

CARDIGAN TIDAL FLOOD RISK MANAGEMENT SCHEME

Appendix 11.3 – Sediment Sampling Technical Note



Cyfoeth Naturiol Cymru
Natural Resources Wales



CARDIGAN TIDAL FLOOD RISK MANAGEMENT SCHEME (TFRMS)

SEDIMENT SAMPLING - TECHNICAL NOTE

Binnies Project no. 4021883

January 2026

Prepared for:

Natural
Resources Wales

(NRW)

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Table of Contents

1.	Introduction.....	4
1.1	Instruction	4
1.2	Site Details.....	4
1.3	Proposed Works	4
1.4	Scope and Objectives	5
1.5	Limitations.....	6
2.	Previous Reports	6
2.1	Contamination Preliminary Risk Assessment (Binnies, 2026)	6
2.2	Land Contamination Risk Assessment (Binnies, 2026)	7
3.	Field and Laboratory Studies.....	8
3.1	Sediment Sampling.....	8
3.2	Laboratory Testing	9
4.	Controlled Waters.....	10
4.1	Controlled Waters Risk Assessment.....	10
4.2	Site Specific Assessment – Lead and Zinc	11
5.	CEFAS and WFD Indicative Assessment	12
6.	Human Health	13
7.	Off-site Soil Disposal	14
8.	Conclusions and Recommendations.....	14
8.1	Controlled Waters.....	14
8.2	Human Health	15
8.3	Off-site Soil Disposal	15
	Appendix A: Laboratory Test Results	17
	Appendix B: Waste Classification Report	18
	Appendix C: Site Specific Assessment Results (Lead and Zinc)	19

Details of document preparation and issue:

Version no.	Prepared	Checked	Reviewed	Approved	Issue date	Issue status
P01	S. Rebours-Smith B. Tucker	C. Rafipay	L. Westoby	A Humphreys	27/01/2026	S3

Binnies Project no.
4021883

File name: 4021883-BUK-ZZ-00-RP-GE-00002

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1. Introduction

1.1 Instruction

Binnies UK Limited (BUKL) was instructed by Natural Resources Wales (NRW, “the Client”) to undertake a sediment sampling and contamination testing exercise for The Cardigan Tidal Flood Risk Management Scheme (TFRMS). This Technical Note has been prepared to further support the understanding of the geoenvironmental risks to controlled waters from disturbance of river sediments, and to assess the impact of the proposed works on environmental receptors.

1.2 Site Details

The site is located in Cardigan (Aberteifi), in Ceredigion, southwest Wales. It is positioned along the right bank (northern bank) of the River Teifi (flowing east to west) between National Grid Reference SN 17783 45866 and SN 18109 45969. The scheme covers an approximate distance of 400m length of the right bank on the River Teifi, upstream of Cardigan Bridge. The nearest postcode is SA43 1EX. The site is accessed via the road named “Strand”. The site location is shown in Figure 1-1 below.

Cardigan town centre is located to the north of the site, characterised by a mixture of residential and commercial properties. Cardigan Castle is situated to the northwest. The south side of the river is populated by industrial buildings.

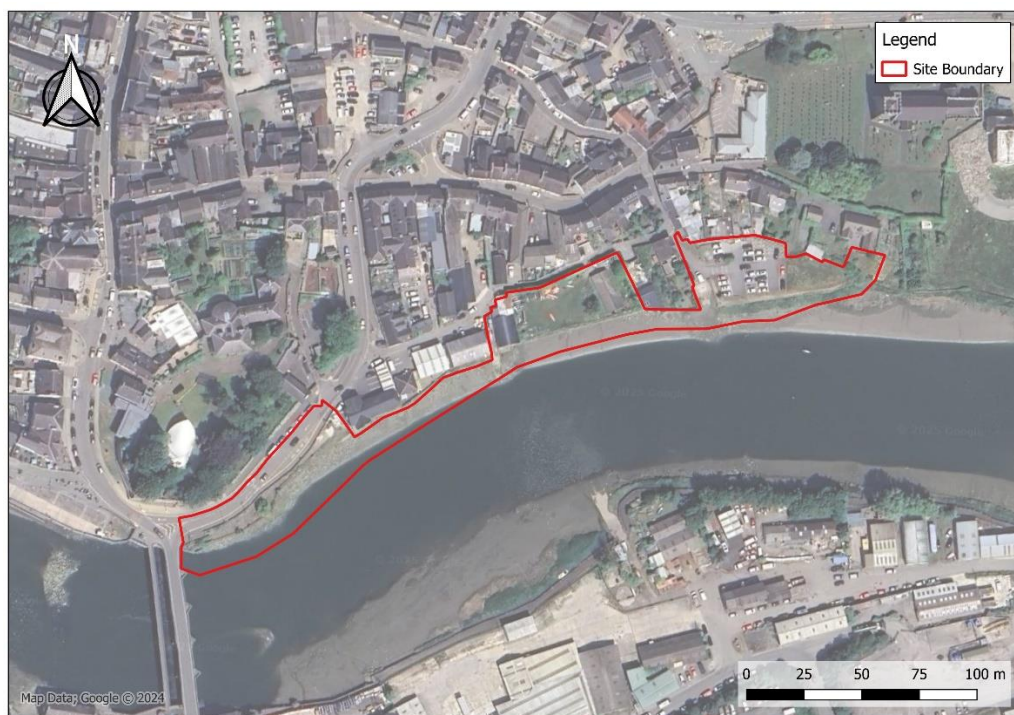


Figure 1-1: Site Location Plan

1.3 Proposed Works

Outline design has been undertaken for the scheme, with the detailed design in progress at the time of writing this report (January 2026). Proposals are broadly to comprise a flood defence wall to protect the town from flooding. It is understood that this defence will comprise sheet

piled walls to varying termination depths to be confirmed by detailed design. An embankment to support these piles is also proposed.

As part of the ongoing detailed design, the proposals have been split into four key zones known as Areas 1-4. Notably for Area 4 (eastern-most section/ Gloster Row car park), the flood defence wall is now to be set back from the existing bank, with ground levels south of the wall (riverside) to be excavated and lowered to broadly align with the existing foreshore and create an extension of the estuarine/ riverine habitat to offset loss elsewhere.

A design sketch dated September '25 is provided as Figure 1-2.

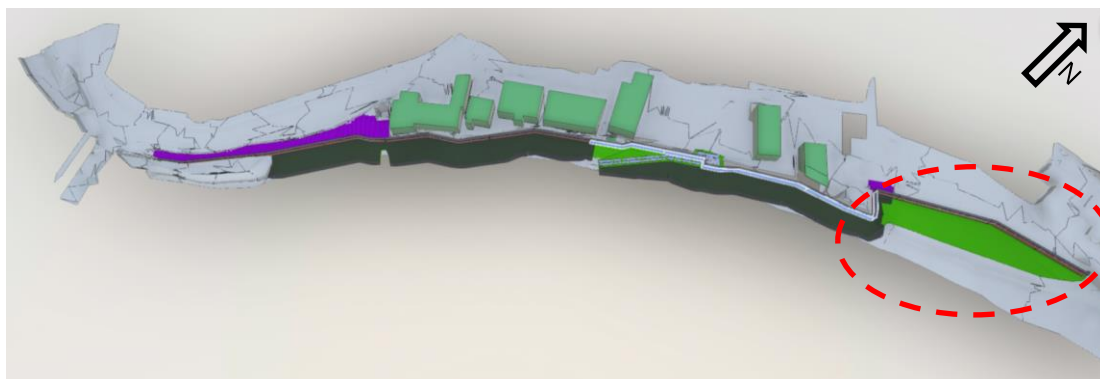


Figure 1-2: Binnies Design Sketch, dated September 2025.

