



RHONDDA
GEOTECHNICAL
SERVICES

PHASE 2 CONTAMINATED LAND ASSESSMENT

M.T.C.B.C. PLANNING REF. P/22/0018

DETACHED DWELLING WITH GARAGE

LAND OFF WINCHFAWR ROAD

HEOLGERRIG

MERTHYR TYDFIL

CF48 1RD

19/05/2026

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INTRODUCTION- PURPOSES AND AIMS

Planning permission P/22/0018 has been granted by Merthyr Tydfil C.B.C. The permission is for the construction of a detached dwelling with detached garage on land adjacent to Winchfawr Road, Heolgerrig, Merthyr. The full granted permission has the following contamination conditions:-

10. Should the Phase 1 Contamination investigation carried out under condition 9 identify the presence of potentially unacceptable risks, **no development shall take place until** a Phase 2 site investigation has been carried out. A protocol for the investigation shall be submitted to and approved by the Local Planning Authority before the commencement of the Phase 2 investigation. The completed Phase 2 investigation report together with any necessary outline remediation options shall be submitted to and approved by the Local Planning Authority prior to any development or remediation works being carried out.

The report shall assess potential risks to present and proposed receptors, i.e. humans, property including buildings, crops, livestock, pets, woodland and service lines and pipes, adjoining land, groundwaters and surface waters, ecological systems, archaeological sites and ancient monuments. The investigation must be conducted in accordance with DEFRA and the Environment Agency's "Model Procedures for the Management of Land Contamination, CLR11"*

The report shall be prepared by a "competent person" and shall be in accordance with BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites.

Reason - To ensure the risks from land contamination to future users of land and neighbouring land are minimised in accordance with Policy EnW4 of the Merthyr Tydfil

Replacement Local Development Plan.

This report will follow the guidelines set out in the document Development of Land Affected by Contamination: A Guide for Developers (Version 4). This was produced by the Welsh Land Contamination Working Group in 2023. The methodology set out in Appendix B with the check list for Phase 2 will be followed. The contaminated land exposure assessment (henceforth CLEA) produced by The Environment Agency will be used in the conceptual model, particularly regarding the source-pathway-receptor concept for pollutant linkages. *The entire project will be guided by the 2021 C.L.R.M which has now superseded the withdrawn 2004 Defra/E.A. document CLR11 (Model Procedures for the Management of Land Contamination).

The current definition of contaminated land is “any land which appears to the local authority in whose area it is situated in to be in such a condition, by reason of substances in or under the ground that:-

- a. “Significant harm is being caused, or there is a significant possibility of such harm being caused OR
- b. Pollution of controlled waters is being, or is likely to be caused”

(Section 78A Part 2A Environmental Protection Act)

This act also requires that a risk-based approach should be used for assessing the contamination status of a site. For a site to be designated as contaminated it must be shown that the site is not fit for its current or intended use. Statutory guidance states that a two-stage approach should be adopted for the assessment of contaminated land.

1. Identification of potential pollution linkages
2. Assessment of the risk to receptors

A study of historical Ordnance Survey maps of the site shows the terrace of cottages behind (west of) the site was present from the earliest (1868) map onwards to the present day. Although surrounded by Coal and Ironstone mines and spoil heaps, the site sits within an oasis of gardens in an otherwise much altered landscape. Much previous intrusive work has been carried out on the site due to the risk from coal mining legacy issues. During this work it was noted that there was a thin layer of potentially contaminated Made Ground covering much of the site. In the circumstances it was decided to proceed directly to an intrusive investigation with sampling and testing of the soils at the site. The investigation was carried out following BS10175:2011 as requested in Condition 10 above.

1. AUTHOR CREDENTIALS

The author of this report is Richard Davies. He graduated with a Bachelor of Science honours degree in Geology from Liverpool University in 1979. After starting his career as an engineer in the coal industry, he moved into site investigation in the 1980s and has many years experience working on contaminated land. He is a Fellow of The Geological Society and holds a Masters Degree in Applied Environmental Geology from Cardiff University. He is also a Supporter Member of CL: AIRE (Contaminated Land: Applications in Real Environments).

2. SITE DESCRIPTION

The site is centred on grid reference 302285, 206265 and is at an elevation of approximately 330m A.O.D. The plot is an irregular shape, averaging 27m x 32m. The site covers an area of approximately 0.08 hectare. There are no surface watercourses. The site location and site boundary can be seen overleaf in Figures 1 and 2.

3. SITE WALKOVER

A walkover survey of any site is beneficial when planning an investigation and sampling program. The requirement for this is really aimed at larger sites with an industrial past where specific areas more likely to be contaminated can be identified. On a small residential development this is largely irrelevant. As mentioned previously, the site has been the subject of a previous site investigation which had identified the Made Ground at the site as the main object of interest from the contamination viewpoint.

4. INFORMATION GAPS AND UNCERTAINTIES

The only conclusive way to check for possible contamination of the site was to carry out an intrusive site investigation involving taking samples and testing them for contaminants. There are garden areas surrounding the proposed building. This meant that an appropriate sampling spread over the areas that will remain as soft landscaping would be appropriate. From previous intrusive work it was known that the depth of Made Ground at the site was shallow. This stratum would be the most likely to contain any contamination and possibly impact above ground receptors. In these circumstances, trial pitting with a medium sized excavator would be the preferred method of sampling. If contaminants were detected in the laboratory analysis of the soil samples, leachate tests could then be carried out. These could further quantify the risk to controlled waters and the wider environment.

