RHONDDA GEOTECHNICAL SERVICES

PHASE 2

CONTAMINATED LAND REPORT

N.P.T. PLANNING APP. REF. P2024/0597

PROPOSED RENAL UNIT

STATIONERY HOUSE

ACACIA AVENUE

SANDFIELDS

PORT TALBOT

SA12 7DP

20/03/2025

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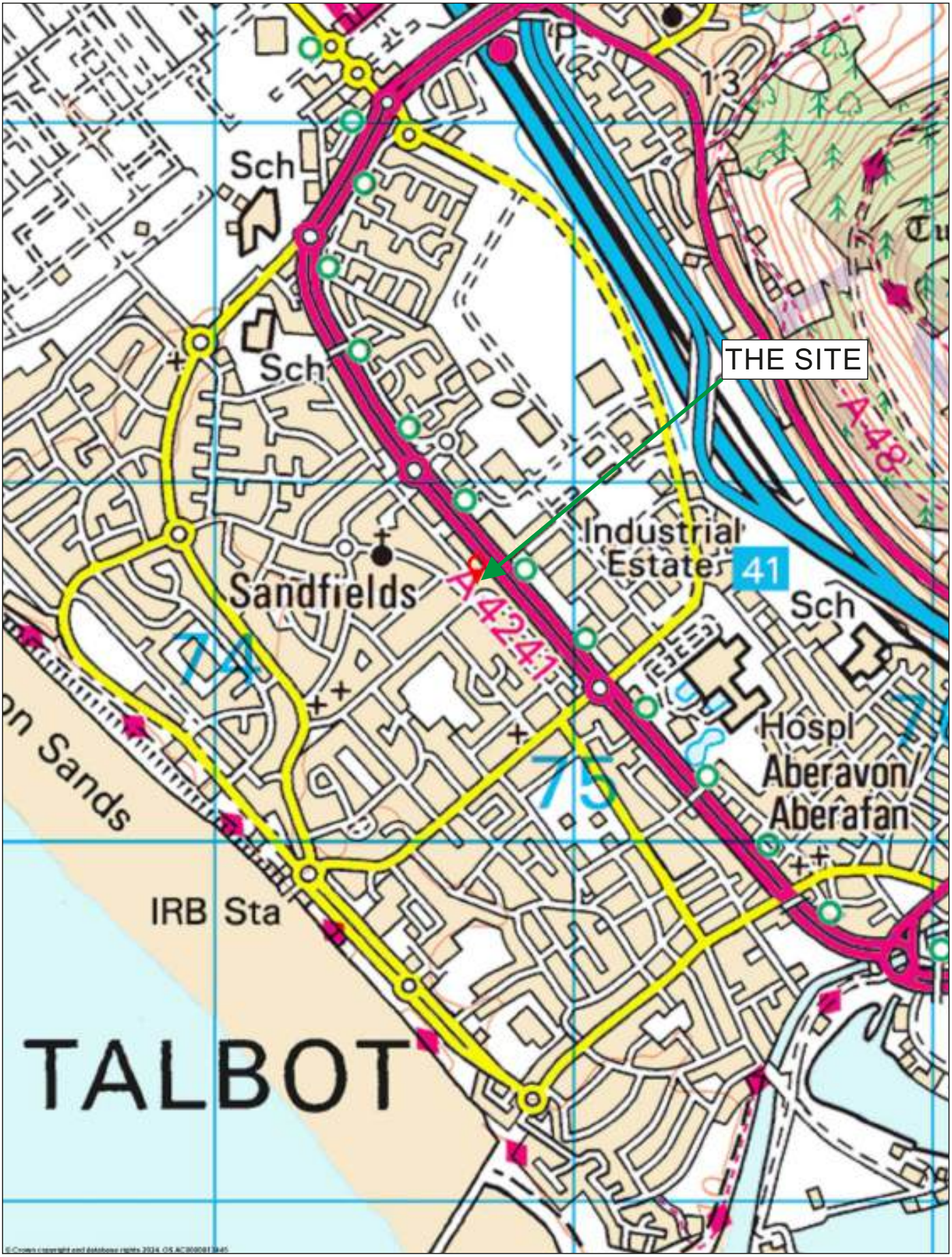

