



RHONDDA
GEOTECHNICAL
SERVICES

PHASE 2 CONTAMINATED LAND REPORT
ADDITIONAL SAMPLING
N.P.T. PLANNING APP. REF. P2024/0597
PROPOSED RENAL UNIT
STATIONERY HOUSE
ACACIA AVENUE
SANDFIELDS
PORT TALBOT
SA12 7DP
2/07/2025

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INTRODUCTION

Planning permission has been granted to convert a former factory unit in Acacia Avenue, Sandfields into a Renal Unit to serve as an annex to the nearby Neath Port Talbot Hospital. The application to Neath Port Talbot L.P.A. has the reference P2024/0597. The full granted permission has been conditioned as follows:-

6 Notwithstanding the submitted information, no development shall commence on site until an assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the Local Planning Authority. This assessment must be carried out by or under the direction of a suitably qualified competent person in accordance with BS10175 (2011) 'Investigation of Potentially Contaminated Sites Code of Practice' and shall assess any contamination on the site, whether or not it originates on the site. The report of the findings shall include:

6(i) a desk top study to identify all previous uses at the site and potential contaminants associated with those uses and the impacts from those contaminants on land and controlled waters. The desk study shall establish a 'conceptual site model' (CSM) which identifies and assesses all identified potential source, pathway, and receptor linkages;

ii) an intrusive investigation to assess the extent, scale and nature of contamination which may be present, if identified as required by the desk top study;

iii) an assessment of the potential risks to: - human health, - groundwater and surface waters - adjoining land, - property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,- ecological systems, - archaeological sites and ancient monuments; and - any other receptors identified at (i)

(iv) an appraisal of remedial options, and justification for the preferred remedial option(s).

Reason: To ensure that information provided for the assessment of the risks from land contamination to the future users of the land, neighbouring land, controlled waters, property and ecological systems is sufficient to enable a proper assessment, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

7. No development shall commence on site until a remediation scheme to bring the site to a condition suitable for the intended use by removing any unacceptable risks to human health, buildings, other property and the natural and historic environment shall be prepared and submitted to and approved in writing with the Local Planning Authority. The scheme shall include all works to be undertaken, proposed remediation objectives, remediation criteria and site management procedures. The measures proposed within the remediation scheme shall be implemented in accordance with an agreed programme of works.

During pre-planning consultations N.P.T. requested that a Phase 1 Contaminated Land Risk Assessment was produced to support the full planning application. Rhondda Geotechnical Services were commissioned by the developers Sandycroft Projects Ltd. to produce the report.

WORK CARRIED OUT TO DATE

The Phase 1 Report was submitted in August 2024. This concluded that there was no risk of contamination of the site. This was largely based on extensive visual examination of several trial pits excavated for both foundation examination of the existing building and soakaway testing. This was much more informative than the walkover survey in the normal Phase 1 template. There was apparently no formal response to this until early January of this year. In this the Neath Port Talbot E.H.O. rejected the conclusions of the Phase 1 Report on several grounds:-

I've reviewed the Phase 1 report by Rhondda Geotechnical Services. The report concludes that no further action is required for Contaminated Land. However, I believe it would be prudent to prove the reports conclusions that there is no made ground on the site and that the previous use as a factory/clothing factory did not impact the ground. This is based on previous experience with developments in the area where made ground and heavy metals hotspots were unexpectedly encountered after analysis of the soils. Therefore LC01, LC03 and LC04 will still be required. The wording of LC01 can be modified to remove the need for a Phase 1 desk study.'

The author engaged in correspondence with the E.H.O. but unfortunately, he is currently on leave due to ill health. The clients Planning Agent contacted N.P.T. and the Senior E.H.O. reiterated the response that an intrusive investigation would be necessary to establish beyond doubt that there was no contamination at the site

The proposed use, for obvious reasons is very sensitive and much more so than the existing industrial use. We do not accept the conclusions of the report and

therefore recommend that conditions are attached to the decision notice. I am extremely surprised to see a report conclude that site investigation is not necessary on an industrial site. I am also recommending to planning that the condition includes the need for a revised desk study because I do not agree with the conclusions.