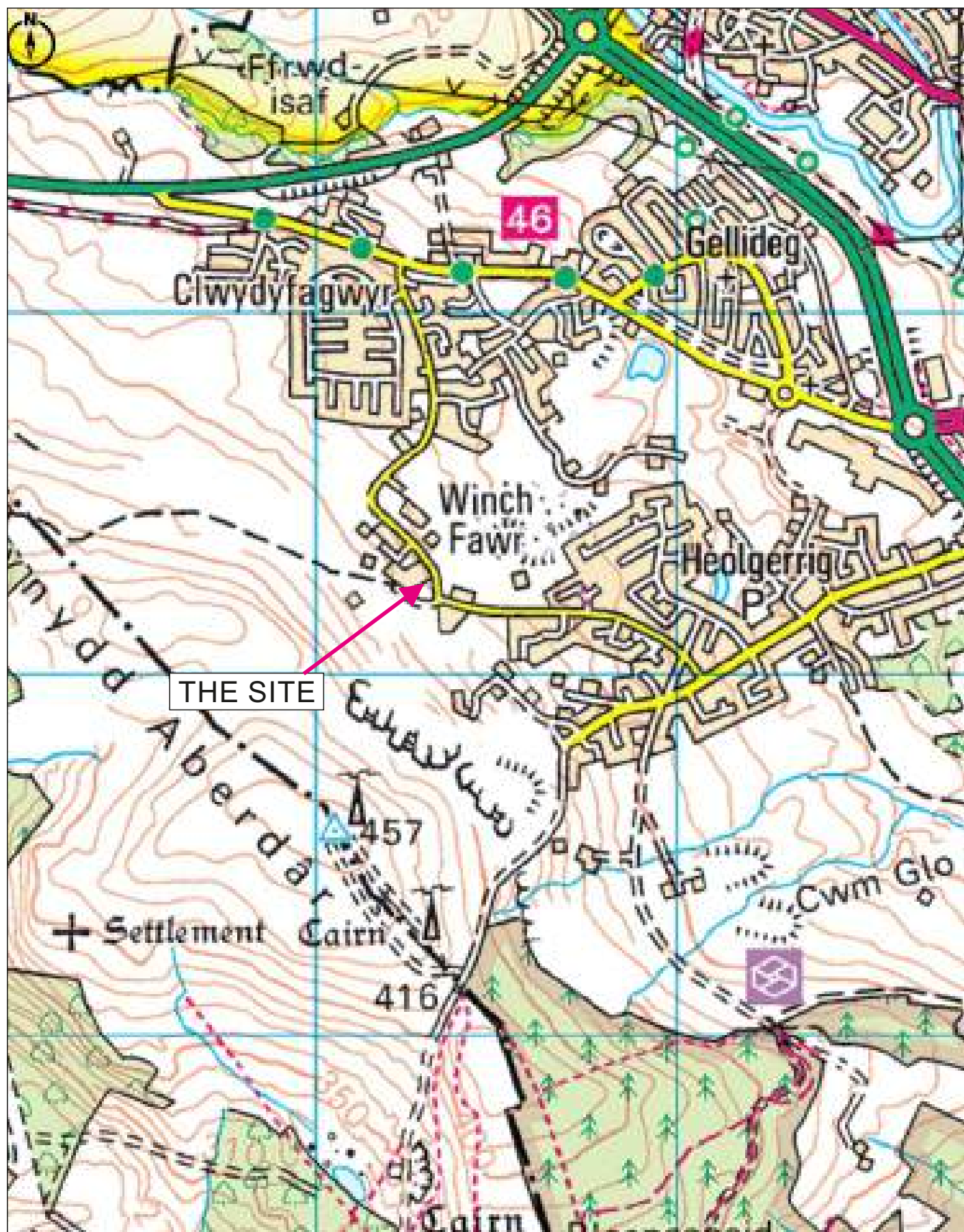


FIGURE 1
SITE LOCATION

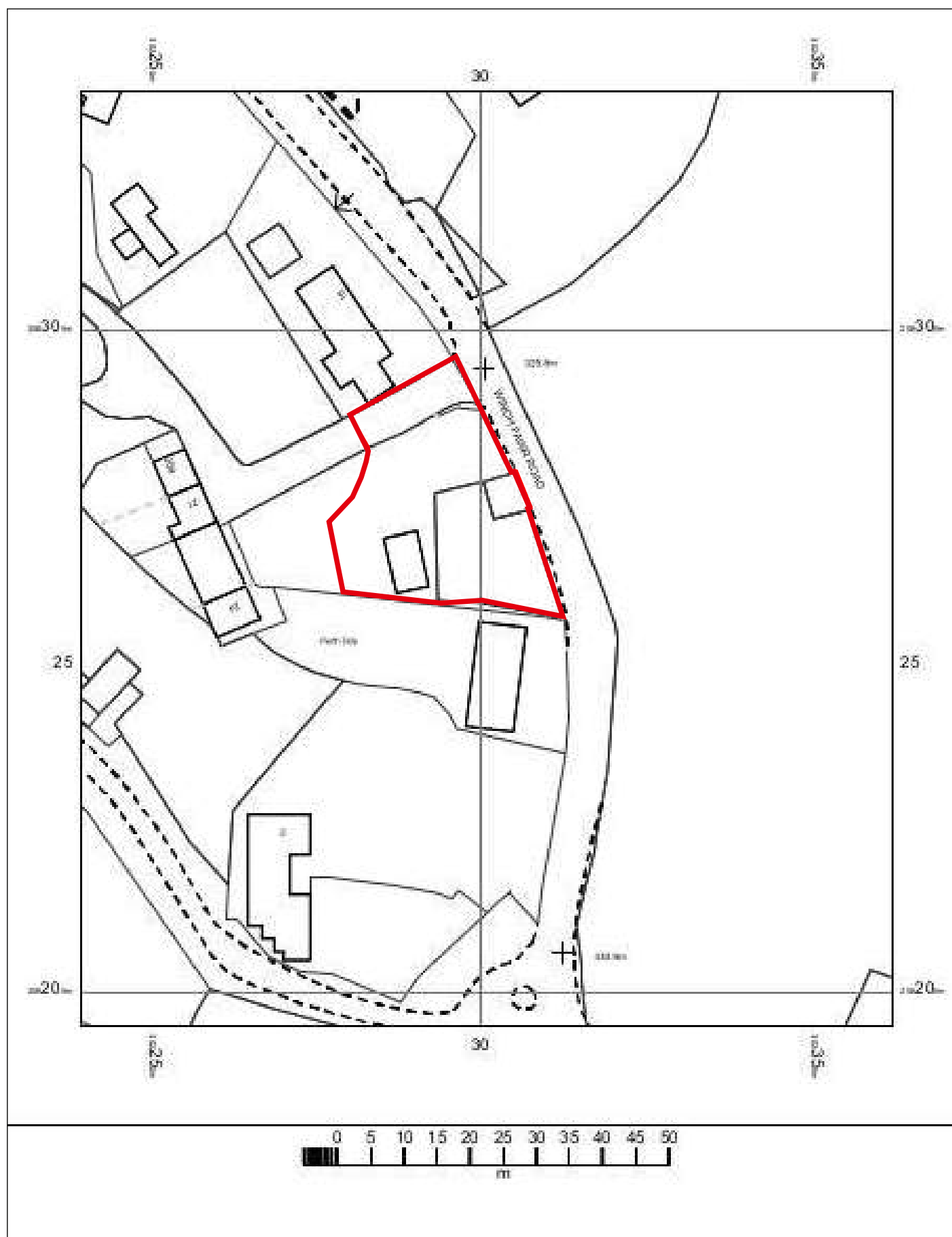


FIGURE 2
SITE BOUNDARY IN RED.

5. SITE INVESTIGATION AND SAMPLING METHODOLOGY

Intrusive site investigations were carried out on 26th January 2026 under the supervision of Richard Davies. Works consisted of the digging of five trial pits with a 5-ton tracked excavator. The trial pit locations are shown in Figure 3 together with the depth of any samples taken. As standard procedure, the trial pitting was concentrated in the existing garden areas and other areas of soft landscaping. All five of the trial pits were excavated into natural ground at shallow (0.25m- 0.7m) depths. A thin veneer of Made Ground was present in all five of the trial pits. All the site was easily accessible, and the trial pit locations were selected to represent a general spread around the site. five soil samples were taken in all. This was considered reasonable and proportionate for an initial investigation of a development site of this size. Four of the soil samples were taken from the Made Ground with a fifth taken from the natural ground where the Made Ground was at its thinnest (0.25m) as a control sample. Trial pits were excavated to depths of between 0.6m-0.8m. There was no sensory evidence of contamination in any of the pits. Groundwater was not encountered in any of the pits.

Samples of soils were collected, placed in British Standard sealed containers and immediately labelled with depth, location and sample number. Each sampling location had four samples taken. These comprised two one litre plastic tubs, one 60ml. amber glass jar and one 120ml. amber glass jar. This is the recommended quantity required for a broad general suite of testing. The samples were taken with a stainless steel trowel, cleaned between samples to avoid cross contamination. The samples were stored in cool boxes and dispatched by courier to the laboratory the following morning. This meant that the lab was in receipt of the samples within 48 hours of them being taken, and the samples were kept under correct conditions throughout. This is important to ensure the samples are “non-deviating” particularly in the case of testing for organic contaminants.

