill upto 1.5m deep across the site with some holes encountering brown sandy clay within 1.0m of the surface. The clay is highly weathered sandstone and increases in strength with depth. Sandstone rockhead, the Main Coal Rock, lies within 3.0m of ground level.

Shallow mineworkings

The investigation was undertaken to determine whether shallow mineworkings were present under the site. This work is in accordance with the specification set out in CIRIA Special Publication 32 'Construction over Abandoned Mineworkings' as required by the Coal Authority.

Previous work at Redwood adjacent to the site western boundary by myself in 1989 encountered solid coal at the Main Coal horizon in all 9 holes at depths increasing from 10.8m to 12.5m dipping east but disrupted with minor faulting.

All the holes in the current investigation encountered very similar strata, with the Main Coal Rock overlying the Main Coal at a depth of 18.5m. As also recorded in the 1989 investigation, the Brassey Coal lies 6m under the Main Coal at a depth of 27.0m.

No evidence of old mineworkings was encountered in the Main Coal any of the holes and the strata is disrupted by minor faulting associated with the Minera Fault. A fault with a downthrow of 6m east lies between the site and Redwood. Another fault with an upthrow of 2m north crosses the site.

Shaft 329446-258

An area upto 20m from the Coal Authority location for this shaft was explored by excavation and probe drilling at 1.2m centres. No shaft was found. The presence of the colliery fill, especially large blocks of black shale, is evidence of a shaft in close vicinity but off the site.



Hazard management

Shallow mineworkings

There is no evidence of past shallow mining activity under the site despite the presence of the Main Coal 2.0m thick at 19.5m depth. The underlying Brassey Coal was been partially worked but lies too deep to affect surface stability.

Abandoned Mineshafts

Shaft 329446-258 is presumed to lie west of the site.

The Coal Authority positions of Shafts 329446-259 and 262 are over 20m from the proposed buildings.

The proposed dwelling can use reinforced strip foundations designed to span 2.0m. No other remedial work to mining hazards is required.