In consultation with the Client and Planning Agent it was agreed to carry out a site investigation to try and avoid any further unnecessary delays. With regards to the last sentence, the author would argue there is no need for any revision of the Phase 1. It is his opinion that the existing Phase 1 is sufficient to discharge Condition 6(i) of the granted planning as the Phase 2 proved the conclusions were absolutely correct. The intrusive site investigations were carried out on 18th February 2025 under the supervision of Richard Davies. Works consisted of the digging of five shallow trial pits with a 3-ton tracked excavator. The trial pit locations are shown in Figure 18 of the original Phase 2 Report. Any samples taken. All five pits proved undisturbed natural ground. In three of the pits this was directly beneath a thin (<0.15m) tarmac/sub-base layer. The existing building covers a large proportion of the site. The proposed building is smaller than existing but most of the remainder of the site will be hard landscaping/parking. The trial pit locations were selected to represent a general spread in proposed soft landscaping area, but were also governed by live services including water, gas and medium voltage electricity. Five soil samples were taken in all. This was considered reasonable and proportionate for an initial investigation of a site of this size. Trial pits were excavated to depths of 1.1m-1.5m. Digging further in clearly undisturbed natural ground was pointless. There was no visual or olfactory evidence of any contamination. Groundwater was encountered in three of the pits, and two groundwater samples were taken for analysis. The soil testing showed no contamination above acceptable limits for the proposed use of the building.

Following a review of the original Phase 2 the following consultation response was received from N.P.T:-

I have reviewed the Phase 2 Site Investigation Report by Rhondda Geotechnical Services (20/3/2025). I am pleased the trial pits found no evidence of made ground and the soil samples came back below the generic assessment criteria. My only concern is the Trial Pits and soil samples were only taken along the periphery of the existing factory building. The site investigation did not cover the footprint of the building. It is possible the clothing factory only carried out sewing and stitching with no dyeing or fabric processes as the report author claims

however, that does not discount boilers, generators, lubricants etc that may have been used within the footprint of the building. I'm also aware of the existing factory building putting a constraint on where the trial pits and sampling could be taken. However, I would like the site investigation to prove there are no contamination issues within the footprint of the building. This additional testing can be done once the factory building is demolished.

Because of time constraints on the construction contract this was not considered a practical course of action. The building is only to be partly demolished and the areas of interest for further testing will be occupied by piling equipment. Instead, as soon as the purchase of the building had been completed the floor was broken out locally to allow the excavation of trial pits. The site investigation and results will be described in this report. Sections 22 (Sampling Methodology), 23 (Testing Strategy), 24 (Choice of suitable S4UL values) and 25 (Choice of Land Use Scenario) apply equally to the further sampling and testing described in this report. Further repetition would be pointless as both Phase 2 Reports are designed to be read in tandem. To maintain continuity between all three reports, Section numbers, Figure numbers and Table numbers will carry on in sequence through all three reports.

31. UNDERSLAB INVESTIGATION

The second phase of intrusive site investigations were carried out on 3rd June 2025 under the supervision of Richard Davies. Works consisted of the digging of four shallow trial pits with a 3-ton tracked excavator. The concrete floor had been broken out the day previously in four positions specified by the author. The trial pit locations are shown in Figure 20 along with the depths of any samples taken. There is no intention to remove the entire concrete floor of the original building during the conversion to the Renal Unit. It is of sound construction and in pristine condition, although it will be overlaid by 100mm of insulation and 50mm of liquid screed to meet modern insulation standards. Therefore, the trial pits were deliberately located to fall outside the area of floor to be retained. Even so, possible pathways to above ground receptors are not very strong. TPs 101 and 102 on the western side of the building will be under a car park. TPs 103 and 104 on the eastern side will be on the course of a drainage swale for SuDS with no public access possible.