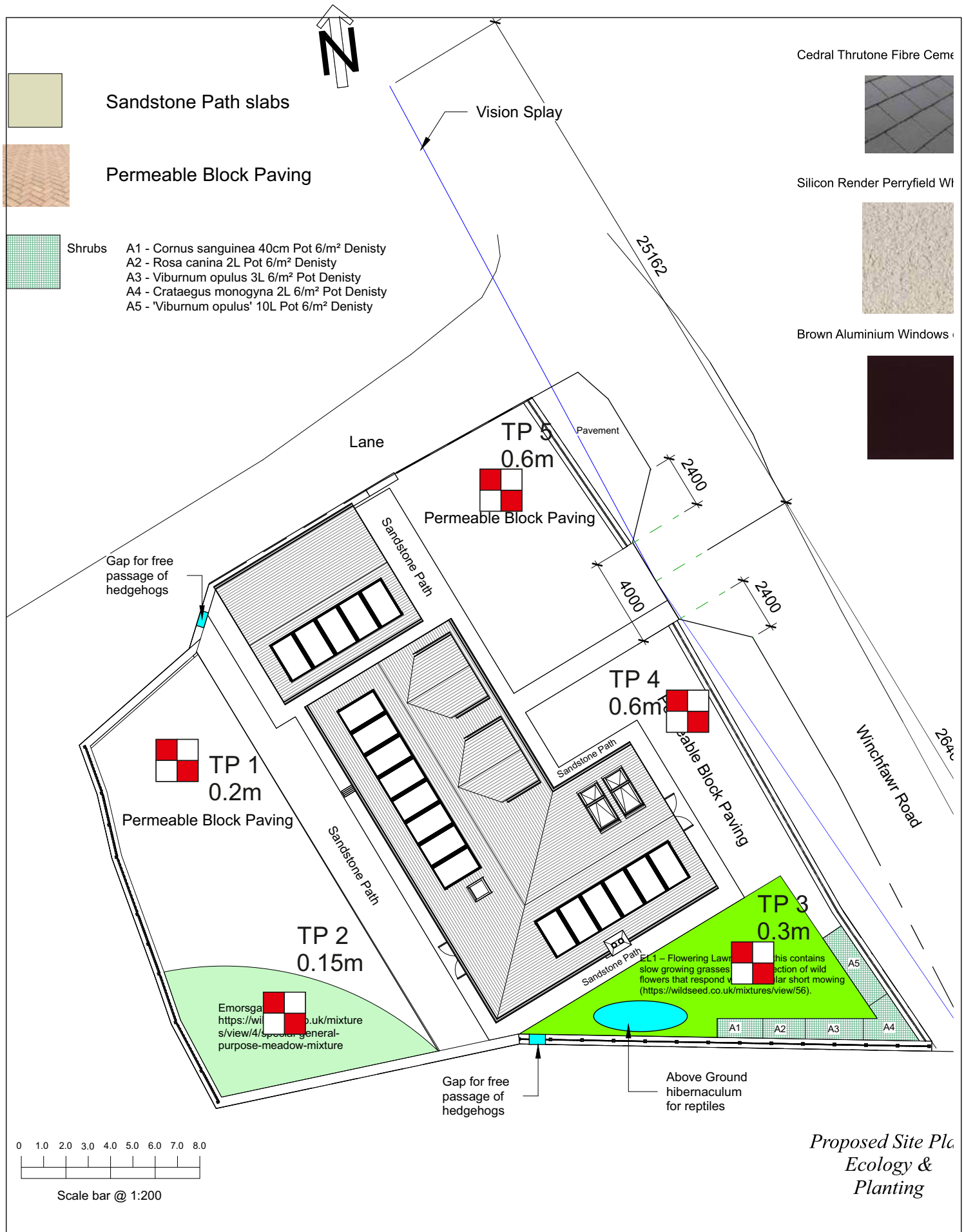


FIGURE 3
TRIAL PIT POSITIONS AND SAMPLING DEPTHS AT WINCHFAWR ROAD.

6. TESTING STRATEGY

All the samples were tested by Chemtech Ltd at their laboratory in Durham. They hold both MCERTS and UKAS accreditation (UKAS lab no.2531). Their full details can be seen on page 1 of the laboratory report 26-00967-01. The complete report is attached as Appendix B.

A review of the site history meant there were no obvious sources of contamination at the site or in the surrounding area. Although in an area of previously intense coal mining, this alone is not a plausible source of contamination. There may be naturally elevated levels of Lead and Arsenic, but this is dependent on the formation level the mining was carried out in. Colliery waste is only natural bedrock removed from underground and transported to the surface. The presence of coke or gas production changes this generalisation completely. A search of historical Ordnance Survey maps showed that the site showed no previous activity of this kind. The mining in the Heolgerrig/Winchfawr area was on the former Cyfarthfa Estate. The Coal and Ironstone mining had one purpose only. This was to supply the Cyfarthfa Ironworks. For several decades in the mid-nineteenth century this was the largest ironworks in the world. In the absence of any specifically identified source of contamination, the testing scheduled was the CLEA 2.1 Suite with the addition of an asbestos screen. The substances tested for could be described as a broad general suite in common use in British contaminated land studies. There was no identified source of Asbestos, but its ubiquitous presence in the urban environment means it should always be tested for. The substances tested for can be split into two main categories. Organic and Inorganic compounds.

The inorganic contaminants tested for were metals:-

Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium and Zinc.

In addition, Free Cyanide was measured, and all samples were screened for Asbestos.

Total Organic Carbon and moisture were both measured. From this, a calculation is used to derive Soil Organic Matter. This is needed to risk assess levels of organic contaminants. The risk assessments for organic contaminants differ with varying S.O.M. values. A wide range of organic contaminants were tested for.

All samples were tested for P.A.H.s (Polycyclic Aromatic Hydrocarbons). Sixteen different compounds were measured. These are the USEPA16. Originating from the U.S.A. they are an internationally recognised, representative and indicative group amongst the huge number of these compounds.

T.P.H. (total petroleum hydrocarbons) analysis was split up by Carbon Banding, along conventionally normal lines (Texas Banding). An aromatic/aliphatic split analysis was also carried out to allow further speciation of any hydrocarbon contamination detected.

A range of commonly occurring Semi-Volatile Organic Contaminants (SVOCs) were tested for. The analysis for Organic contaminants also included a Phenol Suite. This contained a range of six Monohydric Phenols commonly found on contaminated sites.

7. CHOICE OF SUITABLE FOR USE VALUES (S4ULs) USED IN PHASE 2

Much work has been done in recent years on human health risk assessment for exposure to contaminated land. Originally the E.A. produced figures known as Soil Guidance Values (SGVs). These were later withdrawn, and this has resulted in the production of Generic Assessment Criteria (GACs). These are figures produced for individual substances. If the concentration of a contaminant is above its GAC, there is a potential for harm to human health (or controlled waters). Each contaminant has different levels for different exposure scenarios. For example, for any given contaminant, its GAC is far higher for a commercial development than it would be for Residential Use with consumption of homegrown produce. Many GACs have been published by Contaminated Land: Applications in real environments (CL:AIRE), Land Quality Management Ltd. (LQM) and the Environmental Industries Commission (EIC).

Due to different non-government bodies producing GACS over the years since they were introduced, LQM have produced a complete revision of their figures and renamed them Suitable for Use Levels (S4ULs). The values used in this report are S4ULs except for Lead which has a Category 4 Screening Level (C4SL) produced by the Department for the Environment, Food and Rural Affairs. Cyanide is not assessed in this way, instead it has an acute GAC, rather than one modelled on long term exposure. Asbestos also has its own safety levels governing land use.

The LQM S4ULs have been derived in accordance with the changes in exposure modelling presented within the C4SL framework, whilst still using a set of toxicological criteria that are set within the “minimal risk” range. The LQM/CIEH S4ULs were published to offer a set of collated information on the toxicity and transport properties for numerous common contaminants. They are widely considered to be suitable for use in planning assessments such as this. The most recent update was published in 2017 and reflects changes in UK human health risk assessment since the previous figures were published in 2009. All the data inputs used in the derivation of the S4ULs are presented in full in the publication *LQM/CIEH Suitable 4 Use Levels*, and there is no

intention to provide them here. These values are intended for use by professionals who have purchased them. To authenticate this the purchaser is supplied with an individual number to validate the report writer's entitlement to use the LQM/CIEH S4ULs. This number can be seen on the result summary sheets in Tables 1-6. The author has the right to reproduce these values here, but they remain copyright of LQM, a specialist environmental consultancy based in Nottingham.

The proposed development consists of a residential dwelling. Given the nature of the development, S4ULs for residential use with homegrown produce are appropriate to risk assess the site. These values have been used when checking contamination levels at the site.

8. SUMMARY OF GROUND CONDITIONS AND TEST RESULTS

The full trial pit logs to BS5930:2015 together with photographs of the trial pits can be found in Appendix A. In summary, all five pits in the planning application area were excavated into natural ground. The material encountered in the trial pits was a gravelly silty clay of glacial origin dating back to the last (Devensian) Ice Age. There were no natural organic soils present. A variable but thin (<0.7m) veneer of Made Ground was encountered in every trial pit. This was a homogenous mix of colliery spoil with some masonry, brick and ash. This was much as anticipated. Sampling was done in the Made Ground in four of locations. In TP4 the sampling was from the natural ground as there was only an insignificant (0.25m) layer of Made Ground. This also acted as a control sample. A summary of the laboratory results from the soil testing contained in Appendix B has been produced overleaf in Tables 1-6. These compare the test results for each substance with its relevant S4UL value (Residential with homegrown produce scenario).

With the organic contaminants, the samples are normally subdivided based on their Soil Organic Matter (S.O.M.) as the S4UL value for each organic contaminant is controlled by the S.O.M. value. The higher the S.O.M. the higher the S4UL value. All the samples tested fell into the S.O.M. range >6%. For this reason, there is only a single column of S4UL values in Tables 1-4.