Proposals are for a new sheet piled flood defence wall including an embankment along foreshore (dark green/ grey). Sheet piled wall in eastern-most section (Area 4) now to be set-back to create extension of estuarine/ riverine habitat (shaded green/ circled in red).

1.4 Scope and Objectives

This report follows a Contamination Preliminary Risk Assessment (PRA) undertaken by Binnies for Natural Resources Wales (NRW) ref: 4021883-BUK-ZZ-00-RP-GE-00003, which identified several potential source-pathway-receptor linkages with respect to human health and controlled waters; further action was required to further assess the risks.

A Land Contamination Risk Assessment Report was subsequently undertaken to further assess the potential contaminant linkages identified in the PRA, using the results of additional ground investigation works undertaken for the scheme by CJ Associates in 2022 (scoped by Binnies). The assessment broadly followed a Stage 1 Tier 2 Generic Quantitative Risk Assessment (GQRA) in accordance with Environment Agency's Land Contamination Risk Management Guidance (LCRM, 2020) guidance.

Recommendations were made during the Land Contamination Risk Assessment for further works; these included a sediment sampling exercise along the foreshore to assess potential contamination risks to controlled waters from anticipated disturbance of river sediments during the works (trenching and sheet piling). This technical note sets out to provide the findings of these additional sediment sampling and testing works and further assesses risks to controlled waters and the environment.

The objectives of this technical note are to:

- Provide details of sediment sampling works carried out along the River Teifi foreshore and laboratory testing undertaken;
- Collate the results of the sediment (solids) and sediment leachate contamination testing undertaken;
- Undertake controlled waters risk assessment including comparison of testing results against applicable screening values for controlled waters, including Environmental Quality Standards (EQS);
- Undertake a CEFAS and WFD Indicative Assessment;
- Outline any potential contamination risks identified to controlled waters associated with disturbance of river sediments during sheet pile construction;
- Review laboratory testing data with regards to human health risks and undertake waste classification assessment for sediment material to inform off-site disposal options;
- Provide conclusions and recommendations for any further works/ mitigation measures.

These objectives have been selected following relevant guidance documents published by British Standards Institution (BSI), Environment Agency's Land Contamination Risk Management guidance (LCRM, 2020), Contaminated Land: Applications in Real Environments (CL:AIRE), and the Association of Geotechnical & Geoenvironmental Specialists (AGS).

1.5 Limitations

This report interprets ground conditions based on the information available to Binnies at the time of writing. The nature of a natural material such as soils and bedrock is inherently variable and as such Binnies cannot be held liable should the ground conditions vary widely between exploratory locations. Any additional limitations and assumptions have been highlighted throughout this report.

2. Previous Reports

2.1 Contamination Preliminary Risk Assessment (Binnies, 2026)

A Contamination Preliminary Risk Assessment (PRA) was previously undertaken by Binnies for Natural Resources Wales (NRW) ref: 4021883-BUK-ZZ-00-RP-GE-00003, dated January 26. The salient information from the PRA report has been repeated below for reference.

In summary, development was shown on-site from the earliest historical mapping, with occasional unlabelled buildings in the west along the riverbank, one of which was later confirmed to be a smithy (though since replaced by a residential property); a car park was constructed in the east of the site by 2003. Off-site, notable historical industrial activities included a quay (5 - 90 m west), hospital (5 - 10 m east), iron foundry (65 - 70 m southwest), garages (90 - 120m north), railway sidings and various industrial buildings (65 - 200 m south). Various other features including pits, depots, tanks, and a cemetery were highlighted in the areas surrounding the site.

BGS records show Made Ground mapped throughout the site (suspected reclaimed land), overlying superficial Tidal River or Creek Deposits (and potentially Glacial Till) over Bedrock stratum of the Nantmel Mudstones Formation.

The superficial aquifer underlying the site was found to be classified as Secondary Undifferentiated, whilst the bedrock aquifer classified as Secondary B. On-site groundwater vulnerability was indicted to be high vulnerability in superficial aquifers and medium vulnerability in bedrock aquifers. No abstractions were recorded within 2km of the site and the site is not located within a source protection zone (SPZ).

The River Teifi directly south of the site is known to be classified as a Site of Special Scientific Interest (SSSI) and also lies within Special Area of Conservation (SAC).

An initial review of ground gas and radon risks was undertaken; based on the review and the scheme proposals (i.e. a sheet piled flood defence wall with no buildings or enclosed spaces proposed), these potential risks were therefore discounted.

The report included review of a historical ground investigation undertaken by WYG in 2015 for a wider area including exploratory holes on-site. Ground conditions encountered broadly comprised Made Ground (up to 5.3m bgl), overlying Alluvium and the Nantmel Mudstones Formation. Groundwater monitoring recorded levels within the Made Ground or superficial/alluvial deposits (although levels were expected to be tidally influenced).

The WYG testing results were subject to an initial contamination screen based on a selected proposed Public Open Space (POS) park end-use which identified an exceedance for asbestos in soils at location PBH4 (chrysotile cement bound debris - quantified at 2.116% of material mass (fibres)). Asbestos fibres were also identified in several other samples of Made Ground though the quantification results were below the laboratory limit of detection (<0.001%).

The Initial Conceptual Site Model (CSM) and Preliminary Risk Assessment (PRA) identified several potential source-pathway-receptor linkages with respect to human health and controlled waters, and further action was required to further assess the risks. Further contamination targeted ground investigation was recommended for the site to enable more detailed contamination risk assessments to be undertaken for the scheme, including Generic Quantitative Risk Assessment (GQRA) for human health and controlled waters risk assessment.

2.2 Land Contamination Risk Assessment (Binnies, 2026)

Following the Preliminary Risk Assessment (PRA), additional ground investigation works were scoped by Binnies for geotechnical and geoenvironmental purposes and were subsequently undertaken by CJ Associates in 2022.

Data from both the previous WYG investigation (2015) and later CJ Associates investigation (2022) was then used to inform a Land Contamination Risk Assessment report undertaken by Binnies for Natural Resources Wales (NRW) ref: 4021883-BUK-ZZ-00-RP-GE-00004 dated January '26. The salient information from the report has been repeated below for reference.

Much of the site was found to be situated upon reclaimed land, with Made Ground recorded to maximum depths of 5.3m bgl (locally as shallow as 0.5m). Ground conditions beneath the Made Ground were described as superficial Tidal River or Creek Deposits (collectively referred to as Alluvium) overlying the Nantmel Mudstones Formation (mudstone encountered in BH03 only from 11mbgl).