32. SUMMARY OF GROUND CONDITIONS AND SOIL TEST RESULTS

The full trial pit logs to BS5930:2015 together with photographs of the trial pits can be found in Appendix E. In summary, All the pits were excavated through 150mm of reinforced concrete with a variable thickness of sub-base straight into the underlying natural ground which was a Blown Sand at depths of 0.4m-0.85m. There were no visual or olfactory signs of contamination. The sub-base was composed of a variable mixture of slag, brick, concrete, Limestone aggregate and Sandstone Masonry. Much of the sub-base material was totally unsuited to laboratory testing because of grain size (samples need to be sized from fine sand downward to clay). Wherever possible, finer material within the sub-base was sampled. The natural ground was identical to that seen in the trial pits outside the building outside. A summary of the laboratory report in Appendix F has been reproduced overleaf as Tables 13-18.

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. Three of the samples tested had a S.O.M. >1% <2.5%. The other two samples had a S.O.M. >6%. Because of the two S.O.M. ranges there are two columns with different S4UL values for all the organic contaminants in Tables 13-16.

Table 13 shows that there were no S4UL value exceedances for the USEPA16 range of Polycyclic Aromatic Hydrocarbons (P.A.H.s) in any of the samples. In two samples all the USEPA16 substances were below the Level of Detection (LoD). There were minute traces in the other three samples.

In Table 14 all the volatile T.P.H. ranges (C5-C10) tested for in all the samples were below the level of detection. The entire T.P.H. range was below the LoD in three samples with minute trace levels in the other two.

In Table 15 all the SVOCs were below the level of detection in all five soil samples.

Because all the six speciated Phenols were below the level of detection in all five samples, only the Phenol Index is shown in Table 16, without speciation.

With the inorganic substances in Table 7, there were no exceedances for any Metal in any sample.

Cyanide levels were below the limit of detection in all five samples. Asbestos was not detected in any of the five samples.

To summarise, there were no exceedances of the POS_{RESI} S4UL value for any substance in any sample.

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ALL VALUES ARE IN mg/kg

S4UL VALUES REFER TO PUBLIC OPEN SPACE NEAR RESIDENTIAL SCENARIO

SOIL ORGANIC MATTER(S.O.M.)				>1%		>6%		
CONTAMINANT	TP 103 0.9m	TP104 0.4m	TP 104 1.2m		S4UL	TP 101 0.4m	TP102 0.5m	S4UL
NAPHTHALENE	<0.016	<0.016	<0.016		4900	0.061	0.151	4900
ACENAPHTHYLENE	<0.015	<0.015	<0.015		15000	0.026	0.055	15000
ACENAPHTHENE	<0.013	<0.013	<0.013		15000	<0.013	0.019	15000
FLOURENE	<0.013	<0.013	<0.013		9900	0.018	0.059	9900
PHENANTHRENE	0.014	0.039	<0.014		3100	0.29	0.781	3100
ANTHRACENE	<0.017	<0.017	<0.017		74000	0.101	0.219	74000
FLOURANTHENE	0.027	0.06	<0.017		3100	0.677	1.82	3100
PYRENE	0.023	0.047	<0.016		7400	0.542	1.41	7400
BENZO[a]ANTHRACENE	0.02	0.032	<0.012		29	0.457	1.02	29
CHRYSENE	<0.028	0.04	<0.028		57	0.484	1.11	57
BENZO[b]FLOURANTHENE	0.025	0.049	<0.020		7.1	0.633	1.44	7.2
BENZO[k]FLOURANTHENE	<0.025	<0.025	<0.025		190	0.216	0.489	190
BENZO[a]PYRENE	<0.019	0.03	<0.019		5.7	0.453	1.08	5.7
INDENO[1,2,3-cd]PYRENE	<0.019	0.033	<0.019		82	0.458	1.01	82
DIBENZO[a,h]ANTHRACENE	<0.017	<0.017	<0.017		0.57	0.132	0.274	0.57
BENZO[g,h,i]PERYLINE	<0.019	0.027	<0.019		640	0.408	0.793	640
TOTAL(USEPA 16) PAHs	<0.28	0.357	<0.28		N/A	4.96	11.7	N/A
TABLE 13 POLYCYCLIC AROMATIC HYDROCARBONS (USEPA16)								