Table 1 shows that there were no S4UL value exceedances in any of the samples, for any of the compounds in the USEPA16 range of Polycyclic Aromatic Hydrocarbons. P.A.H. levels were below the limits of detection (LoD) for some of the USEPA16 substances. P.A.H.s were only present as minute traces where present at all. The levels were consistently the highest in the sample from TP3, but these were still only a fraction of the S4UL. This is probably attributable to a higher proportion of coal ash

than in the others. As would be expected, the sample from the natural ground contained virtually no P.A.H.s.

In Table 2 in all five samples, all volatile T.P.H. substances (C5-C10) were below levels of detection. In four of the samples all TPH fractions were below the level of detection. The Aromatic T.P.H fraction C21-C35 was present in a trace amount in the sample from TP1.

In Table 3, all SVOCs are below the LoD in all five samples. Monohydric Phenols were also below the LoD in all five samples. For this reason, only the Phenol Index is shown in Table 4, without speciation.

With the inorganic substances in Table 5, there were no exceedances for any of the Heavy/Toxic metals. Levels were at normal expected background levels for South Wales.

Cyanide levels were below the LoD in all five samples. No Asbestos was detected in any of the five samples.

To summarise, there were no exceedances of any Residential S4UL values for any common contaminants in any sample. The substances tested for were the USEPA16 P.A.H. substances, Petroleum Hydrocarbons with an aromatic/aliphatic split and Texas Banding, SVOCs, Phenols, Heavy/Toxic Metals, Cyanide and Asbestos.

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ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

SOIL ORGANIC MATTER(S.O.M.)						>6%
CONTAMINANT	TP1 0.2m	TP2 0.15m	TP3 0.3m	TP4 0.6m	TP5 0.6m	S4UL
NAPHTHALENE	0.100	< 0.016	0.057	< 0.016	0.092	13
ACENAPHTHYLENE	0.021	< 0.015	0.223	< 0.015	0.017	920
ACENAPHTHENE	< 0.013	< 0.013	0.038	< 0.013	< 0.013	1100
FLOURENE	0.041	< 0.013	0.359	< 0.013	0.022	860
PHENANTHRENE	0.379	0.047	3.320	0.023	0.226	440
ANTHRACENE	0.125	< 0.017	0.808	< 0.017	0.045	11000
FLOURANTHENE	0.585	0.038	3.760	0.028	0.365	890
PYRENE	0.455	0.030	2.660	0.024	0.274	2000
BENZO[a]ANTHRACENE	0.360	0.027	1.440	0.023	0.247	13
CHRYSENE	0.424	0.033	1.050	< 0.028	0.299	27
BENZO[b]FLOURANTHENE	0.520	0.044	1.270	0.034	0.391	3.7
BENZO[k]FLOURANTHENE	0.178	< 0.025	0.527	< 0.025	0.138	100
BENZO[a]PYRENE	0.336	0.025	1.140	0.021	0.234	3
INDENO[1,2,3-cd]PYRENE	0.317	0.031	0.842	0.021	0.235	41
DIBENZO[a,h]ANTHRACENE	0.092	< 0.017	0.173	< 0.017	0.062	0.3
BENZO[g,h,i]PERYLINE	0.238	0.027	0.557	< 0.019	0.172	350
TOTAL(USEPA 16) PAHs	4.170	0.301	18.200	< 0.280	2.820	N/A
TABLE 1 POLYCYCLIC AROMATIC HYDROCARBONS (USEPA16)						

SUMMARY OF TEST RESULTS 22 WINCHFAWR, MERTHYR TYDFIL

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ALL VALUES ARE IN mg/kg						
ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO						

SOIL ORGANIC MATTER(S.O.M.)						>6%
CARBON BANDING	TP1 0.2m	TP2 0.15m	TP3 0.3m	TP4 0.6m	TP5 0.6m	S4UL
>C5-C6 ALI	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	160
>C6-C8 ALI	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	530
>C8-C10 ALI	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	150
>C10-C12 ALI	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	760
>C12-C16 ALI	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	4300
>C16-C21 ALI	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	110000
>C21-C35 ALI	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	
>C35-C40 ALI	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	110000
>C5-C7 ARO	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	300
>C7-C8 ARO	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	660
>C8-C10 ARO	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	190
>C10-C12 ARO	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	380
>C12-C16 ARO	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	660
>C16-C21 ARO	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	930
>C21-C35 ARO	10.9	< 4.5	< 4.5	< 4.5	< 4.5	1700
>C35-C40 ARO	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	1700
TOTAL TPH >C5-C10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	N/A
TOTAL TPH >C10-C40	12.6	< 11.5	< 11.5	< 11.5	< 11.5	N/A
TABLE 2 TOTAL PETROLEUM HYDROCARBONS WITH TEXAS CARBON BANDING AND ALIPHATIC/AROMATIC SPLIT						

SOIL ORGANIC MATTER(S.O.M.)						>6%
CONTAMINANT	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL
PHENOL	<0.1	<0.1	<0.1	<0.1	<0.1	1100
CRESOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
XYLENOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
NAPTHOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
TRIMETHYLPHENOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
TABLE 3 SVOCs						

SUMMARY OF TEST RESULTS 22 WINCHFAWR, MERTHYR TYDFIL

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ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

SOIL ORGANIC MATTER(S.O.M.)						>6%
	TP1 0.2m	TP2 0.15m	TP3 0.3m	TP4 0.6m	TP5 0.6m	S4UL
TOTAL	<0.5	<0.5	<0.5	<0.5	<0.5	1100
TABLE 4 TOTAL MONOHYDRIC PHENOLS						

CONTAMINANT	TP1 0.2m	TP2 0.15m	TP3 0.3m	TP4 0.6m	TP5 0.6m	S4UL	
ARSENIC	25.9	10.4	23.9	12.7	29.3	37	
CADMIUM	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	11	
CHROMIUM	14.1	28.9	14.1	11.8	15.5	910	
COPPER	53.5	41.3	24.3	13.0	20.5	2400	
LEAD	61.7	30.8	27.7	21.3	36.8	200	(C4SL)
MERCURY	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	40	
NICKEL	30.4	48.2	18.7	7.5	15.6	180	
SELENIUM	< 3.0	< 3.0	< 3.0	< 3.0	3.8	250	
ZINC	104.0	130.0	62.0	38.9	179.0	3700	
CYANIDE	<1.0	<1.0	<1.0	<1.0	<1.0	22	GACacute
TABLE 5 TOXIC/HEAVY METALS AND CYANIDE							

	TP1 0.2m	TP2 0.15m	TP3 0.3m	TP4 0.6m	TP5 0.6m	
WEIGHT (g)	0	0	0	0		
% DRY WEIGHT OF SAMPLE	0	0	0	0		
TABLE 6 ASBESTOS ANALYSIS						

SUMMARY OF TEST RESULTS 22 WINCHFAWR, MERTHYR TYDFIL

9. REVISED RISK ASSESSMENT FOR GROUND GAS

The risk from on-site gas generation was considered unlikely but required quantification. The trial pitting established that there is an insignificant thickness of inert Made Ground in some areas of the site. Levels of Hydrocarbon contamination in the samples taken at the site were very low generally, and for the volatile and semi-volatile spectrum, non-existent. There is no potential for vapour production at the site, and this risk has been removed from Table 7.

As anticipated, there was no natural organic soil found in the five trial pits. The natural ground was a Glacial gravelly silty clay. This usually has a very low organic content. The Soil Organic Matter (S.O.M.) for the four samples from the Made Ground was very high ranging from 12.3%-69.5% (page 3 of the laboratory report). This was due to the coal content, not biodegradable material. Therefore, there are no viable sources of ground gas production on the site.

Figure 4 is from the Welsh Government Database. This shows a former landfill approximately 220m from the site. This was the Winchfawr tip. It was licensed to a D. Price to accept inert waste only from 31/12/1987-31/12/1989. Landfill sites have been found to be sources of gases, particularly methane, caused by the breakdown of organic material contained within them. There have been instances where migration of these gases has caused explosions or asphyxiation at receptors off site. These occurrences are rare and usually outside Britain in completely unregulated circumstances. In contrast, landfills in Britain have been tightly regulated and managed for many years. A sense of perspective is necessary when assessing the threat from a landfill close to a site. At the present time "close" is generally taken to mean less than 250m, although there are no specific studies that have arrived at this figure. The figure dates to a 2003 E.A. publication "Building on or within 250m of a Landfill". The document and 250m figure were subsequently adopted in L.P.A. planning guidance. The original document itself stresses that conditions can vary enormously. In particular, the document acknowledges that there must be viable pathways from any potential source of Landfill gases to a receptor, for there to be any risk. The tip only accepted inert waste for a period of two years. From aerial photos it looks like rubble and soil were used to infill and level off a series of irregular, lobed spoil heaps. There is no potential for gas production from a 35 year old inert tip. The tip and site are underlain by a very low permeability Diamicton. The tip is also 10m-15m above the site topographically. There is no viable pathway to the site. There is no risk of landfill gas migration to the site, and this risk has been removed from Table 7.