During the CJ Associates works (2022), suspected Asbestos Containing Materials (ACMs) were visually identified in borehole BH03 at 4.75m depth at the base of the Made Gound (black

fibrous material); surface fragments of suspected cement-bound asbestos sheeting were also seen along the river foreshore by the investigation supervisor.

Groundwater monitoring dataloggers were installed as part of both previous ground investigation works to provide continuous groundwater monitoring data (15-minute intervals) over the tidal cycles of the River Teifi. Maximum groundwater level at high tide ranged between 1.6m and 3.6m Ordnance Datum (OD) with typical groundwater levels at low tide ranging between -0.6 and 1.6m OD. Groundwater was recorded in Made Ground, Alluvium and commonly at the Made Ground/ Alluvium interface. Based on the data it was concluded that the groundwater was unconfined with the level fluctuating with tidal level (i.e. tidally influenced).

A human health contamination generic quantitative risk assessment (GQRA) identified potentially unacceptable risks to end-users (and also construction workers) associated with asbestos and elevated PAHs within the Made Ground. Asbestos risks included suspected ACM fragments in both Made Ground and at surface along the foreshore. Further works were recommended, including a remediation strategy for the scheme; an asbestos in soils construction risks assessments was also recommended in accordance with Control of Asbestos Regulations 2012 to mitigate risks from asbestos during construction, including removal of surface ACM fragments identified along the foreshore.

A qualitative controlled waters risk assessment was also undertaken to assess potential contamination risks to the River Teifi and the underlying Secondary Aquifers. Overall, the risks to controlled waters were considered low taking in to account the soils laboratory testing data, continuous groundwater level monitoring data, scheme proposals (which included provision of erosion and scour protection in Area 4) and the proposed sheet piling methodology. Further works were recommended including groundwater and surface water sampling/ contamination testing prior to construction to provide baseline conditions to inform a long-term monitoring strategy; a sediment sampling exercise was also recommended along the foreshore to assess potential contamination risks to controlled waters from anticipated disturbance of river sediments during the works (trenching and sheet piling).

3. Field and Laboratory Studies

3.1 Sediment Sampling

Seven hand auger trial pits (HATP02–HATP08) were excavated on the site, with sediment samples collected from HATP02, HATP04, HATP06, and HATP08 at depths of either 0.5m or 1.0m for contamination testing. Another position (HATP01) was proposed, though was later cancelled due to no safe access being available to obtain a sample. Three samples were also taken for Waste Acceptance Criteria (WAC) testing.

Sampling was carried out in general accordance with BS 10175:2011+A2:2017 to prevent potential cross contamination. The selected locations broadly correspond to the proposed sheet pile wall location, and the sampling depths were chosen to target the sediment layers likely to be disturbed during construction.

No visual or olfactory indication of contamination was reported in the logs. Photo-ionisation detector (PID) monitoring was carried out in all trial pits at 0.5 m depth, with additional readings taken at 1.0 m in HATP03, HATP05, HATP06, and HATP08. All readings were 0 ppm, indicating no detectable concentrations of volatile organic compounds (VOCs).

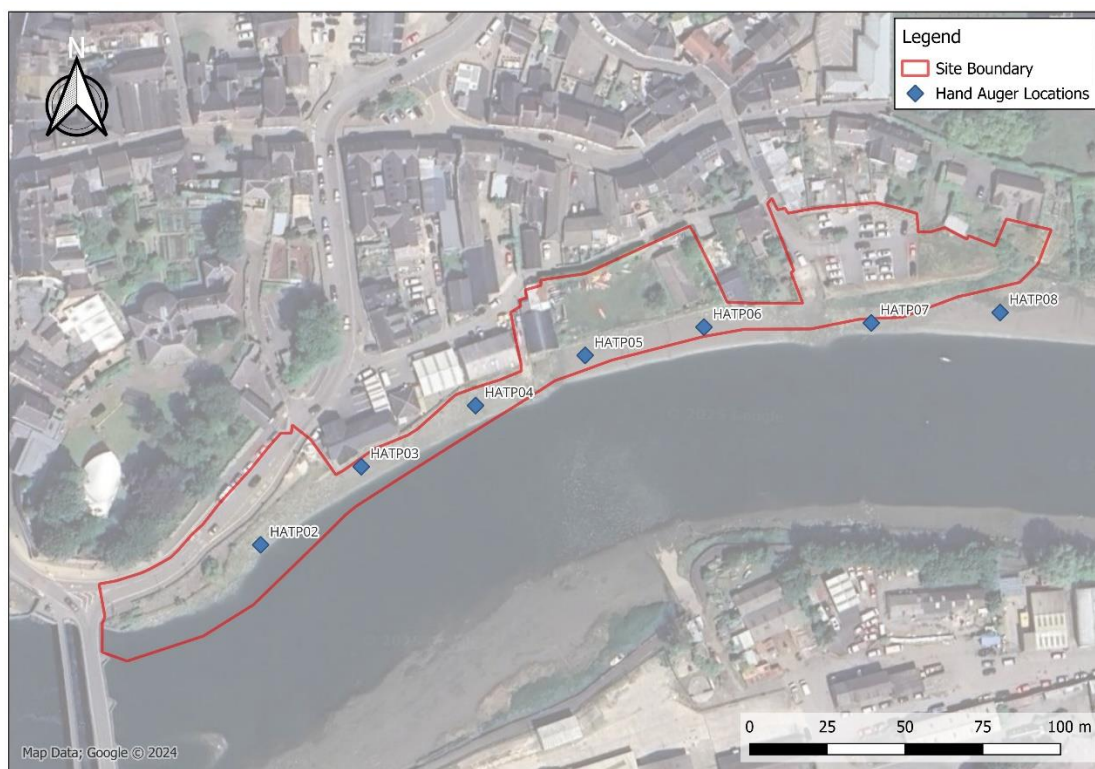


Figure 3-1: Hand Auger Trial Pit Locations

3.2 Laboratory Testing

(a) Laboratories

Sediment samples were taken at the HATP locations and were transported for analysis to Eurofins Chemtest Ltd, a United Kingdom Accreditation Service (UKAS) accredited laboratory compliant with International Standards Organisation (ISO) 17025 and Monitoring Certification Scheme (MCERTS) standards. Organotins were subcontracted to the UKAS accredited laboratory Tetra Tech and Organochlorine Pesticides to Eurofins Analytico (which has ISO/IEC 17025 accreditation).

(b) Testing Suites

Testing suites were selected based on potential contaminants of concern identified within the previous Land Contamination Risk Assessment Report (Binnies, 2026). Additional suites were also selected to cover Centre for Environment, Fisheries and Aquaculture Science (CEFAS) requirements.

Sediment testing (solids) included analysis for the following determinands and parameters:

- pH and loss on ignition (as an indicator of organic matter).
- Metals and metalloids;
- Polycyclic Aromatic Hydrocarbons (16 PAHs);
- Total Petroleum Hydrocarbons (total TPH >C6-C40);
- Pesticides;
- Organotins;

- Polychlorinated biphenyls (PCBs);
- Phenols; and
- Asbestos.