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

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S4UL VALUES REFER TO PUBLIC OPEN SPACE NEAR RESIDENTIAL SCENARIO

SOIL ORGANIC MATTER(S.O.M.)					>1%		>6%	
CARBON BANDING	TP 103 0.9m	TP104 0.4m	TP 104 1.2m		S4UL	TP 101 0.4m	TP102 0.5m	S4UL
>C5-C6 ALI	<0.1	<0.1	<0.1		304	<0.1	<0.1	590000
>C6-C8 ALI	<0.1	<0.1	<0.1		60000	<0.1	<0.1	61000
>C8-C10 ALI	<0.1	<0.1	<0.1		13000	<0.1	<0.1	13000
>C10-C12 ALI	<1.0	<1.0	<1.0		13000	<1.0	<1.0	13000
>C12-C16 ALI	<0.5	<0.5	<0.5		13000	0.6	0.7	13000
>C16-C21 ALI	<0.7	<0.7	<0.7		250000	<0.7	0.7	250000
>C21-C35 ALI	<4.0	<4.0	<4.0			8.7	<4.0	
>C35-C40 ALI	<0.5	<0.5	<0.5		250000	0.7	<0.5	250000
>C6-C7 ARO	<0.01	<0.01	<0.01		56000	<0.01	<0.01	56000
>C7-C8 ARO	<0.01	<0.01	<0.01		56000	<0.01	<0.01	56000
>C8-C10 ARO	<0.01	<0.01	<0.01		5000	<0.01	<0.01	5000
>C10-C12 ARO	<0.6	<0.6	<0.6		5000	2.8	1.2	5000
>C12-C16 ARO	1.1	1.4	1		5100	9	4	5100
>C16-C21 ARO	<2.0	<2.0	<2.0		3800	12.1	8	3800
>C21-C35 ARO	<4.5	<4.5	<4.5		3800	66.2	36.9	3800
>C35-C40 ARO	<1.5	<1.5	<1.5		3800	10.1	7.8	3800
TOTAL TPH C5-C10	<0.1	<0.1	<0.1		N/A	<0.1	<0.1	N/A
TOTAL TPH C10-C40	<11.5	<11.5	<11.5		N/A	112	61.5	N/A
TOTAL TPH >C5-C40	<11.5	<11.5	<11.5		N/A	112	61.5	N/A

TABLE 14 TOTAL PETROLEUM HYDROCARBONS WITH TEXAS BANDING AND ALI/ARO SPLIT

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

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S4UL VALUES REFER TO PUBLIC OPEN SPACE NEAR RESIDENTIAL SCENARIO

SOIL ORGANIC MATTER (S.O.M.)				>1%		>6%		
CONTAMINANT	TP103 0.8m	TP104 0.4m	TP104 1.2m		S4UL	TP101 0.4m	TP102 0.5m	S4UL
PHENOL	<0.1	<0.1	<0.1		760	<0.1	<0.1	3200
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 15 SVOCs								

SOIL ORGANIC MATTER(S.O.M.)				>1%		>6%		
	TP 103 0.9m	TP104 0.4m	TP 104 1.2m		S4UL	TP 101 0.4m	TP102 0.5m	S4UL
MONOHYDRIC PHENOLS	<0.5	<0.5	<0.5		760	<0.5	<0.5	3200
TABLE 16 PHENOL INDEX								

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

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S4UL VALUES REFER TO PUBLIC OPEN SPACE NEAR RESIDENTIAL SCENARIO

CONTAMINANT	TP 101 0.4m	TP 102 0.5m	TP103 0.9m	TP 104 0.4m	TP 104 1.2m		S4UL	
ARSENIC	14.9	17.9	11.0	14.8	11.4		79	
CADMIUM	<1.6	<1.6	<1.6	<1.6	<1.6		120	
CHROMIUM	12.5	16	6.5	8.8	5.8		1500	
COPPER	46.7	48.9	8.2	15.8	10		12000	
LEAD	216	106	14.4	72.8	23.7		630	(C4SL)
MERCURY	<0.7	4.5	<0.7	<0.7	<0.7		120	
NICKEL	19.2	23.5	5.2	6.4	5.7		230	
SELENIUM	<3.0	<3.0	<3.0	<3.0	<3.0		1100	
ZINC	177	263	43.5	136	63.6		81000	
CYANIDE	<1.0	<1.0	<1.0	<1.0	<1.0		22	GACacute
TABLE 17 TOXIC/HEAVY METALS AND CYANIDE								