FIGURE 1
SITE LOCATION

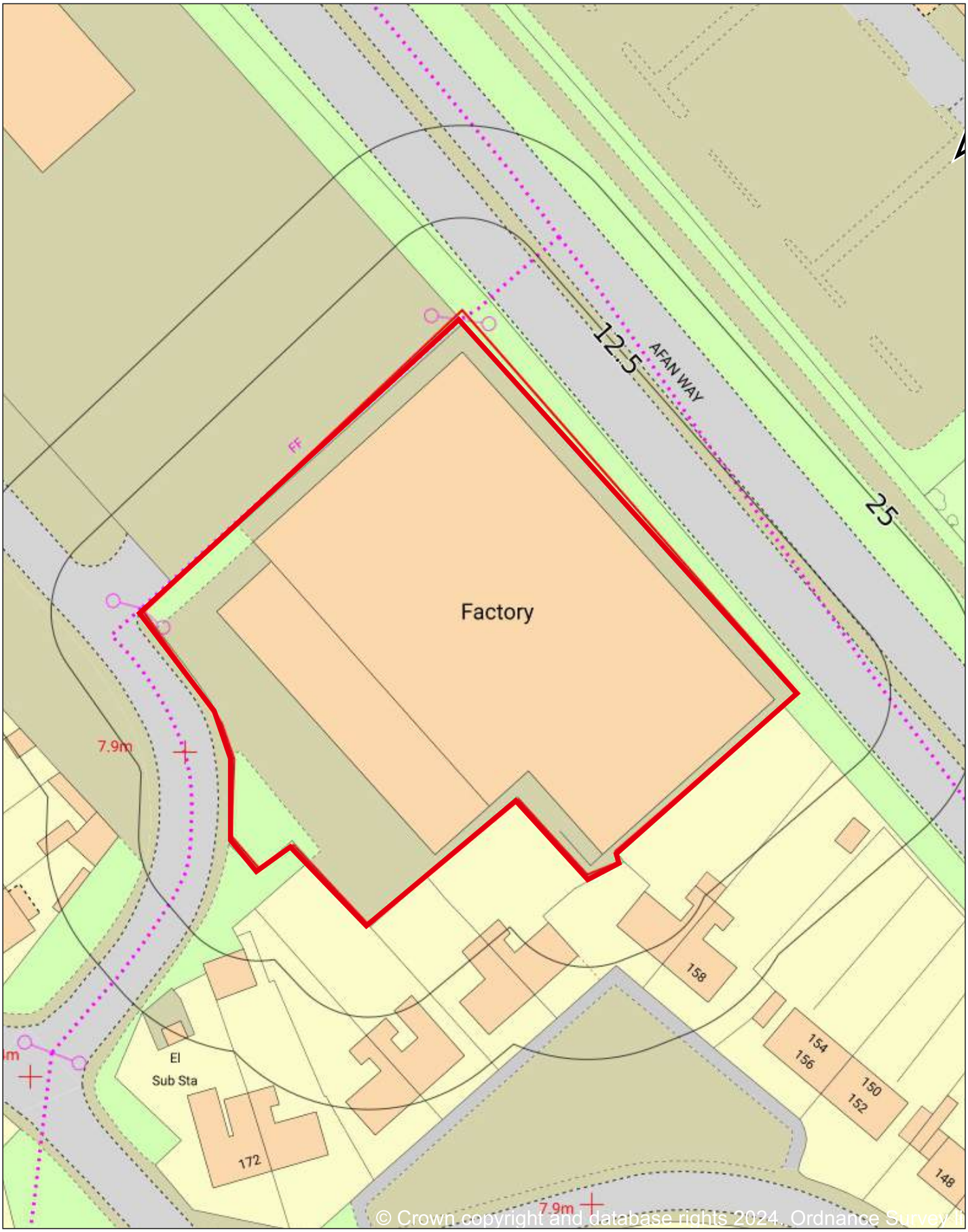

FIGURE 2
SITE BOUNDARY IN RED.

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.

This Phase 2 Risk Assessment is intended for review alongside the already submitted Phase 1 (see below). For this reason, the numbering of sections, figures and tables follows on from those in the Phase 1, which is already with N.P.T. Although it is intended to avoid needless repetition, Figures 1 and 2 from the Phase 1 have been included in the previous pages for ease of reference.

21. INFORMATION GAPS AND UNCERTAINTIES

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 his opinion that the existing Phase 1 is sufficient to discharge Condition 6(i) of the granted planning as the Phase 2 proves the conclusions were correct.

22. SITE INVESTIGATION AND SAMPLING METHODOLOGY

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 together with the depth of 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.

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.

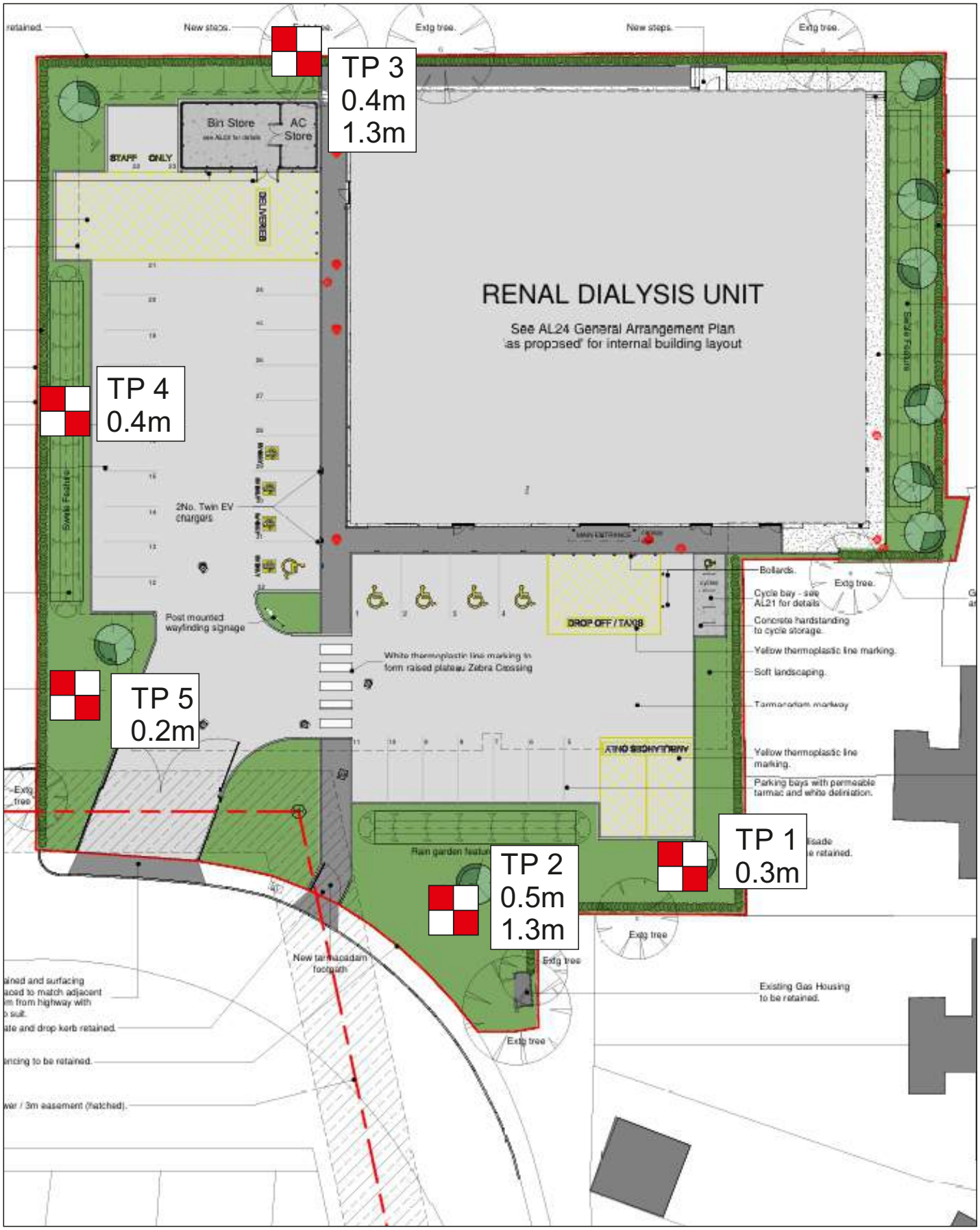

FIGURE 18
TRIAL PIT LOCATIONS AT ACACIA AVENUE.