This leaves the risk of mine gas migration. Gas production was a constant problem during the coal mining heyday of the South Wales Coalfield. The loss of life through

explosion or asphyxiation was huge. However, there were vast differences in the potential for gas production between different areas, and in different seams. As a generalisation, the deep steam coals of the Middle and Lower Coal Measures were the most problematic in the Coalfield. Gas production in coal mines takes two forms. Methane trapped under pressure in the coal is released during mining operations. The production of Methane stops very shortly after the end of mining activity. The production of Carbon Dioxide and Carbon Monoxide is due to oxidation of the remaining coal. If conditions are suitable, this gas production can carry on long after mining ceases.

A previous Coal Mining Risk Assessment concluded there was a significant risk of shallow coal workings beneath the site. This was confirmed by an intrusive site investigation which found workings in the Bute Seam at depths of 17m-20m depth beneath the site. These were subsequently remediated by grouting by the specialists Van Elle. The remediation process involves the drilling of multiple boreholes on a grid pattern. A liquid mixture of Portland Cement and pulverised fuel ash (P.F.A.) is then pumped underground to fill the voids left by the mining process. There is then no potential for void migration to reach the surface. Of course, as the mining voids are being filled any residual gas will be driven out and there remains no potential for gas production.

The site is within a Coal Mining Reporting Area. Figures 5 and 6 are taken from the Coal Authority Viewer. Figure 5 shows that the site is partly underlain by recorded shallow workings. Figure 6 shows mine entrances around the site. The circles are 50m and 75m radii around the site. There are no mine entrances within 50m of the site.

Because the site is within the C.M.R.A. a Coal Mine Gas Risk Assessment will be required under current legislation. Recently, local authorities have been requesting specific mine gas risk assessments conducted in accordance with 'CL:AIRE - Good Practice for Risk Assessment for Coal Mine Gas Emissions, October 2021' and having regard to current guidance - 'Land Contamination: Risk Management (LCRM; 2020)'. There is usually a demand to follow the decision tree in Figure 13.1 of the Decision support tool for mine gas risk assessment on page 35 of the CL:AIRE document. The CL:AIRE document decision flow chart is designed purely for desk studies. It does not take into account that a site has been remediated.

IS THE SITE WITHIN A C.A. DEFINED COAL MINING REPORTING AREA

>YES>

ARE ALL THESE STATEMENTS TRUE.

ALL MINE ENTRIES >50m FROM SITE BOUNDARY. >YES> (SEE FIGURE 6)

ALL WORKINGS >150m DEPTH >NO> BUT THE SHALLOW (17m-20m) WORKINGS BENEATH THE SITE HAVE BEEN GROUTED UP AND POSE NO THREAT FROM GAS PRODUCTION

NO FAULTS OR POTENTIAL PATHWAYS CONNECTING THE SURFACE TO DEEPER UNFLOODED WORKINGS. >YES>

OUTSIDE AREA OF PAST OR PROBABLE SHALLOW WORKINGS ON THE COAL AUTHORITY INTERACTIVE VIEWER. >NO> REFER TO FIGURE 5, BUT SEE ABOVE, SHALLOW WORKINGS HAVE BEEN GROUTED

NEGLIGIBLE RISK ZONE >YES> MITIGATION NOT REQUIRED. NO FURTHER ACTION REQUIRED.

It can now be safely concluded that there is no risk from mine gases at the site.

A P.H.E. Radon Report was purchased for the adjacent property. This concludes that the property is not in a Radon Affected Area and that no Radon Protection Measures will need to be incorporated into the development. The report is attached in Appendix C. All the information above is reflected in the revised gas risk assessment in Table 7 overleaf. Here all residual ground gas risks from all possible sources have been removed. No gas protection measures will need to be incorporated into the development design.

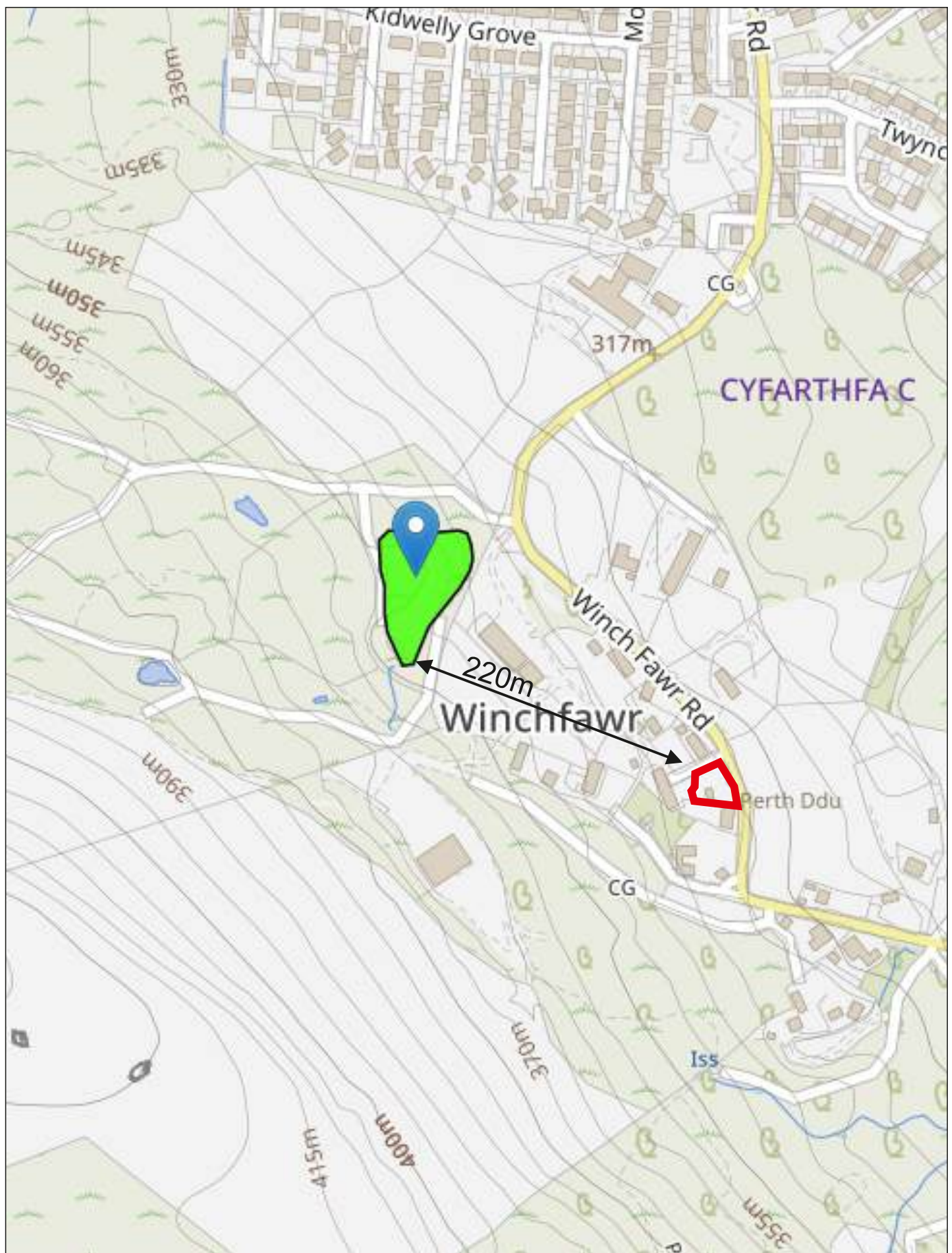


FIGURE 4
DATAMAP WALES PLAN OF WINCHFAWR LANDFILL
WITH THE APPLICATION SITE OUTLINED IN RED.