	TP 101 0.4m	TP 102 0.5m	TP103 0.9m	TP 104 0.4m	TP 104 1.2m		
WEIGHT (g)	0	0	0	0	0		
% DRY WEIGHT OF SAMPLE	0	0	0	0	0		
TABLE 18 ASBESTOS ANALYSIS							

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

33. REVISED RISK ASSESSMENT FOR GROUND GAS

The Phase 1 desk study established there was no risk from landfill gas migrating to the site. The Coal Mining Gas Risk Assessment established there was no risk to the site from the migration of mine gases.

The first phase of trial pitting outside the building established there was no imported biodegradable material in the soil at the site. The second phase of trial pitting has confirmed that this holds true for the soil beneath the existing building. Analysis of both soil and groundwater from the site established there were no VOCs or SVOCs present. Therefore, there is no threat of vapour intrusion.

The previous report acknowledged that there were probably natural organic soils at depth beneath the site. There are thin laterally discontinuous layers of Peat in the area, and it is possible the site is underlain at depth by Peat. The peat dates from the immediate post-glacial period after the last (Devensian) glaciation. Rising sea levels then buried the Peat, and it is highly compacted. The compaction of the peat beneath permeable sand means little or no finite gas remains and does not pose a viable threat of ground gas production. Further information on this factor is now available. A deep (21.9m) borehole was drilled at the site. The position is shown in Figure 20. A simplified succession shows Blown Sand down to 4.5m. From there down the strata is a silty marine sand typical of the area. This contains thin (<300mm) clay and peat layers. The only significant peat was from 8.7m-9.9m. This was highly compressed as would be expected at that depth due to overburden pressure as described above.

All risks from ground gases from all sources have now been removed from Table 19 which is the Final Ground Gas Risk Assessment.

34. RISK ASSESSMENT FOR CONTROLLED WATERS

No contamination was detected in any of the soil samples from the site. However, relatively minor levels of contamination were recorded in the groundwater samples taken from the trial pits in the first phase of trial pitting. The trial pits within the building were not taken down to the water table as there was little point in further sampling. It can be assumed that groundwater will be in lateral continuity beneath the building due to the highly permeable nature of the Blown Sand. The laboratory results from groundwater analysis were tabulated in Tables 9 and 10 in the previous Phase 2 Report. The risk assessment from that report remains unchanged. Unlike soils, there are no

universally agreed levels harmful to human health. As a result, there are several different comparison levels in the tables. These may be more stringent than necessary when assessing the risk from groundwater at the site. There is no possibility of future site users encountering the groundwater. It is over a metre below ground level and most of the site will have a concrete or tarmac barrier above the dry, uncontaminated soil. This was shown in Figure 19, the C.S.M. in the previous report. Figure 20 in this report shows the site layout. The only areas outside the building not hard landscaped are shallow SuDS features. The previous report established there was no threat of vapour intrusion from the groundwater. This was because all V.O.C.s and S.V.O.C.s were below the LoD. That assumption remains unchanged. The source of Arsenic and P.A.H. contamination in the groundwater cannot be the soils at the site. It could be speculated that the source of these contaminants would be the former nearby B.P. Plant.

- The plant was 1300m from the site and produced plastic and Polystyrene feedstock using Hydrocarbon compounds from refined crude oil.
- The groundwater below the plant was previously heavily contaminated. This is a fact based on the Author's personal experience. This involved the supervision of the installation of hundreds of dewatering treatment wells at the site. Whilst extensive remediation was carried out this would have been unlikely to lower contaminant levels to E.Q.S. levels.
- Due to the shallow ground hydrogeological conditions, the groundwater beneath the site will almost certainly be in lateral hydraulic connectivity with the groundwater directly beneath the process areas of the former B.P. plant.
- Similar contamination patterns to the Acacia Avenue site have been recorded by the author in previous site investigations outside the former B.P. plant boundary

With no contamination source on site, it cannot be contributing to an onward pathway to more distant environmental receptors. The risk has been removed from the final risk assessment in Table 20.