23. TESTING STRATEGY

All the samples were tested by Chemtech Ltd (reg. 3882193) at their laboratory in County 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 25-01595-01. The complete report is attached as Appendix D.

The Phase 1 had concluded that there was no imported Made Ground at the site. This was questioned by N.P.T. based on the presence of bricks. It had already been explained to the original E.H.O. that the bricks were few and far between, were made by the London Brick Company, perfectly matched those in the existing building and were of identical age. It is not known if this information was passed on, but the second Senior E.H.O. suggested they could have come from a demolished building that previously stood on the site and could be a possible source of contamination. This is despite the fact the Phase 1 demonstrated that the land was completely undeveloped for nearly 90 years and the current building could be accurately dated to the period 1956-63. For the Phase 2 to accompany the new application 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 where no specific exotic substances have been highlighted by a past industrial use. The presence of petroleum hydrocarbon compounds was considered extremely unlikely, but testing was scheduled anyway. Similarly, there was no identified source of Asbestos, but its possible presence was questioned by the N.P.T.E.H.O. The ubiquitous presence of Asbestos in the urban environment means it should always be tested for anyway. 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. In addition, an analysis of Semi-Volatile Organic Compounds (SVOCs) was carried out

The analysis for Organic contaminants also included a Phenol Suite. This contained a range of six Monohydric Phenols commonly found on contaminated sites.

24. 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 3-7. The author has the right to reproduce these values here, but they remain copyright of LQM, a specialist environmental consultancy based in Nottingham.

25. CHOICE OF LAND USE SCENARIO

Before moving on to the results, the choice of land use scenario needs to be explained and justified. *There is no precise land use scenario that meets the proposed* use *of the building*. It is clearly not residential, nor is food being grown for consumption, so the allotment scenario is also not appropriate. It could well be argued that the Commercial Scenario is appropriate. It is an enclosed building, visited intermittently for fixed time periods, much as a factory or retail outlet would be. The E.H.O. has described the proposed use as “sensitive”. Although people with ill-health will attend the building there in no reason to suppose they will be more exposed to contaminants than “healthy” people. As will be established in the C.S.M. there would be no potential pathways to any site users. As a compromise, the Public Open Space near Residential Property (POS_{RESI}) S4ULs will be used. Of course, this scenario bears little resemblance to the situation at the site. The POS_{RESI} model allows for regular soil contact and transport. This will simply not happen at the site. The Default Receptor from the CLEA software is a young girl aged 3-9 residing at a property. The reason for choosing the POS_{RESI} scenario is that the S4UL levels are slightly higher than the residential no produce scenario, justifiably so. However, they are only a fraction of the Commercial Scenario values and so reflect a more “sensitive” use than the Commercial Scenario. It is hoped the E.H.O. will appreciate that the assessment has taken the fact of the prospective use, and the health of some of the potential users adequately into account.

26. 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 C. In summary, two of the pits (TP2 and TP5) were excavated through thin (<0.15m) tarmac/sub-base straight into the underlying natural ground which was a Blown Sand. TP1 was excavated through the same thin tarmac. The sand below was much darker brown. The reason became apparent when an electricity cable was exposed. The ground had been previously excavated and backfilled with the arisings from the trench. TP4 had a thin cover of mixed sand and aggregate over the natural ground. This was undisturbed sand on top of a firm peaty clay. The presence of discrete lenses of Peat and Peaty Clay are well documented in the locality. The author has personally supervised multiple site investigations in the Baglan/Sandfields area over the last 35 years including deep boreholes to 30m+. The ground at TP3 had clearly been disturbed by construction. By necessity it was sited very close to the factory foundations. The top 0.5m contained a high proportion of sand but there were also stray bricks and aggregate. As stated in the introduction, the bricks were identical to those in the factory wall. There was no layer of imported Made Ground as a discreet soil, merely disturbed natural ground with some construction debris. A summary of the laboratory reports on the soil testing in Appendix D has been produced overleaf in Tables 3-7. These compare the test results for each substance with its relevant POS_{RESI} S4UL value as discussed in the previous section.

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. Four samples tested all had a S.O.M. >1% <2.5%. The sample from TP1 had a S.O.M. >2.5% <6%. This was to be expected as there were visible roots from adjacent shrubs in the excavation. Because of the two S.O.M.s there are two columns with different S4UL values for all the organic contaminants in Tables 3-6.

Table 3 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 the two samples all the USEPA16 substances were below the Level of Detection (LoD). There were minute traces in the other three samples. Unsurprisingly, the highest levels came from TP3, but all were well below the relevant S4UL.

In Table 4 all the T.P.H. ranges tested for in all the samples were below the level of detection.