For Nkc Geotech Ltd

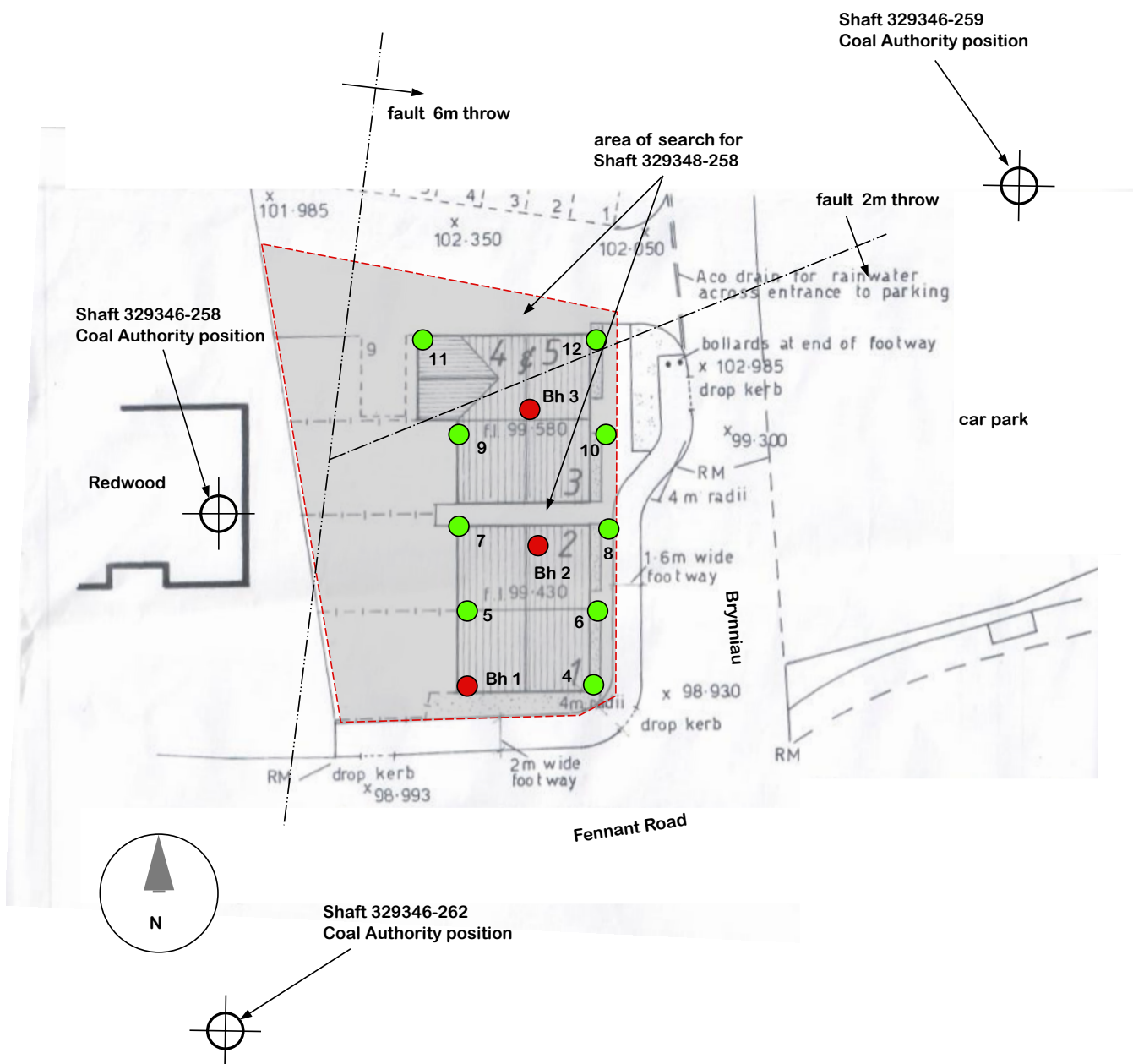
Neil Catlow, B.Sc, F.G.S



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Borehole plan

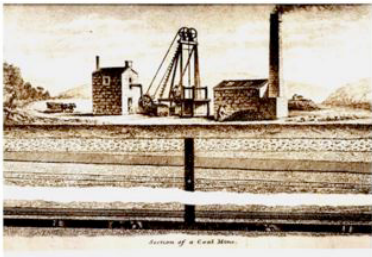
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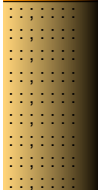




Results of investigation drilling

hole	seam* depth	hole depth	grout take	status code**	comments
Bh 1	19.1	30.0	n/a	solid	see log
Bh 2	18.0	15.0	n/a	solid	see log
Bh 3	20.2	18.0	n/a	solid	see log
4	19.0	24.0	n/a	solid	
5	18.5	24.0	n/a	solid	
6	21.4	24.0	n/a	solid	
7	20.2	24.0	n/a	solid	
8	19.2	24.0	n/a	solid	
9	19.0	24.0	n/a	solid	
10	19.8	24.0	n/a	solid	
11	17.0	24.0	n/a	solid	
12	17.7	24.0	n/a	solid	



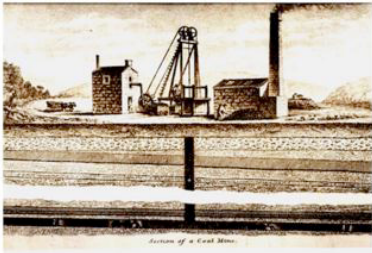
REF 1714	SITE	Royal Oak, Ponciau			PRINTOUT	22 June 2017
Bh 1	CLIENT	Pam & Paul Evans			SCALE	1:200
	TITLE				OSGN	
	ORIGIN	printout direct from rig on site drilled & logged by Neil Catlow			ORIENTATION	vertical
					FLUSH	water
					BIT	75mm T/C
	DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	SECTION
						ground level
0.0	0.0	fill		grey shale		
0.5						
1.0	1.2	clay		brown, sandy, firm		
1.5						
2.0						
2.5						rockhead
3.0	2.8	sandstone		brown, firm drilling with hard grey layers		Main Coal Rock
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						
10.5						
11.0						
11.5						
12.0						
12.5						
13.0						
13.5						
14.0						
14.5						
15.0	15.2	shale		dark grey, firm drilling		
15.5						
16.0						
16.5						
17.0						
17.5						
18.0						
18.5						
19.0	19.1	coal		black, soft drilling		Main Coal
19.5						
20.0						
20.5						
21.0						
21.5	21.5	shale		dark grey, firm drilling		
22.0						
22.5						
23.0						
23.5						
24.0						
24.5						
25.0						
25.5						
26.0						
26.5						
27.0	27.0	coal		black, soft drilling		Brassey Coal
27.5						
28.0						
28.5	28.2	shale		dark grey, firm drilling		
29.0						
29.5						
30.0	30.0			bottom of hole	IN HOLE GAS TESTING	