35. REVISED RISK ASSESSMENT FOR SOILS

No contamination above the acceptable levels for the chosen ground use scenario (POS_{RESI}) was detected in the additional soil samples taken from beneath the building site. This was also true of the soil samples taken from outside the building. The S4UL levels used to assess the risk are much lower

than the Commercial Land Use Scenario. These assessment levels were chosen to reflect the sensitivity of future site users. With no contamination detected in soils at the site there is no source and no pathway to above ground receptors. This risk has now been removed from the final risk assessment in Table 20. A Conceptual Site Model reflecting the above assessments is presented as Figure 19.

36. 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 satellite medical unit for Neath Port Talbot Hospital. This will have very limited soft landscaping/garden areas. A thorough risk assessment has included a desk study, and a two phase intrusive site investigation followed by laboratory testing. This has established beyond doubt that the site is already suitable for such a use. Therefore, there is no requirement for a remediation strategy. There are undoubtedly minor levels of contamination in the groundwater beneath the site. These cannot possibly be considered the responsibility of the site developers. They will have no impact on the final site users. Intrusive groundworks will be minimal during most of the redevelopment of the pre-existing building. The exception will be the piling required to support the new gable ends. Full risk assessments will need to be carried out by contractors at the site regarding contact with the groundwater. Good work practices and P.P.E. will be sufficient to minimise any risk. All services are existing, but consideration should be given to the depth of these. They are likely to be shallow, and certainly above the water table. The groundwater pH is neutral and none of the chemical contaminants in the groundwater are aggressively corrosive. Given the relatively high level of Arsenic in the groundwater particular consideration should be given to the position and composition of the water connection. These matters are outside the scope of both this report and the planning conditions.

The conclusions of this report mean that subject to the agreement of Neath Port Talbot C.B.C. planning conditions 6 (i)-(iii) can be discharged in full. Because there is no soil contamination at the site, and hence no remediation necessary Conditions 6(iv) and 7 are not applicable and can also be discharged.

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

2/07/2025

TABLE 19 FINAL GROUND GAS RISK ASSESSMENT AT ACACIA AVENUE					
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.	NO RISK. REQUIRES NO FURTHER ACTION.
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. NO POSSIBILITY OF ON SITE GAS GENERATION FROM MADE GROUND OR ORGANIC SOILS. NO VOLATILE VAPOUR SOURCE	NO RISK. REQUIRES NO FURTHER ACTION.
HAZARDOUS GROUND GAS FROM ON SITE SOURCE	DAMAGE FROM EXPLOSION	BUILDINGS	SEVERE		
RADON GAS	LONG TERM HAZARD FROM INHALATION	SITE USERS	SEVERE	LOW. <1% LOCAL PROPERTIES ABOVE RADON ACTION LEVEL.	NO RADON PROTECTION MEASURES REQUIRED

TABLE 20						
FINAL QUANTITATIVE HUMAN HEALTH RISK ASSESSMENT AND ENVIRONMENTAL RISK ASSESSMENT AT ACACIA AVENUE						
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, CYANIDE, PHENOLS, HYDROCARBONS AND PAH	INGESTION, DERMAL CONTACT, INHALATION	FUTURE END USERS, VISITORS	MEDIUM	LOW	LOW	SOIL SAMPLING AT THE SITE ESTABLISHED THERE WAS NO CONTAMINATION ABOVE ACCEPTABLE LEVELS. 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	SOIL SAMPLING ESTABLISHED THERE WAS NO ASBESTOS PRESENT IN THE SOIL AT THE SITE. 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	ALTHOUGH THERE WAS NO SOIL CONTAMINATION AT THE SITE THERE WAS MINOR CONTAMINATION IN THE GROUNDWATER. THIS IS GENERIC IN THE BAGLAN AREA. NO PATHWAY TO ABOVE GROUND RECEPTORS. NO FURTHER ACTION REQUIRED.
	MIGRATION THROUGH SOIL VIA LEACHING	SHALLOW GROUNDWATER				
	ONWARD MIGRATION OF GROUNDWATER	BEDROCK AQUIFER				