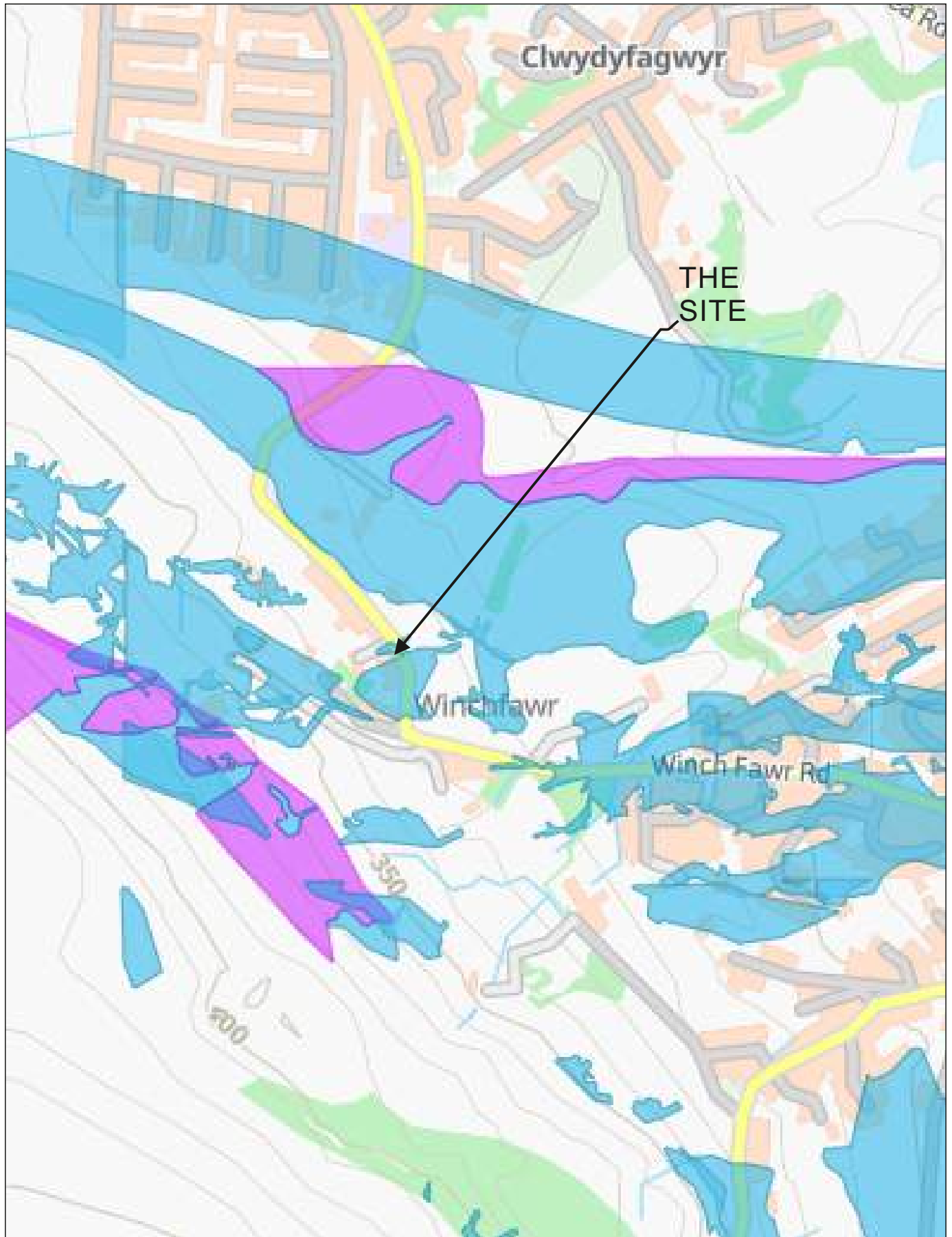


FIGURE 5

COAL AUTHORITY INTERACTIVE VIEWER, PLANNING WINDOW.
BLUE AREAS SHOW SUSPECTED SHALLOW MINING, PURPLE
AREAS SHOW SUSPECTED, UNRECORDED SHALLOW MINING.



FIGURE 6
C.A. VIEWER, PLANNING WINDOW. RED CROSSES ARE MINE
ENTRIES. 50m AND 75m RADII FROM THE SITE ARE SHOWN.

TABLE 7 FINAL GROUND GAS RISK ASSESSMENT AT 22 WINCHFAWR, MERTHYR TYDFIL					
SOURCE	PATHWAY	RECEPTOR	CONSEQUENCE CLASSIFICATION	RISK	FURTHER ACTION
HAZARDOUS GROUND GAS FROM OFF SITE SOURCE	INHALATION, INJURY FROM EXPLOSION	SITE USERS, VISITORS, CONSTRUCTION WORKERS	SEVERE	LOW. NO POSSIBILITY OF OFF SITE GENERATION OF LANDFILL GASES MIGRATING ONTO SITE. NO RISK FROM MINE GAS MIGRATION FOLLOWING GROUTING REMEDIATION.	NO FURTHER ACTION REQUIRED
HAZARDOUS GROUND GAS FROM OFF SITE SOURCE	DAMAGE FROM EXPLOSION	BUILDINGS	SEVERE		
HAZARDOUS GROUND GAS FROM ON SITE SOURCE	INHALATION, INJURY FROM EXPLOSION	SITE USERS, VISITORS, CONSTRUCTION WORKERS	SEVERE	LOW. THE SITE INVESTIGATION ESTABLISHED THERE IS NO BIODEGRADABLE MADE GROUND AND NO NATURAL ORGANIC SOILS AT THE SITE.	NO FURTHER ACTION REQUIRED
HAZARDOUS GROUND GAS FROM ON SITE SOURCE	DAMAGE FROM EXPLOSION	BUILDINGS	SEVERE		
RADON GAS	LONG TERM HAZARD FROM INHALATION	SITE USERS	SEVERE	P.H.E. RADON REPORT CONCLUDED THERE WAS NO RADON RISK AT THE SITE.	NO RADON PROTECTION MEASURES REQUIRED

10. RISK ASSESSMENT FOR CONTROLLED WATERS

The permeability of the Glacial silty clay on site was found to be very low during testing for SuDS. This means that even if there were contaminants on site, they would potentially form little threat to controlled waters if mobilised. Since there is no contamination at the site there can be no onward pathway to other environmental receptors. The risk to controlled waters has been removed from Table 8.

11. REVISED RISK ASSESSMENT FOR SOILS

The made ground at the site was tested for a broad range of common contaminants. The frequency and distribution of sampling and testing was reasonable and proportionate for the area of soft landscaping associated with the development. All soil samples taken at the site had contaminant levels vastly below acceptable levels for residential properties with gardens for home grown produce. With no soil contamination there is no potential risk to above ground receptors. For this reason, the potential risk has been removed from Table 8.

12. SUMMARY OF REMEDIATION OBJECTIVES, CRITERIA AND OPTIONS

The objective of any remediation strategy is to make the land suitable for its intended use. In this case a development consisting of a single residential property with soft landscaping/garden areas. Because no contamination was detected at the site, no remediation will be required. This means that Conditions 11 and 12 are no longer applicable, and can be discharged along with Conditions 9 and 10.

If any material is imported to the site for any reason, all imports will need to be recorded, and all documentation presented in a validation report. This process will need to follow the guidelines contained in L.C.R.M (2020) and the W.L.G.A./ C.L.I.L.C. document *Requirements for the Chemical Testing of Imported Materials for Various End Uses and Validation of Cover Systems*. It is currently unknown if any imported material will be required, but it is extremely doubtful.

Richard Davies BSc.(Hons.), MSc., F.G.S.