In Table 5 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 6, 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%			>2.5%
CONTAMINANT	TP 2 0.5m	TP3 0.4m	TP 4 0.4m	TP 5 0.2m	S4UL	TP 1 0.3m		S4UL
NAPHTHALENE	<0.016	0.019	<0.016	<0.016	4900	<0.016		4900
ACENAPHTHYLENE	<0.015	0.043	<0.015	<0.015	15000	<0.015		15000
ACENAPHTHENE	<0.013	0.464	<0.013	<0.013	15000	<0.013		15000
FLOURENE	<0.013	0.465	<0.013	<0.013	9900	<0.013		9900
PHENANTHRENE	<0.014	3.98	<0.014	0.024	3100	0.103		3100
ANTHRACENE	<0.017	0.685	<0.017	<0.017	74000	0.027		74000
FLOURANTHENE	0.019	7.53	<0.017	0.171	3100	0.208		3100
PYRENE	0.016	5.02	<0.016	0.148	7400	0.171		7400
BENZO[a]ANTHRACENE	0.014	3.55	<0.012	0.157	29	0.157		29
CHRYSENE	<0.028	4.34	<0.028	0.125	57	0.21		57
BENZO[b]FLOURANTHENE	<0.020	3.93	<0.020	0.224	7.1	0.221		7.2
BENZO[k]FLOURANTHENE	<0.025	1.57	<0.025	0.085	190	0.066		190
BENZO[a]PYRENE	<0.019	3.07	<0.019	0.184	5.7	0.135		5.7
INDENO[1,2.3-cd]PYRENE	<0.019	1.94	<0.019	0.121	82	0.118		82
DIBENZO[a,h]ANTHRACENE	<0.017	0.445	<0.017	0.039	0.57	0.051		0.57
BENZO[g,h,i]PERYLINE	<0.019	1.73	<0.019	0.116	640	0.134		640
TOTAL(USEPA 16) PAHs	<0.28	38.8	<0.28	1.4	N/A	1.6		N/A

TABLE 3 POLYCYCLIC AROMATIC HYDROCARBONS (USEPA16)

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

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SOIL ORGANIC MATTER(S.O.M.)					>1%			>2.5%
CARBON BANDING	TP 2 0.5m	TP3 0.4m	TP 4 0.4m	TP 5 0.2m	S4UL	TP 1 0.3m		S4UL
>C5-C6 ALI	<0.1	<0.1	<0.1	<0.1	304	<0.01		590000
>C6-C8 ALI	<0.1	<0.1	<0.1	<0.1	60000	<0.05		61000
>C8-C10 ALI	<0.1	<0.1	<0.1	<0.1	13000	<0.1		13000
>C10-C12 ALI	<1.0	<1.0	<1.0	<1.0	13000	<1.0		13000
>C12-C16 ALI	<0.5	<0.5	<0.5	<0.5	13000	<0.5		13000
>C16-C21 ALI	<0.7	<0.7	<0.7	<0.7	250000	<0.7		250000
>C21-C35 ALI	<4.0	<4.0	<4.0	<4.0		<4.0		
>C35-C40 ALI	<0.5	<0.5	<0.5	<0.5	250000	<0.5		250000
>C6-C7 ARO	<0.1	<0.1	<0.1	<0.1	56000	<21.0		56000
>C7-C8 ARO	<0.1	<0.1	<0.1	<0.1	56000	<0.01		56000
>C8-C10 ARO	<0.1	<0.1	<0.1	<0.1	5000	<0.05		5000
>C10-C12 ARO	<0.6	<0.6	<0.6	<0.6	5000	1.2		5000
>C12-C16 ARO	1.1	1.4	1	1.1	5100	2.4		5100
>C16-C21 ARO	<2.0	<2.0	<2.0	<2.0	3800	<2.0		3800
>C21-C35 ARO	<4.5	<4.5	<4.5	<4.5	3800	6.1		3800
>C35-C40 ARO	<1.5	<1.5	<1.5	<1.5	3800	<1.5		3800
TOTAL TPH C5-C10	<0.1	<0.1	<0.1	<0.1	N/A	<0.1		N/A
TOTAL TPH C10-C40	<11.5	<11.5	<11.5	<11.5	N/A	<11.5		N/A
TOTAL TPH >C5-C40	<11.5	<11.5	<11.5	<11.5	N/A	<11.5		N/A

TABLE 4 TOTAL PETROLEUM HYDROCARBONS WITH TEXAS BANDING AND ALI/ARO SPLIT

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

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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%			>2.5%
CONTAMINANT	TP2 0.5m	TP3 0.4m	TP4 0.4m	TP5 0.2m	S4UL	TP1 0.3m		S4UL
PHENOL	<0.1	<0.1	<0.1	<0.1	760	<0.1		1500
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 5 SVOCs

SOIL ORGANIC MATTER(S.O.M.)					>1%			>2.5%
	TP 2 0.5m	TP3 0.4m	TP 4 0.4m	TP 5 0.2m	S4UL	TP 1 0.3m		S4UL
MONOHYDRIC PHENOLS	<0.5	<0.5	<0.5	<0.5	760	<0.5		1500

TABLE 6 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 1 0.3m	TP 2 0.5m	TP3 0.4m	TP 4 0.4m	TP 5 0.2m		S4UL	
ARSENIC	11.3	10.5	9.8	10.7	10.5		79	
CADMIUM	<1.6	<1.6	<1.6	<1.6	<1.6		120	
CHROMIUM	13.7	6.7	5.1	4.9	5.2		1500	
COPPER	32.8	12.2	5.1	3.9	11.8		12000	
LEAD	35.1	16.7	7.5	6.7	11		630	(C4SL)
MERCURY	<0.7	<0.7	<0.7	<0.7	<0.7		120	
NICKEL	8.3	4.8	3.7	3.4	5.7		230	
SELENIUM	<3.0	<3.0	<3.0	<3.0	<3.0		1100	
ZINC	82.7	46.3	20.7	22	30.0		81000	
CYANIDE	<1.0	<1.0	<1.0	<1.0	<1.0		22	GACacute