APPENDIX E
TRIAL PIT LOGS TO BS5930:2015
WITH PHOTOGRAPHS
UNDERSLAB SAMPLING
STATIONERY HOUSE
ACACIA AVENUE
BAGLAN

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

TRIAL PIT NUMBER
TP101



TP 101

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM161
Described By: R.DAVIES	Trial Pit No. TP102
Date: 3.06.2025	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.	REINFORCED CONCRETE
		0.15	
		0.65	MADE GROUND. Dense sandy, angular GRAVEL AND COBBLES of brick, concrete, slag and sandstone masonry.
0.5	ES2		
		0.65	
		1.1	Medium dense, brown fine to coarse SAND.

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

TRIAL PIT NUMBER
TP102



TP 102

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM161
Described By: R.DAVIES	Trial Pit No. TP103
Date: 3.06.2025	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.	REINFORCED CONCRETE
		0.15	
		0.4	MADE GROUND. Dense sandy, angular GRAVEL AND COBBLES of brick, concrete, slag and sandstone masonry.
0.9	ES3	0.9	Medium dense, brown fine to coarse SAND.

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

TRIAL PIT NUMBER
TP103



TP 103

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM161
Described By: R.DAVIES	Trial Pit No. TP104
Date: 3.06.2025	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.	REINFORCED CONCRETE
		0.15	
0.4	ES4		MADE GROUND. Dense sandy, angular GRAVEL AND COBBLES of brick, concrete, slag and sandstone masonry.
		0.8	
1.2	ES5		Medium dense, brown fine to coarse SAND.
		1.3	

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

TRIAL PIT NUMBER
TP104



TP 104

APPENDIX F
CHEMTECH LABORATORY REPORT
25-05497-02
STATIONERY HOUSE
ACCACIA AVENUE



ANALYTICAL TEST REPORT

Report Number 25-05497, issue number 2

Contract name: WSM161 Stationery House Accacia Avenue Baglan

Client reference: Sandycroft

Clients name: Rhondda Geotechnical Services

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

Samples received: 18/06/2025

Analysis started: 05/06/2025

Analysis completed: 25/06/2025

Report issued: 25/06/2025
2. Replaces Analytical Report number 25-05497; issue no.1

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
U/S	Sample not suitable for testing
NAD	No Asbestos Detected

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.

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
52185	TP1-ES1	0.40	Brown Sand with Gravel.	-	-	8.7
52186	TP2-ES2	0.50	Brown Sand with Gravel.	-	-	8.6
52187	TP3-ES3	0.90	Brown Sand with Gravel.	-	-	2.2
52188	TP4-ES4	0.40	Brown Sand with Gravel.	-	-	5.5
52189	TP4-ES5	1.20	Brown Sand with Gravel.	-	-	4.6

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)
52185	TP1-ES1	0.40	N	
52186	TP2-ES2	0.50	N	
52187	TP3-ES3	0.90	N	
52188	TP4-ES4	0.40	N	
52189	TP4-ES5	1.20	N	