Leachate testing was also undertaken on sediment samples and included metals and metalloids, total petroleum hydrocarbons (TPH), phenols as well as dissolved organic carbon (DOC).

Three samples were also submitted for Waste Acceptance Criteria (WAC) testing comprising an inert Landfill WAC suite.

The complete laboratory test certificates are included in Appendix A.

(c) Sample references

Please note the following sample references for review of the laboratory testing certificates:

- Certificate AR-421-2025-090175-01: Sample 1 (2025151) is HATP02 at 0.5m and Sample 2 (2025154) is HATP04 at 0.5m,
- Certificate AR-421-2025-090179: Sample 1 (2025160) is HATP06 at 1.0m and Sample 2 (2025163) is HATP08 at 1.0m.

4. Controlled Waters

4.1 Controlled Waters Risk Assessment

(a) Sediment testing (solids) results

To provide an initial indication of the magnitude of total/ solid contaminant concentrations, sediment testing results have been reviewed initially and compared against the Generic Assessment Criteria for the scheme for human health based on a Public Open Space (POS) park land use and assuming a conservative 1% Soil Organic Matter (SOM). This follows the human health methodology previously undertaken within the Land Contamination Risk Assessment (Binnies, 2026).

With the exception of PAHs in one sample (HATP02, total 180mg/kg), all other results for heavy metals, PAH and TPH were recorded below the Public Open Space (park) Generic Assessment Criteria. TPH concentrations were low, with a maximum concentration of 53mg/kg recorded (total TPH >C6-C40).

Concentrations of pesticides, organotins, PCB's and phenols were recorded below the laboratory limits of detection.

(b) Leachate testing results

Following review of the sediment/ solids testing results, leachate test results were then screened against the transitional (estuaries) and coastal waters Environmental Quality Standards (EQS). These were selected as the site is tidally influenced, as found by previous groundwater monitoring for the site. Where EQS values were not available (e.g. total petroleum hydrocarbons), the UK Drinking Water Standards (DWS) or best equivalent have been adopted

(including World Health Organisation (WHO) guideline values for drinking water). A summary of leachate results exceedances is shown in Table 4-1 below.

Table 4-1: Exceedances Summary: Leachate Results

Metal	units	LOD	GAC	Measured concentration range		Exceedances
				Min.	Max.	
Lead (Dissolved)	µg/l	0.50	1.3*	< 0.50	2.9	1.6 µg/l HATP06 at 1.0m bgl 2.9 µg/l HATP02 at 0.5m bgl
Zinc (Dissolved)	µg/l	2.5	6.8*	< 2.5	9.4	9.4 µg/l HATP06 at 1.0m bgl
*EQS for transitional (estuaries) and coastal waters						

A minor detection of TPH was recorded in one sample (HATP02, 50ug/l), however this fell below the adopted World Health Organisation (WHO) guideline values for drinking water,

(c) Summary

With the exception of lead and zinc, the remaining leachable contaminant concentrations were recorded below the adopted controlled waters screening values or were below the laboratory detection limit.

Some slightly elevated total/ solid PAH concentrations were recorded in sample HATP02, however based on the concentrations recorded and that the compounds identified have very low water solubility, these are unlikely to be readily leachable and become mobile.

Further site-specific assessment has subsequently been undertaken for lead and zinc, as discussed below in Section 4.2.

4.2 Site Specific Assessment – Lead and Zinc

Following exceedances of the EQS values for lead and zinc in leachate, further site-specific assessment has been undertaken to determine the Predicted No Effect Concentrations (PNECs) using the “Final Pb Screening Tool” and “Metal Bioavailability Tool (M-BAT)” produced by the Water Framework Directive – United Kingdom Technical Advisory Group (WFD-UKTAG).

The lead screening tool uses site-specific information, including dissolved organic carbon, to determine the concentration of lead above which harm may occur in that specific catchment.

The M-BAT is a tool developed to provide a simplified metal bioavailability assessment model for four metals (copper, zinc, manganese, and nickel) which may or may not be bioavailable to adversely impact aquatic flora and fauna, depending on site-specific water quality parameters including pH, dissolved organic carbon and calcium carbonate concentrations.

The characteristic value for pH at the site was chosen to be that of the pH value of the sample in question (8.1 pH units) in lieu of water quality data. This is marginally above the upper model limit for pH (8.0 pH units) but as the model is more sensitive to acidic conditions it is unlikely that this would impact the PNEC value significantly. In the absence of site-specific data for calcium carbonate, the full model range for calcium was used and the most conservative PNEC adopted.

The results of the assessment for lead and zinc are summarised in Table 4-2. The outputs from the lead screening and M-BAT tools are presented in Appendix C for reference.

Table 4-2: Site Specific Assessment: Lead and Zinc

Metal	units	Measured maximum concentration	EQS*	Site specific PNEC (dissolved)
Lead (Dissolved)	µg/l	2.9	1.3	7.92
Zinc (Dissolved)	µg/l	9.4	6.8	45.19
*EQS for transitional (estuaries) and coastal waters				

As shown by Table 4-2, the maximum measured concentrations for lead and zinc fall well below the calculated site-specific PNEC values. Consequently, the risks to controlled waters from leachable lead and zinc are considered low and thus no further assessment is required.

5. CEFAS and WFD Indicative Assessment

The results of the soil analyses were compared against CEFAS Action Levels and the results from the leachate analyses were compared against WFD standards to identify risks. As only one sample was tested from each position at 50m spacing, a preliminary Red Amber Green (RAG) assessment was used to highlight any samples where there could be a potential risk. Tables 5-1 and 5-2 show the RAG assessments for parameters which had relevant standards that could be used for the assessment.

For the leachate, all samples had concentrations of core parameters that were below the respective EQSs and so no significant water quality risks were identified. A similar pattern was seen in the sediment (soil) samples, with the exception of sample locations HATP02 and HATP04 which included heavy metal concentrations higher than those noted in Action Level 1 (the most stringent level). PAH concentrations were found to be higher than both Action Levels across all sample locations. The sediment samples tested would therefore not be suitable for disposal to the marine environment, though the concentrations are not of concern in terms of WFD compliance, including for coastal/estuarine ecosystems. The results indicate that although the samples tested from locations HATP02 and HATP04 could potentially pose some environmental risks (e.g. to macroinvertebrates) and could be considered for further investigation, the overall environmental risk from contaminated sediments on the site is likely to be low.