19/05/2026

TABLE 8						
FINAL QUANTITATIVE HUMAN HEALTH RISK ASSESSMENT AND ENVIRONMENTAL RISK ASSESSMENT AT 22 WINCHFAWR, MERTHYR TYDFIL.						
CONTAMINANT SOURCE	PATHWAYS	RECEPTORS	POTENTIAL SEVERITY	PROBABILITY OF RISK	LEVEL OF RISK	FURTHER ACTION REQUIRED
ON SITE: POTENTIAL CONTAMINATION IN SOILS/MADE GROUND. POSSIBLY ELEVATED LEVELS OF METALS HYDROCARBONS AND PAH	INGESTION, DERMAL CONTACT, INHALATION	FUTURE END USERS, VISITORS	MEDIUM	LOW	LOW	THE SITE INVESTIGATION REVEALED ONLY INSIGNIFICANT QUANTITIES/THICKNESS OF MADE GROUND WAS PRESENT ON THE SITE. LABORATORY ANALYSIS OF SOIL SAMPLES TAKEN CONFIRMED THAT CONTAMINANT LEVELS WERE VERY LOW. NO FURTHER ACTION REQUIRED.
	CONTACT WITH CONTAMINATED GROUNDWATER	FUTURE END USERS, VISITORS AND CONSTRUCTION WORKERS	MEDIUM			
	PERMEATION OF WATER PIPES	FUTURE END USERS AND SITE VISITORS	MEDIUM			
	INGESTION OF HOME GROWN PRODUCE	FUTURE END USERS	MEDIUM			
ON SITE: ASBESTOS AT OR NEAR GROUND SURFACE IN SOILS/MADE GROUND	INHALATION OF FIBRES IN AIRBORNE DUST	FUTURE END USERS AND SITE VISITORS	HIGH	LOW	LOW	NO ASBESTOS WAS DETECTED IN THE SOIL SAMPLES. NO FURTHER ACTION REQUIRED
		CONSTRUCTION WORKERS	HIGH	LOW	LOW	
ON SITE: POTENTIAL CONTAMINATION IN SOILS/MADE GROUND. POSSIBLY ELEVATED LEVELS OF CONTAMINANTS	RUN OFF	SURFACE DRAINAGE	MEDIUM	LOW	LOW	WITHOUT AN ON-SITE CONTAMINATION SOURCE THERE CAN BE NO ONWARD PATHWAY AND NO THREAT TO CONTROLLED WATERS/ ENVIRONMENTAL RECEPTORS. NO FURTHER ACTION REQUIRED.
	MIGRATION THROUGH SOIL VIA LEACHING	SHALLOW GROUNDWATER				
	ONWARD MIGRATION OF GROUNDWATER	BEDROCK AQUIFER				

APPENDIX A
TRIAL PIT LOGS TO BS5930:2015
WITH PHOTOGRAPHS
22 WINCHFAWR
MERTHYR TYDFIL

Project: 22 WINCHFAWR, MERTYR	Project No: WSM221
Described By: R.DAVIES	Trial Pit No. TP1
Date: 26.01.2026	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.	MADE GROUND. Loose to medium dense black sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Mudstone and siltstone, sandy component is small oal and ash (COLLIERY SPOIL)
0.2	ES1	0.3	Firm to stiff yellowish brown and grey, gravelly, silty CLAY. Gravel is angular to subrounded of Quartzitic Sandstone and Pennant Sandstone.
		0.6	

Notes: ES-Environmental Soil
 EW - Environmental Water
 B - Bulk Disturbed
 D - Small Disturbed

TRIAL PIT NUMBER
TP1

Sheet 1 of 1



TP 2 22 WINCHFAWR

Project: 22 WINCHFAWR, MERTYR	Project No: WSM221
Described By: R.DAVIES	Trial Pit No. TP2
Date: 26.01.2026	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.	MADE GROUND. Loose to medium dense black sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Mudstone and siltstone, sandy component is small oal and ash (COLLIERY SPOIL)
0.15	ES2	0.25	Firm to stiff yellowish brown and grey, gravelly, silty CLAY. Gravel is angular to subrounded of Quartzitic Sandstone and Pennant Sandstone.
		0.6	

Notes: ES-Environmental Soil
 EW - Environmental Water
 B - Bulk Disturbed
 D - Small Disturbed

TRIAL PIT NUMBER
TP2

Sheet 1 of 1



TP 2 22 WINCHFAWR

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Notes: ES-Environmental Soil EW - Environmental Water B - Bulk Disturbed D - Small Disturbed		TRIAL PIT NUMBER TP3 Sheet 1 of 1
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TP 3 22 WINCHFAWR

Project: 22 WINCHFAWR, MERTYR	Project No: WSM221
Described By: R.DAVIES	Trial Pit No. TP4
Date: 26.01.2026	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.	MADE GROUND. Loose to medium dense black sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Mudstone and siltstone, sandy component is small oal and ash (COLLIERY SPOIL)
		0.15	Firm to stiff yellowish brown and grey, gravelly, silty CLAY. Gravel is angular to subrounded of Quartzitic Sandstone and Pennant Sandstone.
0.6	ES4	0.6	

Notes: ES-Environmental Soil
 EW - Environmental Water
 B - Bulk Disturbed
 D - Small Disturbed

TRIAL PIT NUMBER
TP4

Sheet 1 of 1



TP 4 22 WINCHFAWR

Project: 22 WINCHFAWR, MERTYR	Project No: WSM221
Described By: R.DAVIES	Trial Pit No. TP5
Date: 26.01.2026	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.	MADE GROUND. Loose to medium dense black sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Mudstone and siltstone, sandy component is small oal and ash (COLLIERY SPOIL)
0.6	ES5	0.7	Firm to stiff yellowish brown and grey, gravelly silty CLAY. Gravel is angular to subrounded, fine to coarse of Quartzitic Sandstone and Pennant Sandstone.
		0.8	

Notes: ES-Environmental Soil
 EW - Environmental Water
 B - Bulk Disturbed
 D - Small Disturbed

TRIAL PIT NUMBER
TP5

Sheet 1 of 1



TP 5 22 WINCHWAWR

APPENDIX B

CHEMTECH LAB REPORT

26-00967-01

22 WINCHFAWR

MERTHYR TYDFIL

ANALYTICAL TEST REPORT

Report Number 26-00967, issue number 1

Contract name: WSM221 WINCHFAWR

Client reference: WSM221

Clients name: Rhondda Geotechnical Services

Clients address: RHONGEOSER
56 Meyler Street
Thomastown
Porth
CF39 8EA

Samples received: 28/01/2026

Analysis started: 28/01/2026

Analysis completed: 04/02/2026

Report issued: 04/02/2026

Key

U UKAS accredited test

M MCERTS & UKAS accredited test

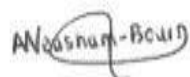
(B) Analysis performed at Southampton Site

I/S Insufficient sample to carry out test

U/S Sample not suitable for testing

NAD No Asbestos Detected

Full key available on Information page



Approved by: Abbie Neasham-Bourn
Senior Reporting Administrator

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

% Moisture reported as MCERTS drying at 30°C

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
86439	TP1-ES1	0.20	Black Sandy Loam with Gravel.	-	-	19.4
86440	TP2-ES2	0.15	Black Sandy Loamy Clay with Gravel.	-	-	9.8
86441	TP3-ES3	0.30	Brown Loamy Clay with Gravel.	-	-	24.3
86442	TP4-ES4	0.60	Brown Loamy Clay with Gravel.	-	-	19.7
86443	TP5-ES5	0.60	Brown Loamy Clay with Gravel.	-	-	25.3

SOILS

Lab Number					86439	86440	86441	86442	86443
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.20	0.15	0.30	0.60	0.60
Sampling Date					26/01/2026	26/01/2026	26/01/2026	26/01/2026	26/01/2026
Test	Method	Accred	LoD	Units					
Asbestos									
Asbestos Identification	SUBCO N	SU	0	-	NAD	NAD	NAD	NAD	NAD
Metals									
Arsenic	CE264	U	1.8	mg/kg	25.9	10.4	23.9	12.7	29.3
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	14.1	28.9	14.1	11.8	15.5
Copper	CE264	U	1.6	mg/kg	53.5	41.3	24.3	13.0	20.5
Lead	CE264	U	2.3	mg/kg	61.7	30.8	27.7	21.3	36.8
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	30.4	48.2	18.7	7.5	15.6
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	3.8
Zinc	CE264	M	4	mg/kg	104	130	62.0	38.9	179
Colourimetric									
Total Monohydric Phenols	CE078	N	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Cyanide	CE077	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Combustion									
Moisture Content	CE001	N	0.1	%	19.4	9.8	24.3	19.7	25.3
Total Organic Carbon	CE197	M	0.1	%	40.3	7.14	23.8	4.99	9.02
Soil Organic Matter	CE192	N	0.1	%	69.5	12.3	41.1	8.60	15.6
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	0.100	< 0.016	0.057	< 0.016	0.092
Acenaphthylene	CE087	M	0.015	mg/kg	0.021	< 0.015	0.223	< 0.015	0.017
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	0.038	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	0.041	< 0.013	0.359	< 0.013	0.022
Phenanthrene	CE087	M	0.014	mg/kg	0.379	0.047	3.32	0.023	0.226
Anthracene	CE087	U	0.017	mg/kg	0.125	< 0.017	0.808	< 0.017	0.045
Fluoranthene	CE087	M	0.017	mg/kg	0.585	0.038	3.76	0.028	0.365
Pyrene	CE087	M	0.016	mg/kg	0.455	0.030	2.66	0.024	0.274
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.360	0.027	1.44	0.023	0.247
Chrysene	CE087	M	0.028	mg/kg	0.424	0.033	1.05	< 0.028	0.299
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.520	0.044	1.27	0.034	0.391