TABLE 7 TOXIC/HEAVY METALS AND CYANIDE

	TP 1 0.3m	TP 2 0.5m	TP3 0.4m	TP 4 0.4m	TP 5 0.2m	
WEIGHT (g)	0	0	0	0	0	
% DRY WEIGHT OF SAMPLE	0	0	0	0	0	

TABLE 8 ASBESTOS ANALYSIS

SUMMARY OF TEST RESULTS ACCACIA AVENUE, BAGLAN

	GUIDELINE VALUE SOURCE				SAMPLE VALUE			
CONTAMINANT	E.Q.S.	W.F.D.	U.K.D.W.S.	W.H.O.	TP2 1.3m	TP3 1.3m		
ARSENIC	50	50	10		103	14.6		
CADMIUM	0.45	0.25	5		<0.1	,0.1		
CHROMIUM III	4.7				<0.5	<0.5		
CHROMIUM IV	3.4				<0.5	<0.5		
COPPER	1		2000		<0.6	1.41		
MERCURY	0.07		1		<0.05	<0.05		
NICKEL	20		20		0.45	0.66		
LEAD	0.5		10		<0.6	<0.6		
SELENIUM			10	10	<1.1	<1.1		
ZINC	11.9		5000		<3	<3		
CYANIDE	1		50		<5	<5		
PHENOL	7.7				<1	<1		
M,P CRESOL					<1	<1		
O-CRESOL					<1	<1		
3,4 DIMETHYL PHENOL					<1	<1		
2,3 DIMETHYL PHENOL					<1	<1		
2,3,5 TRIMETHYL PHENOL					<1	<1		
TOTAL MONOHYDRIC					<10	<10		
NAPTHALENE	2				<0.1	<0.1		
ACENAPTHALENE	5.8				<0.1	<0.1		
ACENAPTHENE	0.1				<0.1	<0.1		
FLOURENE					<0.1	<0.1		
PHENANTHRENE					1.22	5.58		
ANTHRACENE	0.1				0.52	3.54		
FLOURANTHENE	0.0063				2.42	12.6		
PYRENE					1.87	11.4		
BENZO[a]ANTHRACENE			0.1		2.08	6.02		
CHRYSENE					1.65	5.88		
BENZO[b]FLOURANTHENE			0.1		<0.1	7.36		
BENZO[k]FLOURANTHENE			0.1		<0.1	2.84		
BENZO[a]PYRENE	0.1		0.01		1.89	5.3		
INDENO[1,2,3]PYRENE	0.01				2.04	4.42		
DIBENZO[a,h]ANTHRACENE					<0.1	<0.1		
BENZO[g,h]PERYLENE			0.1		2.23	3.82		
TOTAL 16 PAH					15.9	68.8		
GROUNDWATER TESTING RESULTS ACACIA AVENUE, BAGLAN								

TABLE 9

GROUNDWATER TEST RESULTS ACACIA AVENUE

VALUES IN RED ARE ABOVE THE LOWEST GUIDELINE WHERE TWO GUIDELINES ARE APPLICABLE

THE VALUES IN YELLOW INDICATE THE LIMIT OF DETECTION IS GREATER THAN THE GUIDELINE VALUE

W.H.O. DRINKING WATER T.P.H.GUIDELINE VALUES					
	µg/litre	TP2 1.3m	TP3 1.3m		
>C5-C6 ALI.	15000	<1	<1		
>C6-C8 ALI.	15000	<1	<1		
>C8-C10 ALI.	300	<1	<1		
>C10-C12 ALI.	300	3.8	6.3		
>C12-C16 ALI.	300	2.2	6.2		
>C16-C21 ALI.	-	24.1	103		
>C21-C35 ALI.	-				
>C35-C40 ALI.	-	1.4	7.5		
>C5-C7 ARO.	10	<1	<1		
>C7-C8 ARO.	700	<1	<1		
>C8-C10 ARO.	300	<1	<1		
>C10-C12 ARO.	90	15.2	41.1		
>C12-C16 ARO.	90	20.5	97.5		
>C16-C21 ARO.	90	15.2	41.1		
>C21-C35 ARO.	90	95.2	301		
>C35-C40 ARO.	-	20.1	41.1		
GROUNDWATER RESULTS ACACIA AVENUE, BAGLAN					

TABLE 10

GROUNDWATER T.P.H. TEST RESULTS

ACACIA AVENUE, BAGLAN

27. 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 trial pitting established there was no “foreign” biodegradable material in the soil at the site. There are undoubtedly 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. 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.

All risks from ground gases from all sources have now been removed from Table 11 which is the Final Ground Gas Risk Assessment.

28. RISK ASSESSMENT FOR CONTROLLED WATERS

No contamination was detected in the soil samples from the site. However, relatively minor levels of contamination were recorded in the groundwater samples taken from the trial pits. The laboratory results have been tabulated in Tables 9 and 10 on the preceding page. 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 coming into contact with 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 (see Figure 19). The biggest threat to above ground receptors would be vapour intrusion from the groundwater. Table 10 shows all VOCs (C5-10 Aliphatic and Aromatic Hydrocarbons) are below the LoD in both groundwater samples. SVOCs have not been tabulated because there are no health standards to compare them too. Any reviewer of this report can access the results directly from page 10 in Appendix D. All are below the LoD. In Table 9, Arsenic exceeds both Water Framework Directive levels and U.K. drinking water standards. The same is true for multiple P.A.H. compounds. The source of this contamination cannot be the soils at the site. It

could be speculated that the source of these contaminants would be the former 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 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 12.

29. REVISED RISK ASSESSMENT FOR SOILS

No contamination above the acceptable levels for the chosen ground use scenario (POS_{RESI}) was detected in the soil samples from the site. These levels are much lower than the Commercial Land Use Scenario and 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 12. A Conceptual Site Model reflecting the above assessments is presented as Figure 19.

30. 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 including a desk study, an intrusive site investigation and laboratory testing has established that it 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 the redevelopment of the pre-existing building. 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.