Table 5-1: Soil samples CEFAS RAG assessment

	CEFAS Action Level 1				CEFAS Action Level 2			
	HATP02	HATP04	HATP06	HATP08	HATP02	HATP04	HATP06	HATP08
Arsenic	G	R	G	G	G	G	G	G
Cadmium	G	R	G	G	G	G	G	G
Chromium	G	G	G	G	G	G	G	G
Copper	G	R	G	G	G	G	G	G
Mercury	R	R	G	G	G	G	G	G
Nickel	G	R	G	G	G	G	G	G
Lead	R	R	G	G	G	G	G	G
Zinc	R	R	G	G	G	G	G	G
Total of 16 PAH's	R	R	R	R	R	R	R	R
Total PCBs (7 Congeners)	G	G	G	G	G	G	G	G

Table 5-2: Leachate samples WFD RAG assessment

	Surface water (short term)				Groundwater			
	<i>HATP 02</i>	<i>HATP 04</i>	<i>HATP 06</i>	<i>HATP 08</i>	<i>HATP 02</i>	<i>HATP 04</i>	<i>HATP 06</i>	<i>HATP 08</i>
Chloride	G	G	G	G	G	G	G	G
Sulphate	N/A	N/A	N/A	N/A	G	G	G	G
Arsenic (Dissolved)	N/A	N/A	N/A	N/A	G	G	G	G
Cadmium (Dissolved)	G	G	G	G	N/A	N/A	N/A	N/A
Copper (Dissolved)	G	G	G	G	G	G	G	G
Mercury (Dissolved)	G	G	G	G	N/A	N/A	N/A	N/A
Nickel (Dissolved)	N/A	N/A	N/A	N/A	G	G	G	G
Lead (Dissolved)	N/A	N/A	N/A	N/A	G	G	G	G
Zinc (Dissolved)	G	G	G	G	N/A	N/A	N/A	N/A
Total Phenols	G	G	G	G	N/A	N/A	N/A	N/A

It should be noted that there was only one set of samples and that the CEFAS action levels are set in relation to quality standards needed for the deposition of dredged material into marine environments and the WFD standards are for groundwater bodies. Subsequently, both sets of standards are used for indicative purposes to assess risks in this assessment and do not indicate any risks to compliance on their own, but this does not replace a full impact assessment.

6. Human Health

The sediment sample laboratory test results have been screened against published Generic Assessment Criteria (GAC) for human health based on a Public Open Space (POS) park land use and assuming a conservative 1% Soil Organic Matter (SOM). This follows the methodology previously undertaken within the Land Contamination Risk Assessment for assessing human health risks for the proposed scheme (Binnies, 2026).

The laboratory test results indicate slight exceedances of Polycyclic Aromatic Hydrocarbon (PAHs) at sample location HATP02 at 0.5m bgl only. Exceedances were Benzo[a]pyrene at 14mg/kg (GAC 11mg/kg), Benzo[b]fluoranthene at 18mg/kg (GAC 13mg/kg) and Dibenzo(a,h)Anthracene at 1.7mg/kg (GAC 1.1mg/kg).

Whilst some marginal exceedances of PAHs have been identified in the sediment sample from HATP02, it is noted that the selected POS park GAC are considered overly conservative for the foreshore as this area is not readily accessible to the public and use is improbable/ unlikely to be frequent (and well below the frequency of use assumed in the POS park land-use scenario). As a result, the concentrations of PAHs recorded are not considered to pose an unacceptable risk to end-users of the site.

Notwithstanding this, a remediation strategy is required for the scheme, as set out in a series of recommendations in the previous Land Contamination Risk Assessment (Binnies, 2026), which identified human health risks associated with asbestos and PAHs in Made Ground; this

included the presence of suspected surface ACM fragments along the foreshore which require removal prior to construction. The requirement for an asbestos in soils construction risk assessment was also previously highlighted, to ensure risks from asbestos exposure are adequately assessed and controlled measures are implemented as necessary during the works.

7. Off-site Soil Disposal

A waste classification exercise has been undertaken using the sediment sample contamination testing results to provide an indication of the most likely options for off-site disposal, if required.

All four of the sediment samples tested have been classified as Non-Hazardous Waste with the List of Waste Code 17-05-04 (Soil and stones other than those mentioned in 17-05-03), with no asbestos detected in the samples.

All three of the selected samples tested for Waste Acceptance Criteria (WAC) returned results below the limits for inert landfill.

However, suspected fragments of cement-bound ACM were observed on the foreshore during previous ground investigation works (2022) and require testing and removal prior to construction as part of a series of recommendations made in the previous Land Contamination Risk Assessment (Binnies, 2026) - asbestos waste containing 0.1% or more asbestos is classified as hazardous. It is possible that buried ACM fragments (from tidal influence) may also exist in near-surface sediments and may result in localised areas of hazardous soils/ sediments being generated if ACMs are found to be present in excavated soils; there may be some opportunity to pick or otherwise remove the ACMs from excavated sediments to allow separate disposal routes and reduce hazardous waste volumes.

The Waste Classification Report is presented in Appendix B.

8. Conclusions and Recommendations

8.1 Controlled Waters

(a) Conclusions

A sediment sampling and testing exercise has been undertaken along the foreshore to assess potential contamination risks to controlled waters from anticipated disturbance of river sediments during the works (trenching and sheet piling).

Leachable lead and zinc were found to exceed the initial EQS screening value for transitional (estuaries) and coastal waters; however, further site-specific assessment was undertaken, taking into account bioavailability, with the maximum recorded lead and zinc leachable concentrations falling well below the calculated Predicted No Effect Concentrations (PNECs). The remaining leachable contaminant concentrations were recorded below the adopted controlled waters screening values, or were below the laboratory detection limit.

Although from the indicative CEFAS assessment the sediment tested would not be suitable for disposal to the marine environment, the leachable contaminant concentrations are not of concern in terms of WFD compliance for coastal/ estuarine ecosystems. Consequently, if the sediments are not intended to be disposed to a marine environment, then the overall environmental risk from contaminated sediments on the site is likely to be low.

Consequently, the risks to controlled waters from contamination within the foreshore sediments is overall considered low and thus no further assessment is required.

(b) Mitigation Measures During Construction

Whilst the overall the risks to controlled waters from contamination within the foreshore sediments is low based on the findings of this assessment, additional precautionary mitigation measures are recommended during construction to ensure best practice for protection of controlled waters. Note that these are in addition to the recommendations made previously in the Land Contamination Risk Assessment (Binnies, 2026) and include:

- During construction, it would be prudent to backfill excavated foreshore sediments and soils with suitable clean material in areas where any contamination is encountered to minimise risk to controlled waters.
- Provision of a contingency plan for excavations in the intertidal sediments to be covered/protected if they cannot be backfilled within a single low tide event (before the next high tide inundation).
- Standard practice mitigation to prevent sediments from entering the River Teifi (e.g. silt curtains) during foreshore construction activities.
- Standard practices for protecting the water environment should be adhered to (e.g. bunded fuel storage, use of plant nappies, suitable spill kits with trained personnel, silt fencing) in accordance with current good practice guidance.

As per the Land Contamination Risk Assessment (Binnies, 2026), recovery of groundwater samples from serviceable boreholes and surface river samples from the River Teifi is also to be undertaken prior to construction, including testing for contamination to determine baseline water quality conditions for controlled waters and to inform long term monitoring strategy.

8.2 Human Health

Whilst some marginal exceedances of PAHs have been identified in the sediment sample from sample HATP02, it is noted that the selected POS park GAC are considered overly conservative for the foreshore as this area is not readily accessible to the public and use is improbable/unlikely to be frequent (and well below the frequency of use assumed in the POS park land-use scenario). As a result, the concentrations of PAHs recorded are not considered to pose an unacceptable risk to end-users of the site.