SOILS

Lab Number					86439	86440	86441	86442	86443
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.20	0.15	0.30	0.60	0.60
Sampling Date					26/01/2026	26/01/2026	26/01/2026	26/01/2026	26/01/2026
Test	Method	Accred	LoD	Units					
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.178	< 0.025	0.527	< 0.025	0.138
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.336	0.025	1.14	0.021	0.234
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.317	0.031	0.842	0.021	0.235
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.092	< 0.017	0.173	< 0.017	0.062
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.238	0.027	0.557	< 0.019	0.172
Total PAH(16)	CE087	N	0.28	mg/kg	4.17	0.301	18.2	< 0.280	2.82
Total Petroleum Hydrocarbons									
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
>C16-C21 Aliphatic (EH_2D_AL)	CE250	N	0.7	mg/kg	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
>C21-C35 Aliphatic (EH_2D_AL)	CE250	N	4	mg/kg	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	10.9	< 4.5	< 4.5	< 4.5	< 4.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
>C5-C10 Total (HS_1D_Total)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C10-C40 Total (EH_2D_Total)	CE250	N	11.5	mg/kg	12.6	< 11.5	< 11.5	< 11.5	< 11.5
Total Hydrocabons C5-C40 (HS_1D+EH_2D_Total)	CE250	N	11.5	mg/kg	12.6	< 11.5	< 11.5	< 11.5	< 11.5
Wet Chem									
pH	CE004	M	0.1	pH units	7.1	8.4	7.1	7.0	7.7

SOIL SVOCS

Lab Number					86439	86440	86441	86442	86443
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.20	0.15	0.30	0.60	0.60
Sampling Date					26/01/2026	26/01/2026	26/01/2026	26/01/2026	26/01/2026
Test	Method	Accred	LoD	Units					
SVOC									
Phenol	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Xylenols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
CE250	GCXGC in Soil	DCM Extraction and GCxGC-FID	As submitted sample
SUBCON	Asbestos Soil	HSG248	Air Dried Sample
CE189	SVOC in solids	DCM Extraction and GCMS	As submitted sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE078	Phenols in Soil	Continuous Flow Analyser	As submitted sample
CE077	Cyanides in Soils	Continuous Flow Analyser	As submitted sample
CE197	Primacs in Soil	Primacs	Air dried sample

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

- a Sampling date not provided
- b Sampling time not provided (waters only)
- c Sample not received in appropriate containers
- d Storage Temperature
- e Headspace present in sample container
- f Sample exceeded sampling to receipt
- g Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
86439	TP1-ES1	0.20	N	
86440	TP2-ES2	0.15	N	
86441	TP3-ES3	0.30	N	
86442	TP4-ES4	0.60	N	
86443	TP5-ES5	0.60	N	

REPORT INFORMATION

Report No.:26-00967, issue number 1

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
N	Do not currently hold accreditation
^	MCERTS accreditation not applicable for sample matrix
*	ISO17025 accreditation not applicable for sample matrix
S	Subcontracted
I/S	Insufficient Sample
U/S	Unsuitable sample
N/T	Not tested
<	Means "less than"
>	Means "greater than"

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

This report shall not be reproduced except in full, without prior written approval.

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis (at 30°C)

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

Where sampling was undertaken by Chemtech Environmental Limited it is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis (30°C). Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones and 'inert' material, where applicable.

'Client Reference', 'Sample ID', 'Sample Location', 'Sample Type', 'Depth', 'Sample Date' and 'Sample Time' information is provided by the customer

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unless specifically identified (noted as "(B)" in analyte name) all internal analysis performed at Durham site

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APPENDIX C

UK RADON REPORT

22 WINCHFAWR

HEOLGERRIG

MERTHYR TYDFIL

Report of address search for radon risk

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Address searched: 22 Winchfawr, Heolgerrig, Merthyr Tydfil, CF48 1RD

Date of report: 19 May 2026

Guidance for existing properties

Is this property in a radon Affected Area? - No

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to be at or above the Action Level.

The estimated probability of the property being above the Action Level for radon is: 0-1%

The probability result is only valid for properties above ground. All basement and cellar areas are considered to be at additional risk from high radon levels.

The result may not be valid for buildings larger than 25 metres.

If this site is for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the UK Health Security Agency. UKHSA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from UKHSA or <https://www.ukradon.org>

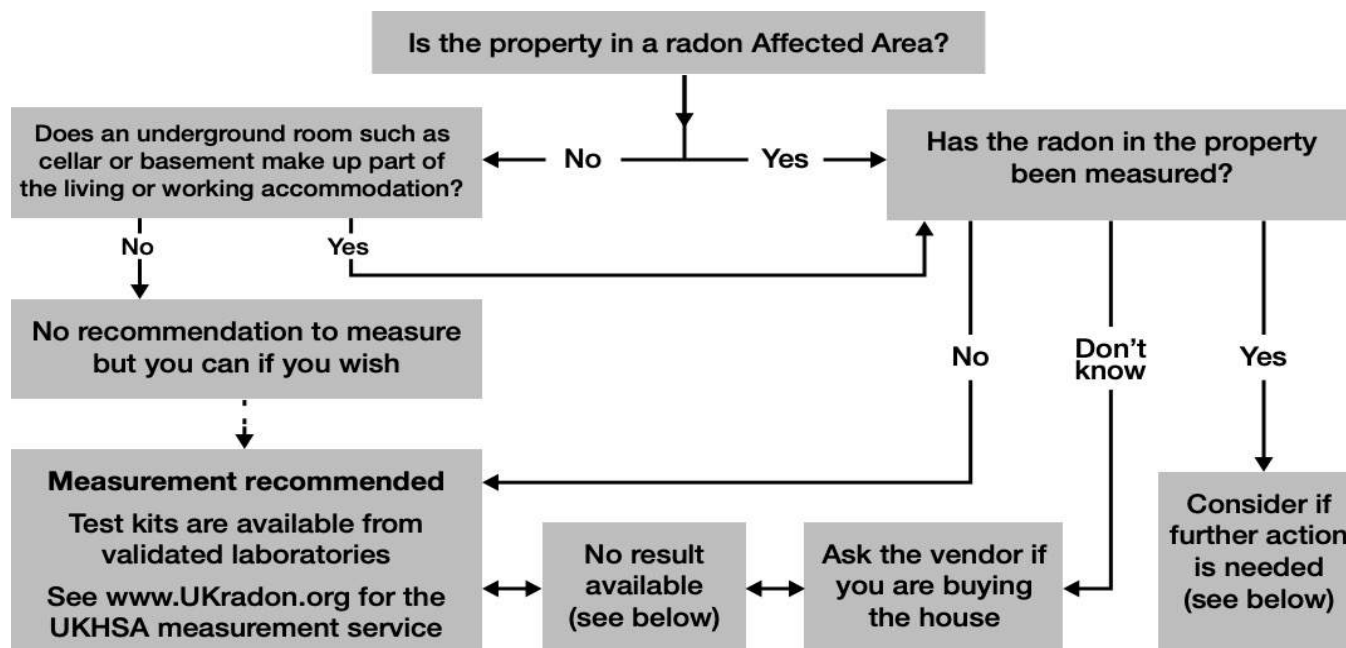
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

UKHSA guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m³), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m³; these groups have a higher risk. Information on health risks and radon reduction work is available from UKHSA. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

UKHSA designated radon website: <https://www.ukradon.org>

Building Research Establishment: <http://www.bre.co.uk/page.jsp?id=3137>