20/03/2025

TABLE 11 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 12						
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				

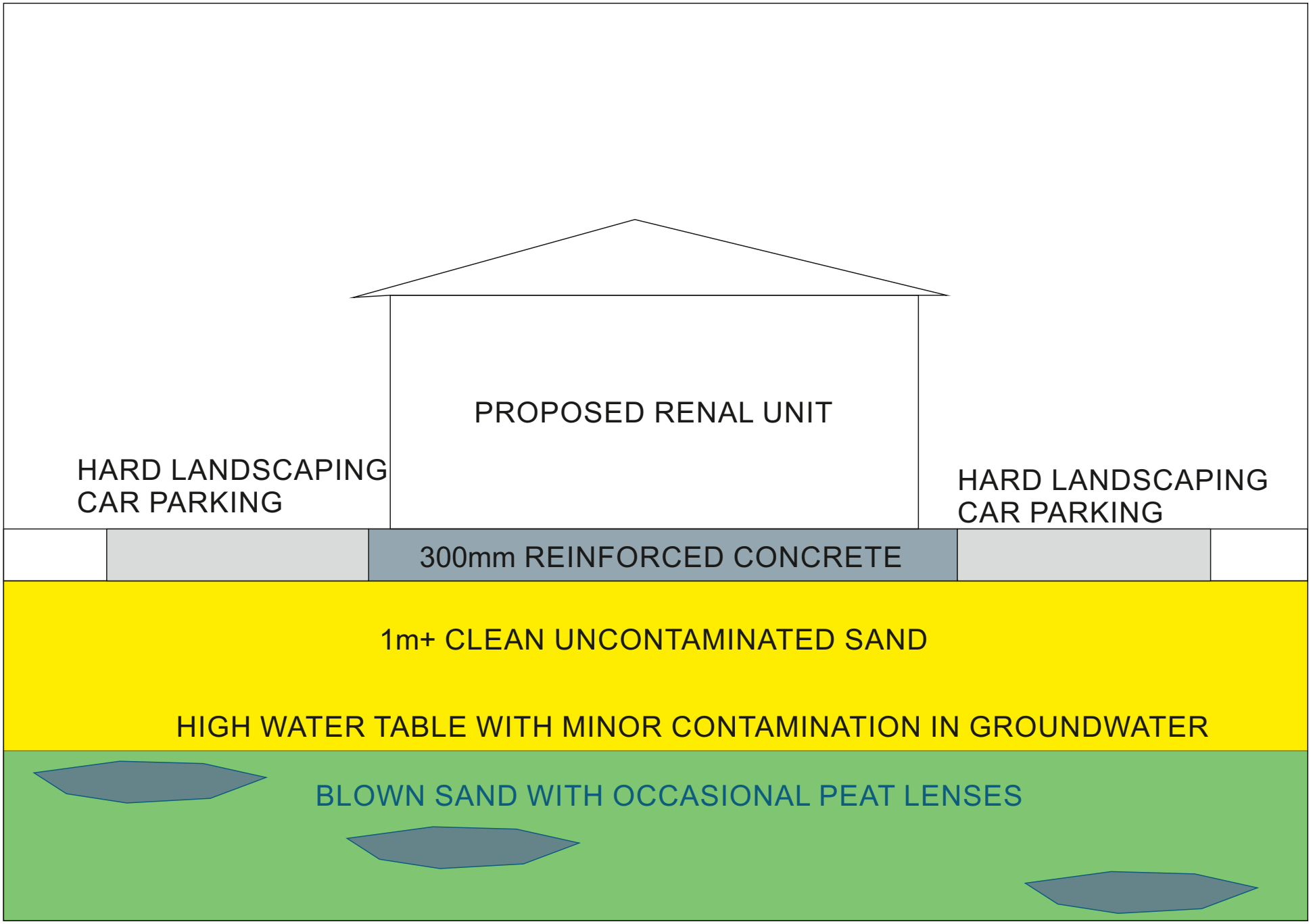

FIGURE 19 C.S.M. OF THE FINISHED CONSTRUCTION DETAIL WITH NO PATHWAY FOR CONTAMINATION IN GROUNDWATER TO REACH ABOVE GROUND RECEPTORS

APPENDIX C

TRIAL PIT PHOTOGRAPHS

AND

LOGS TO BS5930:2015

STATIONERY HOUSE

ACACIA AVENUE

Rhondda Geotechnical Services Trial Pit

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM140
Described By: R.DAVIES	Trial Pit No. TP1
Date: 18.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: 1.1m
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. 0.1	TARMAC
0.3	ES1	1.3	Loose brown fine to medium SAND with roots. Sand had evidently been disturbed as an electric cable traversed a corner of the pit base.

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

TRIAL PIT NUMBER
TP1

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 1'40
TP
TP 1
DEPTH (M)
1.3
FACE

TP 1

Rhondda Geotechnical Services Trial Pit

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM140
Described By: R.DAVIES	Trial Pit No. TP2
Date: 18.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: 1.3m after 20 mins
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. 0.15	TARMAC AND SUB-BASE
0.5	ES1		Medium Dense yellowish brown, fine to medium SAND.
1.3	WS1		
		1.5	

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

TRIAL PIT NUMBER
TP2

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP 2
DEPTH (M)
1.5
FACE
ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP 2
DEPTH (M)
1.5
FACE

TP 2

Rhondda Geotechnical Services Trial Pit

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM140
Described By: R.DAVIES	Trial Pit No. TP3
Date: 18.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: 1.3m after 20 mins
Stability POOR	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.	Loose brown SAND with limestone aggregate and occasional whole brick. The ground was evidently disturbed during the construction of the building. The bricks are L.B.C. identical to the building.
0.4	ES1		
		0.5	
			Medium dense yellowish brown fine to medium SAND
1.3	WS2		
		1.5	

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

TRIAL PIT NUMBER
TP3

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP3
DEPTH (M)
1.5
FACE

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP3
DEPTH (M)
1.5
FACE

TP 3

Rhondda Geotechnical Services Trial Pit

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM140
Described By: R.DAVIES	Trial Pit No. TP4
Date: 18.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: 1.3m after 20 mins
Stability POOR	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.	Loose brown SAND with limestone aggregate.
		0.25	
0.4	ES1		Medium dense yellowish brown, fine to medium SAND.
		0.75	
			Soft to firm brown, very peaty CLAY.
		1.0	

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

TRIAL PIT NUMBER
TP4

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP4
DEPTH (M)
1·0
FACE

TP 4

Rhondda Geotechnical Services Trial Pit

Project: ACCACIA AVENUE, BAGLAN	Project No: WSM140
Described By: R.DAVIES	Trial Pit No. TP5
Date: 18.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: 1.3m after 20 mins
Stability POOR	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.	TARMAC WITH SUB-BASE
		0.2	
0.2	ES1		Medium dense yellowish brown, fine to medium SAND.
		1.1	