Notwithstanding this, a remediation strategy is required for the scheme as set out as part of a series of recommendations in the previous Land Contamination Risk Assessment (Binnies, 2026), which identified human health risks associated with asbestos and PAHs in Made Ground; this included the presence of suspected surface ACM fragments along the foreshore which require removal prior to construction. The requirement for an asbestos in soils construction risk assessment was also previously highlighted to ensure risks from asbestos exposure are adequately assessed and controlled measures are implemented as necessary during the works.

8.3 Off-site Soil Disposal

Samples tested from the foreshore as part of this investigation have been classified as Non-Hazardous Waste with the List of Waste Code 17-05-04 (Soil and stones other than those

mentioned in 17-05-03), with no asbestos detected in the samples. The three samples tested for Waste Acceptance Criteria (WAC) returned results below the limits for inert landfill.

However, suspected ACMs were observed at surface during previous ground investigation works (2022) and would be classified as hazardous waste if found to contain asbestos and should be tested and removed prior to construction. Some localised areas of hazardous materials may also be generated should any buried ACMs be present locally within the near-surface sediments, though there may be some opportunity to pick or otherwise remove the ACMs from excavated sediments to allow separate disposal routes and reduce hazardous waste volumes.

The waste classification and WAC testing has been undertaken on a limited sample population and should be treated as indicative only at this stage. Further testing should be carried out during construction at an appropriate frequency corresponding to the total volume of waste proposed for off-site disposal to formalise material classifications with results then provided to the preferred receiving facility to confirm acceptability.

Appendix A: Laboratory Test Results



Final Report

Report No.: 25-29288-1

Initial Date of Issue: 22-Oct-2025

Re-Issue Details:

Client *Spencer Quantum Ltd*

Client Address: *Parcau Farm
Penrhiwllan
Llandysul
Ceredigion
SA44 5NW*

Contact(s): *Tyler Goodrick*

Project *Q1881 Cardigon FRMS*

Quotation No.: *Q25-39408*

Date Received: 08-Sep-2025

Order No.:

Date Instructed: 17-Sep-2025

No. of Samples: 4

Turnaround (Wkdays): 25

Results Due: 21-Oct-2025

Date Approved: 22-Oct-2025

Subcon Results Due: 21-Oct-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Leachate

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd	Chemtest Job No.:					25-29288	25-29288
Quotation No.: Q25-39408	Chemtest Sample ID.:					2025160	2025163
Order No.:	Client Sample Ref.:					ES2	ES2
	Client Reference:					HATP06	HATP08
	Sample Type:					SOIL	SOIL
	Top Depth (m):					1.00	1.00
	Date Sampled:					03-Sep-2025	03-Sep-2025
Determinand	Accred.	SOP	Type	Units	LOD		
Chloride	U	1220	10:1	mg/l	1.0	58	61
Fluoride	U	1220	10:1	mg/l	0.050	0.20	0.15
Sulphate	U	1220	10:1	mg/l	1.0	44	98
Arsenic (Dissolved)	U	1455	10:1	µg/l	0.20	18	0.54
Barium (Dissolved)	U	1455	10:1	µg/l	5.00	6.2	7.0
Cadmium (Dissolved)	U	1455	10:1	µg/l	0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Copper (Dissolved)	U	1455	10:1	µg/l	0.50	3.6	< 0.50
Mercury (Dissolved)	U	1455	10:1	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Dissolved)	U	1455	10:1	µg/l	0.20	11	5.0
Nickel (Dissolved)	U	1455	10:1	µg/l	0.50	0.52	< 0.50
Lead (Dissolved)	U	1455	10:1	µg/l	0.50	1.6	< 0.50
Antimony (Dissolved)	U	1455	10:1	µg/l	0.50	1.7	< 0.50
Selenium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	10:1	µg/l	2.5	9.4	< 2.5
Dissolved Organic Carbon	U	1610	10:1	mg/l	2.0	9.6	4.8
Aliphatic TPH >C5-C6	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	< 10	< 10
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29288	25-29288
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025160	2025163
Order No.:		Client Sample Ref.:				ES2	ES2
		Client Reference:				HATP06	HATP08
		Sample Type:				SOIL	SOIL
		Top Depth (m):				1.00	1.00
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	29	32
Soil Colour		N	2030		N/A	Brown	Brown
Other Material		N	2030		N/A	Stones	None
Soil Texture		N	2030		N/A	Clay	Loam
Organochlorine Pesticides		SN		mg/kg	0.00	See Attached	See Attached
pH at 20C		M	2010		4.0	8.1	7.6
Arsenic		M	2455	mg/kg	0.5	7.5	1.7
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	14	4.1
Copper		M	2455	mg/kg	0.50	14	3.8
Mercury		M	2455	mg/kg	0.05	0.23	0.05
Nickel		M	2455	mg/kg	0.50	16	4.3
Lead		M	2455	mg/kg	0.50	64	21
Zinc		M	2455	mg/kg	0.50	130	54
Total Organic Carbon		M	2625	%	0.20	3.2	3.3
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	35	11
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.39	0.24
Anthracene		M	2800	mg/kg	0.10	0.16	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.72	0.45
Pyrene		M	2800	mg/kg	0.10	0.53	0.34
Benzo[a]anthracene		M	2800	mg/kg	0.10	0.36	0.20
Chrysene		M	2800	mg/kg	0.10	0.37	0.22
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	0.45	0.28
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	0.14	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	0.33	0.17
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	0.12
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	3.5	2.0
PCB 28		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 81		N	2815	mg/kg	0.010	< 0.010	< 0.010

Results - Soil

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29288	25-29288
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025160	2025163
Order No.:		Client Sample Ref.:				ES2	ES2
		Client Reference:				HATP06	HATP08
		Sample Type:				SOIL	SOIL
		Top Depth (m):				1.00	1.00
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
PCB 52		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 77		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 105		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 101		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 114		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 153		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 123		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 126		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 156		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 157		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 167		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 169		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 189		N	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (12 Congeners)		N	2815	mg/kg	0.12	< 0.12	< 0.12
Total PCBs (7 Congeners)		N	2815	mg/kg	0.10	< 0.10	< 0.10
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10
Organotins suite soils		SN		mg/kg	1.000	See Attached	See Attached

Results - Single Stage WAC

Project: Q1881 Cardigon FRMS

Project: 25-29288						Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID: 2025158						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample Ref: ES2								
Sample ID:								
Client Reference: HATP05								
Top Depth(m): 1.00								
Bottom Depth(m):								
Sampling Date: 03-Sep-2025								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	2.5	3	5	6
Loss on Ignition						--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
TPH Total WAC	2670	EH_CU_1D_Total	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700		N	mg/kg	7.8	100	--	--
pH						--	>6	--
Acid Neutralisation Capacity						--	To evaluate	To evaluate
Eluate Analysis					10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	
Arsenic	1455		U	0.0071	0.071	0.5	2	25
Barium	1455		U	0.006	0.059	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0039	0.039	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.013	0.13	0.5	10	30
Nickel	1455		U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455		U	0.0018	0.018	0.5	10	50
Antimony	1455		U	0.0019	0.019	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.011	0.11	4	50	200
Chloride	1220		U	57	570	800	15000	25000
Fluoride	1220		U	0.18	1.8	10	150	500
Sulphate	1220		U	38	380	1000	20000	50000
Total Dissolved Solids	1020		N	240	2400	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	8.9	89	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11
WAC Sample Weight	907.8