SOILS

Lab Number					52185	52186	52187	52188	52189
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP4-ES5
Depth (m)					0.40	0.50	0.90	0.40	1.20
Sampling Date					03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
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	14.9	17.9	11.0	14.8	11.4
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	12.5	16.0	6.5	8.8	5.8
Copper	CE264	M	1.6	mg/kg	46.7	48.9	8.2	15.8	10.0
Lead	CE264	U	2.3	mg/kg	216	106	14.4	72.8	23.7
Mercury	CE264	U	0.7	mg/kg	< 0.7	4.5	< 0.7	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	19.2	23.5	5.2	6.4	5.7
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	177	263	43.5	136	63.6
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	%	8.7	8.6	2.2	5.5	4.6
Total Organic Carbon	CE197	M	0.1	%	4.19	7.13	0.43	0.59	0.25
Soil Organic Matter	CE192	N	0.1	%	7.22	12.3	0.74	1.02	0.43
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	0.061	0.151	< 0.016	< 0.016	< 0.016
Acenaphthylene	CE087	M	0.015	mg/kg	0.026	0.055	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	0.019	< 0.013	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	0.018	0.059	< 0.013	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.290	0.781	0.014	0.039	< 0.014
Anthracene	CE087	U	0.017	mg/kg	0.101	0.219	< 0.017	< 0.017	< 0.017
Fluoranthene	CE087	M	0.017	mg/kg	0.677	1.82	0.027	0.060	< 0.017
Pyrene	CE087	M	0.016	mg/kg	0.542	1.41	0.023	0.047	< 0.016
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.457	1.02	0.020	0.032	< 0.012
Chrysene	CE087	M	0.028	mg/kg	0.484	1.11	< 0.028	0.040	< 0.028
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.633	1.44	0.025	0.049	< 0.020

SOILS

Lab Number					52185	52186	52187	52188	52189
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP4-ES5
Depth (m)					0.40	0.50	0.90	0.40	1.20
Sampling Date					03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Test	Method	Accred	LoD	Units					
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.216	0.489	< 0.025	< 0.025	< 0.025
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.453	1.08	< 0.019	0.030	< 0.019
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.458	1.01	< 0.019	0.033	< 0.019
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.132	0.274	< 0.017	< 0.017	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.408	0.793	< 0.019	0.027	< 0.019
Total PAH(16)	CE087	N	0.28	mg/kg	4.96	11.7	< 0.280	0.357	< 0.280
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	0.6	0.7	< 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	8.7	< 4.0	< 4.0	< 4.0	< 4.0
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	0.7	< 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	2.8	1.2	< 0.6	< 0.6	< 0.6
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	9.0	4.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	12.1	8.0	< 2.0	< 2.0	< 2.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	66.2	36.9	< 4.5	< 4.5	< 4.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	10.1	7.8	< 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	112	61.5	< 11.5	< 11.5	< 11.5
Total Hydrocabons C5-C40 (HS_1D+EH_2D_Total)	CE250	N	11.5	mg/kg	112	61.5	< 11.5	< 11.5	< 11.5
Wet Chem									
pH	CE004	M	0.1	pH units	8.4	8.4	8.7	8.7	8.8

SOIL SVOCS

Lab Number					52185	52186	52187	52188	52189
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP4-ES5
Depth (m)					0.40	0.50	0.90	0.40	1.20
Sampling Date					03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
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

LEACHATE

Lab Number					52185
Client Reference					SOIL
Sample ID					TP1-ES1
Depth (m)					0.40
Sampling Date					03/06/2025
Test	Method	Accred	LoD	Units	
Metals					
Arsenic Leachate	CE265	U	0.1	µg/l	3.98
Boron Leachate	CE265	N	4	µg/l	79.4
Cadmium Leachate	CE265	U	0.1	µg/l	< 0.10
Chromium Leachate	CE265	U	0.5	µg/l	1.57
Copper Leachate	CE265	U	0.5	µg/l	3.65
Lead Leachate	CE265	U	0.6	µg/l	< 0.60
Mercury Leachate	CE265	N	0.05	µg/l	< 0.050
Nickel Leachate	CE265	U	0.4	µg/l	0.74
Selenium Leachate	CE265	U	1.1	µg/l	3.4
Zinc Leachate	CE265	U	3.5	µg/l	< 3.5
Colourimetric					
Chromium VI	CE259	U	1.5	µg/l	< 1.50

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
CE265	Dissolved metals by ICP in Leachate	ICPMS	As submitted sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE259	ChromiumVI by Discrete Analyser in Leach	Gallery	As submitted 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

REPORT INFORMATION

Report No.:25-05497, issue number 2

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

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

Sampling was undertaken by Chemtech Environmental Limited and 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. Samples dried at no more than 30°C in a drying

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

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