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

TRIAL PIT NUMBER
TP5

ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP5
DEPTH (M)
1.1
FACE
ESG
18/2/25
PROJECT
ACCACIA AV.
PROJECT NO
WSM 140
TP
TP5
DEPTH (M)
1.1
FACE

TP 5

APPENDIX D

CHEMTECH LABORATORY REPORT

25-01595-01

STATIONERY HOUSE

ACCACIA AVENUE

ANALYTICAL TEST REPORT

Report Number	25-01595, issue number 1
Contract name:	Accacia Avenue, Baglan
Client reference:	Sandycroft
Clients name:	Rhondda Geotechnical Services
Clients address:	RHONGEOSER 56 Meyler Street Thomastown Porth CF39 8EA
Samples received:	20/02/2025
Analysis started:	20/02/2025
Analysis completed:	27/02/2025
Report issued:	27/02/2025

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

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB

Telephone: (01207) 528578, Email supportsquad@chemtech-env.co.uk

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
36470	TP1 ES1	0.30	Brown Clayey Sand with Vegetation and Gravel.	-	-	20.1
36471	TP2 ES1	0.50	Brown Clayey Sand with Vegetation and Gravel.	-	-	17.9
36472	TP3 ES1	0.40	Brown Clayey Sand with Vegetation and Gravel.	-	-	13.0
36473	TP4 ES1	0.40	Brown Clayey Sand with Vegetation and Gravel.	-	-	14.9
36474	TP5 ES1	0.20	Brown Clayey Sand with Vegetation and Gravel.	-	-	3.9

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 reciept
g	Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
36470	TP1 ES1	0.30	N	
36471	TP2 ES1	0.50	N	
36472	TP3 ES1	0.40	N	
36473	TP4 ES1	0.40	N	
36474	TP5 ES1	0.20	N	
36475	TP2 WS1	1.30	Y	b, Cyanides in Water(c), Dissolved organic carbon(c)
36476	TP3 WS1	1.30	Y	b, Cyanides in Water(c), Dissolved organic carbon(c)

SOILS

Lab Number					36470	36471	36472	36473	36474
Client Reference					1	2	3	4	5
Sample ID					TP1 ES1	TP2 ES1	TP3 ES1	TP4 ES1	TP5 ES1
Depth (m)					0.30	0.50	0.40	0.40	0.20
Sampling Date					18/02/2025	18/02/2025	18/02/2025	18/02/2025	18/02/2025
Test	**Method**	**Accred**	**LoD**	**Units**					
Asbestos									
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD	NAD
Metals									
Arsenic	CE264	U	1.8	mg/kg	11.3	10.5	9.8	10.7	10.5
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	13.7	6.7	5.1	4.9	5.2
Copper	CE264	M	1.6	mg/kg	32.8	12.2	5.1	3.9	11.8
Lead	CE264	U	2.3	mg/kg	35.1	16.7	7.5	6.7	11.0
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	8.3	4.8	3.7	3.4	5.7
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	82.7	46.3	20.7	22.0	30.0
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	%	20.1	17.9	13.0	14.9	3.9
Total Organic Carbon	CE197	N	0.1	%	1.93	0.44	0.24	0.31	0.82
Soil Organic Matter	CE192	N	0.1	%	3.33	0.76	0.41	0.53	1.41
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	< 0.016	< 0.016	0.019	< 0.016	< 0.016
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	0.043	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	0.464	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	0.465	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.103	< 0.014	3.98	< 0.014	0.024
Anthracene	CE087	U	0.017	mg/kg	0.027	< 0.017	0.685	< 0.017	< 0.017
Fluoranthene	CE087	M	0.017	mg/kg	0.208	0.019	7.53	< 0.017	0.171
Pyrene	CE087	M	0.016	mg/kg	0.171	0.016	5.02	< 0.016	0.148
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.157	0.014	3.55	< 0.012	0.157
Chrysene	CE087	M	0.028	mg/kg	0.210	< 0.028	4.34	< 0.028	0.125
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.221	< 0.020	3.93	< 0.020	0.224

SOILS

Lab Number					36470	36471	36472	36473	36474
Client Reference					1	2	3	4	5
Sample ID					TP1 ES1	TP2 ES1	TP3 ES1	TP4 ES1	TP5 ES1
Depth (m)					0.30	0.50	0.40	0.40	0.20
Sampling Date					18/02/2025	18/02/2025	18/02/2025	18/02/2025	18/02/2025
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.066	< 0.025	1.57	< 0.025	0.085
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.135	< 0.019	3.07	< 0.019	0.184
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.118	< 0.019	1.94	< 0.019	0.121
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.051	< 0.017	0.445	< 0.017	0.039
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.134	< 0.019	1.73	< 0.019	0.116
Total PAH(16)	CE087	N	0.28	mg/kg	1.60	< 0.280	38.8	< 0.280	1.40
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
>C6-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	1.2	< 0.6	< 0.6	< 0.6	< 0.6
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	2.4	1.1	1.4	1.0	1.1
>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	6.1	< 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	< 11.5	< 11.5	< 11.5	< 11.5	< 11.5
Total Hydrocabons C5-C40 (HS_1D+EH_2D_	CE250	N	11.5	mg/kg	< 11.5	< 11.5	< 11.5	< 11.5	< 11.5
Wet Chem									
pH	CE004	M	0.1	pH units	8.6	8.8	8.6	8.8	8.6

SOIL SVOCS

Lab Number					36470	36471	36472	36473	36474
Client Reference					1	2	3	4	5
Sample ID					TP1 ES1	TP2 ES1	TP3 ES1	TP4 ES1	TP5 ES1
Depth (m)					0.30	0.50	0.40	0.40	0.20
Sampling Date					18/02/2025	18/02/2025	18/02/2025	18/02/2025	18/02/2025
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