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Q1881 Cardigon FRMS

Chemtest Job No: 25-29288						Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 2025162						Limits		
Sample Ref: ES1						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:								
Client Reference: HATP08								
Top Depth(m): 0.50								
Bottom Depth(m):								
Sampling Date: 03-Sep-2025								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	3.0	3	5	6
Loss on Ignition						--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
TPH Total WAC	2670	EH_CU_1D Total	M	mg/kg	11	500	--	--
Total (Of 17) PAH's	2700		N	mg/kg	13	100	--	--
pH						--	>6	--
Acid Neutralisation Capacity						--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0046	0.046	0.5	2	25
Barium	1455		U	0.006	0.056	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0055	0.055	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.011	0.11	0.5	10	30
Nickel	1455		U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455		U	0.0014	0.014	0.5	10	50
Antimony	1455		U	0.0015	0.015	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.006	0.063	4	50	200
Chloride	1220		U	73	730	800	15000	25000
Fluoride	1220		U	0.17	1.7	10	150	500
Sulphate	1220		U	34	340	1000	20000	50000
Total Dissolved Solids	1020		N	260	2600	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	8.2	82	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.8
WAC Sample Weight	826.9

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection	
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16– C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection	
1780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10Aromatics: >C5–C6, >C6–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8–C10Aromatics: >C5–C7,>C7–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quantitation if present.	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching C2,C8,C10,WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - The required amount of sample for analysis was not received
- H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

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 - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com

Certificate of Analysis

Report No.: 25-08473-1

Issue No.: 1

Date of Issue 20/10/2025

Customer Details: Chemtest Ltd, Depot Road, Newmarket, Suffolk, CB8 0AL, United Kingdom

Customer Contact: Subcontracting

Customer Order No.: 29886

Customer Reference: Not Supplied

Quotation Reference: Q25-03555 (Issue: 11)

Description: 2 geo samples

Date Received: 24/09/2025

Date Started: 24/09/2025

Date Completed: 16/10/2025

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: David Long, LIMS Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

rpsgroup.com

Testing performed by RPS Environmental Management Limited, a Tetra Tech Company. Registered in England No. 01756175.

13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400

Terms and conditions apply - copy on request

Results Summary

Report No.: 25-08473-1

Customer Reference: Not Supplied

Customer Order No: 29886

Customer Sample No	2025160	2025163
Customer Sample ID	HATP06	HATP08
RPS Sample No	116442	116443
Sample Type	GEO	GEO
Sample Matrix	SOIL	SOIL
Sampling Date	03/09/2025	03/09/2025

Determinand	CAS No	Codes	SOP	RL	Units		
monobutyltin (MBT)	78763-54-9	N	S395	0.15	/kg as cation	< 0.15	< 0.15
dibutyltin (DBT)	1002-53-5	N	S395	0.02	/kg as cation	< 0.02	< 0.02
tributyltin (TBT)	36643-28-4	N	S395	0.02	/kg as cation	< 0.02	< 0.02
tetrabutyltin (TtBT)	1461-25-2	N	S395	0.02	/kg as cation	< 0.02	< 0.02
monophenyltin (MPT)	2406-68-0	N	S395	0.02	/kg as cation	< 0.02	< 0.02
diphenyltin (DPT)	1011-95-6	N	S395	0.02	/kg as cation	< 0.02	< 0.02
triphenyltin (TPT)	668-34-8	N	S395	0.05	/kg as cation	< 0.05	< 0.05

Deviating Samples

Report No.: 25-08473-1

Customer Reference: Not Supplied

Customer Order No: 29886

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
116442	2025160	HATP06	03/09/2025	250 mL amber glass jar	No	
116443	2025163	HATP08	03/09/2025	250 mL amber glass jar	No	

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRUCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	LIQUOR	Liquor
Water	MINEW	Mine Water
Water	MW	Mineral Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 week from the issue date of this report
Waters	1 week from the issue date of this report
Other Liquids	1 week from the issue date of this report
Solids / Soils	1 week from the issue date of this report
Sediments	1 week from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Interim Report

Report No.: 25-29288-0

Initial Date of Issue:

Re-Issue Details:

Client *Spencer Quantum Ltd*

Client Address: *Parcau Farm
Penrhiwllan
Llandysul
Ceredigion
SA44 5NW*

Contact(s): *Tyler Goodrick*

Project *Q1881 Cardigon FRMS*

Quotation No.: *Q25-39408*

Date Received: 08-Sep-2025

Order No.:

Date Instructed: 17-Sep-2025

No. of Samples: 4

Turnaround (Wkdays): 10

Results Due: 30-Sep-2025

Date Approved:

Subcon Results Due: 08-Oct-2025

Approved By:

Details:

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Please note that the interim data available has passed our Quality Control Criteria but has not been verified by an approved signatory and may be subject to amendment on approval. Chemtest cannot therefore be held responsible for decisions made on interim data sets but only for the data submitted on a final report containing an approval date and signature.

Results - Leachate

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd	Chemtest Job No.:					25-29288	25-29288
Quotation No.: Q25-39408	Chemtest Sample ID.:					2025160	2025163
Order No.:	Client Sample Ref.:					ES2	ES2
	Client Reference:					HATP06	HATP08
	Sample Type:					SOIL	SOIL
	Top Depth (m):					1.00	1.00
	Date Sampled:					03-Sep-2025	03-Sep-2025
Determinand	Accred.	SOP	Type	Units	LOD		
Chloride	U	1220	10:1	mg/l	1.0	58	61
Fluoride	U	1220	10:1	mg/l	0.050	0.20	0.15
Sulphate	U	1220	10:1	mg/l	1.0	44	98
Arsenic (Dissolved)	U	1455	10:1	µg/l	0.20	18	0.54
Barium (Dissolved)	U	1455	10:1	µg/l	5.00	6.2	7.0
Cadmium (Dissolved)	U	1455	10:1	µg/l	0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Copper (Dissolved)	U	1455	10:1	µg/l	0.50	3.6	< 0.50
Mercury (Dissolved)	U	1455	10:1	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Dissolved)	U	1455	10:1	µg/l	0.20	11	5.0
Nickel (Dissolved)	U	1455	10:1	µg/l	0.50	0.52	< 0.50
Lead (Dissolved)	U	1455	10:1	µg/l	0.50	1.6	< 0.50
Antimony (Dissolved)	U	1455	10:1	µg/l	0.50	1.7	< 0.50
Selenium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	10:1	µg/l	2.5	9.4	< 2.5
Dissolved Organic Carbon	U	1610	10:1	mg/l	2.0	9.6	4.8
Aliphatic TPH >C5-C6	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	< 10	< 10
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29288	25-29288
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025160	2025163
Order No.:		Client Sample Ref.:				ES2	ES2
		Client Reference:				HATP06	HATP08
		Sample Type:				SOIL	SOIL
		Top Depth (m):				1.00	1.00
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	29	32
Soil Colour		N	2030		N/A	Brown	Brown
Other Material		N	2030		N/A	Stones	None
Soil Texture		N	2030		N/A	Clay	Loam
Organochlorine Pesticides		SN		mg/kg	0.00	See Attached	To Follow
pH at 20C		U	2010		4.0	8.1	7.6
Arsenic		U	2455	mg/kg	0.5	7.5	1.7
Cadmium		U	2455	mg/kg	0.10	< 0.10	< 0.10
Chromium		U	2455	mg/kg	0.5	14	4.1
Copper		U	2455	mg/kg	0.50	14	3.8
Mercury		U	2455	mg/kg	0.05	0.23	0.05
Nickel		U	2455	mg/kg	0.50	16	4.3
Lead		U	2455	mg/kg	0.50	64	21
Zinc		U	2455	mg/kg	0.50	130	54
Total Organic Carbon		U	2625	%	0.20	3.2	3.3
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	35	11
Naphthalene		U	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene		U	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene		U	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		U	2800	mg/kg	0.10	0.39	0.24
Anthracene		U	2800	mg/kg	0.10	0.16	< 0.10
Fluoranthene		U	2800	mg/kg	0.10	0.72	0.45
Pyrene		U	2800	mg/kg	0.10	0.53	0.34
Benzo[a]anthracene		U	2800	mg/kg	0.10	0.36	0.20
Chrysene		U	2800	mg/kg	0.10	0.37	0.22
Benzo[b]fluoranthene		U	2800	mg/kg	0.10	0.45	0.28
Benzo[k]fluoranthene		U	2800	mg/kg	0.10	0.14	< 0.10
Benzo[a]pyrene		U	2800	mg/kg	0.10	0.33	0.17
Indeno(1,2,3-c,d)Pyrene		U	2800	mg/kg	0.10	< 0.10	0.12
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		U	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	3.5	2.0
PCB 28		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 81		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 52		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 77		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 105		N	2815	mg/kg	0.010	< 0.010	< 0.010