IN HOLE GAS TESTING

%	O2	20.6
%	CH4	0.0
%	CO2	0.0
%	LEL	0.0
ppm	H2S	0.0
ppm	CO	0.0



drilled and logged by
Neil Catlow B.Sc FGS



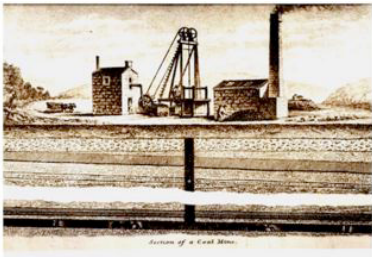
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Bh 2	CLIENT	Pam & Paul Evans		SCALE	1:200
	TITLE			OSGN	
	ORIGIN	printout direct from rig on site drilled & logged by Neil Catlow		ORIENTATION	vertical
				FLUSH	water
				BIT	75mm T/C
	DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value
					SECTION
					ground level
0.0	0.0	fill		grey shale	
0.5					
1.0	1.2	clay		brown, sandy, firm	
1.5					
2.0					rockhead
2.5	2.4	sandstone		brown, firm drilling with hard grey layers	
3.0					Main Coal Rock
3.5					
4.0					
4.5					
5.0					
5.5					
6.0					
6.5					
7.0					
7.5					
8.0					
8.5					
9.0					
9.5					
10.0					
10.5					
11.0					
11.5					
12.0					
12.5					
13.0					
13.5					
14.0					
14.5					
15.0					
15.5	15.5	shale		dark grey, firm drilling	
16.0					
16.5					
17.0					
17.5					
18.0	18.0	coal		black, soft drilling	
18.5					Main Coal
19.0					
19.5					
20.0	19.6	shale		dark grey, firm drilling	
20.5					
21.0					
21.5					
22.0					
22.5					
23.0					
23.5					
24.0					
24.5					
25.0					
25.5	25.8	coal		black, soft drilling	
26.0					Brassey Coal
26.5					
27.0	27.0	shale		dark grey, firm drilling	
27.5					
28.0					
28.5	28.2				
29.0					
29.5					
30.0	30.0			bottom of hole	

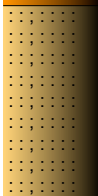
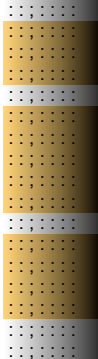
IN HOLE GAS TESTING

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%	CH4	0.0
%	CO2	0.0
%	LEL	0.0
ppm	H2S	0.0
ppm	CO	0.0



drilled and logged by
Neil Catlow B.Sc FGS



REF	1714	SITE	Royal Oak, Ponciau		PRINTOUT	23 June 2017
Bh	3	CLIENT	Pam & Paul Evans		SCALE	1:200
		TITLE			OSGN	
		ORIGIN	printout direct from rig on site drilled & logged by Neil Catlow		ORIENTATION FLUSH BIT	vertical water 75mm T/C
	DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	SECTION
						ground level
0.0	0.0	fill		grey shale		
0.5	1.2	clay		brown, sandy, firm		
1.0						
1.5						
2.0						
2.5	3.0	sandstone		brown, firm drilling with hard grey layers		rockhead
3.0						
3.5						
4.0						Main Coal Rock
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0	16.0	shale		dark grey, firm drilling		
8.5						
9.0						
9.5						
10.0						
10.5						
11.0						
11.5						
12.0						
12.5						
13.0	20.2	coal		black, soft drilling		
13.5						
14.0						
14.5						
15.0	22.1	shale		dark grey, firm drilling		
15.5						
16.0						
16.5						
17.0	26.0	coal		black, soft drilling		
17.5						
18.0						
18.5						
19.0	27.5	shale		dark grey, firm drilling		
19.5						
20.0						
20.5						
21.0	30.0			bottom of hole		
21.5						
22.0						
22.5						
23.0						IN HOLE GAS TESTING

IN HOLE GAS TESTING

%	O2	20.6
%	CH4	0.0
%	CO2	0.0
%	LEL	0.0
ppm	H2S	0.0
ppm	CO	0.0



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