WATER

Lab Number					36475	36476
Client Reference					6	7
Sample ID					TP2 WS1	TP3 WS1
Depth (m)					1.30	1.30
Sampling Date					18/02/2025	18/02/2025
Test	**Method**	**Accred**	**LoD**	**Units**		
Metals						
Arsenic (Dissolved)	CE265	U	0.1	µg/l	103	14.6
Cadmium (Dissolved)	CE265	U	0.1	µg/l	< 0.10	< 0.10
Chromium (Dissolved)	CE265	U	0.5	µg/l	< 0.50	< 0.50
Copper (Dissolved)	CE265	U	0.6	µg/l	< 0.60	1.41
Lead (Dissolved)	CE265	U	0.6	µg/l	< 0.60	< 0.60
Mercury (Dissolved)	CE265	N	0.05	µg/l	< 0.050	< 0.050
Nickel (Dissolved)	CE265	U	0.4	µg/l	0.45	0.66
Selenium (Dissolved)	CE265	U	1.1	µg/l	< 1.1	< 1.1
Zinc (Dissolved)	CE265	U	3	µg/l	< 3.0	< 3.0
Colourimetric						
Total Monohydric Phenols	CE148	N	10	µg/l	< 10	< 10
Total Cyanide	CE147	N	5	µg/l	< 5.0	< 5.0
Combustion						
Total Organic Carbon	CE247	N	5	mg/l	6.0	9.1
Polyaromatic hydrocarbons						
Naphthalene	CE087	N	0.1	µg/l	< 0.10	< 0.10
Acenaphthylene	CE087	N	0.1	µg/l	< 0.10	< 0.10
Acenaphthene	CE087	N	0.1	µg/l	< 0.10	< 0.10
Fluorene	CE087	N	0.1	µg/l	< 0.10	< 0.10
Phenanthrene	CE087	N	0.1	µg/l	1.22	5.58
Anthracene	CE087	N	0.1	µg/l	0.52	3.54
Fluoranthene	CE087	N	0.1	µg/l	2.42	12.6
Pyrene	CE087	N	0.1	µg/l	1.87	11.4
Benzo(a)anthracene	CE087	N	0.1	µg/l	2.08	6.02
Chrysene	CE087	N	0.1	µg/l	1.65	5.88
Benzo(b)fluoranthene	CE087	N	0.1	µg/l	< 0.10	7.36
Benzo(k)fluoranthene	CE087	N	0.1	µg/l	< 0.10	2.84
Benzo(a)pyrene	CE087	N	0.1	µg/l	1.89	5.30
Indeno(1,2,3-cd)pyrene	CE087	N	0.1	µg/l	2.04	4.42
Dibenzo(a,h)anthracene	CE087	N	0.1	µg/l	< 0.10	< 0.10

WATER

Lab Number					36475	36476
Client Reference					6	7
Sample ID					TP2 WS1	TP3 WS1
Depth (m)					1.30	1.30
Sampling Date					18/02/2025	18/02/2025
Benzo(g,h,i)perylene	CE087	N	0.1	µg/l	2.23	3.82
Total PAH(16)	CE087	N	1.6	µg/l	15.9	68.8
Total Petroleum Hydrocarbons						
>C5-C6 Aliphatic (HS_1D_AL)	CE266	N	1	µg/l	< 1.00	< 1.00
>C6-C8 Aliphatic (HS_1D_AL)	CE266	N	1	µg/l	< 1.00	< 1.00
>C8-C10 Aliphatic (HS_1D_AL)	CE266	N	1	µg/l	< 1.00	< 1.00
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	µg/l	3.8	6.3
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	1	µg/l	2.2	6.2
>C16-C35 Aliphatic (EH_2D_AL)	CE250	N	1	µg/l	24.1	103
>C35-C44 Aliphatic (EH_2D_AL)	CE250	N	1	µg/l	1.4	7.5
>C6-C7 Aromatic (HS_1D_AR)	CE266	N	1	µg/l	< 1.00	< 1.00
>C7-C8 Aromatic (HS_1D_AR)	CE266	N	1	µg/l	< 1.00	< 1.00
>C8-C10 Aromatic (HS_1D_AR)	CE266	N	1	µg/l	< 1.00	< 1.00
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	1	µg/l	15.2	41.1
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	µg/l	20.5	97.5
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	1	µg/l	15.2	64.3
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	1	µg/l	95.2	301
>C35-C44 Aromatic (EH_2D_AR)	CE250	N	1	µg/l	20.1	41.1
Wet Chem						
pH	CE213	U	0.1	pH units	6.5	7.3

WATER SVOCS

Lab Number					36475	36476
Client Reference					6	7
Sample ID					TP2 WS1	TP3 WS1
Depth (m)					1.30	1.30
Sampling Date					18/02/2025	18/02/2025
Test	**Method**	**Accred**	**LoD**	**Units**		
SVOC						
Phenol	CE065	N	0.1	µg/l	< 0.10	< 0.10
Cresols	CE065	N	0.1	µg/l	< 0.10	< 0.10
Xylenols	CE065	N	0.1	µg/l	< 0.10	< 0.10
Naphthols	CE065	N	0.1	µg/l	< 0.10	< 0.10
Trimethylphenols	CE065	N	0.1	µg/l	< 0.10	< 0.10

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
CE266	VPH in Water	HS-GCFID	-
CE250	GCXGC in Solids	DCM Extraction and GCxGC-FID	As submitted sample
CE250	GCXGC in Water	DCM Extraction and GCxGC-FID	-
SUBCON	Asbestos Solid	HSG248	Air Dried Sample
CE247	Dissolved organic carbon	FORMACS TOC Analyser	-
CE189	SVOC in solids	DCM Extraction and GCMS	As submitted sample
CE065	SVOC in waters	DCM Extraction and GCMS	-
CE265	Dissolved metals by ICP in Water	ICPMS	-
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE087	PAH in Water	DCM Extraction and GCMS	-
CE078	Phenols in Solids	Continuous Flow Analyser	As submitted sample
CE148	Phenols in Waters	Continuous Flow Analyser	-
CE077	Cyanides in Solids	Continuous Flow Analyser	As submitted sample
CE147	Cyanides in Water	Continuous Flow Analyser	-
CE197	Primacs in Solids	Primacs	Air dried sample

REPORT INFORMATION

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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