Results - Soil

Project: Q1881 Cardigon FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29288	25-29288
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025160	2025163
Order No.:		Client Sample Ref.:				ES2	ES2
		Client Reference:				HATP06	HATP08
		Sample Type:				SOIL	SOIL
		Top Depth (m):				1.00	1.00
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
PCB 101		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 114		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 153		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 123		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 126		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 156		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 157		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 167		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 169		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 189		N	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (12 Congeners)		N	2815	mg/kg	0.12	< 0.12	< 0.12
Total PCBs (7 Congeners)		N	2815	mg/kg	0.10	< 0.10	< 0.10
Total Phenols		U	2920	mg/kg	0.10	< 0.10	< 0.10
Organotins suite soils		SN		mg/kg	1.000	To Follow	To Follow

Results - Single Stage WAC

Project: Q1881 Cardigon FRMS

Chemtest Job No: 25-29288						Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 2025158						Limits		
Sample Ref: ES2						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:								
Client Reference: HATP05								
Top Depth(m): 1.00								
Bottom Depth(m):								
Sampling Date: 03-Sep-2025								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		U	%	2.5	3	5	6
Loss on Ignition						--	--	10
Total BTEX	2760		U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		U	mg/kg	< 0.05	1	--	--
TPH Total WAC	2670	EH CU 1D Total	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700		N	mg/kg	7.8	100	--	--
pH						--	>6	--
Acid Neutralisation Capacity						--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0071	0.071	0.5	2	25
Barium	1455		U	0.006	0.059	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0039	0.039	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.013	0.13	0.5	10	30
Nickel	1455		U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455		U	0.0018	0.018	0.5	10	50
Antimony	1455		U	0.0019	0.019	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.011	0.11	4	50	200
Chloride	1220		U	57	570	800	15000	25000
Fluoride	1220		U	0.18	1.8	10	150	500
Sulphate	1220		U	38	380	1000	20000	50000
Total Dissolved Solids	1020		N	240	2400	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	8.9	89	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11
WAC Sample Weight	907.8

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Q1881 Cardigon FRMS

Chemtest Job No: 25-29288						Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 2025162						Limits		
Sample Ref: ES1						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:								
Client Reference: HATP08								
Top Depth(m): 0.50								
Bottom Depth(m):								
Sampling Date: 03-Sep-2025								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		U	%	3.0	3	5	6
Loss on Ignition						--	--	10
Total BTEX	2760		U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		U	mg/kg	< 0.05	1	--	--
TPH Total WAC	2670	EH CU 1D Total	U	mg/kg	11	500	--	--
Total (Of 17) PAH's	2700		N	mg/kg	13	100	--	--
pH						--	>6	--
Acid Neutralisation Capacity						--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0046	0.046	0.5	2	25
Barium	1455		U	0.006	0.056	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0055	0.055	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.011	0.11	0.5	10	30
Nickel	1455		U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455		U	0.0014	0.014	0.5	10	50
Antimony	1455		U	0.0015	0.015	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.006	0.063	4	50	200
Chloride	1220		U	73	730	800	15000	25000
Fluoride	1220		U	0.17	1.7	10	150	500
Sulphate	1220		U	34	340	1000	20000	50000
Total Dissolved Solids	1020		N	260	2600	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	8.2	82	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.8
WAC Sample Weight	826.9

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44 Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection	
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44 Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16– C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection	
1780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10 Aromatics: >C5–C6, >C6–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Diben[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8–C10 Aromatics: >C5–C7,>C7–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Diben[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quantitation if present.	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching C2,C8,C10,WAC)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Report Information

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

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 - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com

Certificate of Analysis

Report No.: 25-08472-1

Issue No.: 1

Date of Issue 20/10/2025

Customer Details: Chemtest Ltd, Depot Road, Newmarket, Suffolk, CB8 0AL, United Kingdom

Customer Contact: Subcontracting

Customer Order No.: 29888

Customer Reference: Not Supplied

Quotation Reference: Q25-03555 (Issue: 11)

Description: 2 geo samples

Date Received: 24/09/2025

Date Started: 24/09/2025

Date Completed: 16/10/2025

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: David Long, LIMS Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

rpsgroup.com

Testing performed by RPS Environmental Management Limited, a Tetra Tech Company. Registered in England No. 01756175.

13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400

Terms and conditions apply - copy on request

Results Summary

Report No.: 25-08472-1

Customer Reference: Not Supplied

Customer Order No: 29888

Customer Sample No	2025151	2025154
Customer Sample ID	HATP02	HATP04
RPS Sample No	116440	116441
Sample Type	GEO	GEO
Sample Matrix	SOIL	SOIL
Sampling Date	03/09/2025	03/09/2025

Determinand	CAS No	Codes	SOP	RL	Units		
monobutyltin (MBT)	78763-54-9	N	S395	0.15	/kg as cation	< 0.15	< 0.15
dibutyltin (DBT)	1002-53-5	N	S395	0.02	/kg as cation	< 0.02	< 0.02
tributyltin (TBT)	36643-28-4	N	S395	0.02	/kg as cation	< 0.02	< 0.02
tetrabutyltin (TtBT)	1461-25-2	N	S395	0.02	/kg as cation	< 0.02	< 0.02
monophenyltin (MPT)	2406-68-0	N	S395	0.02	/kg as cation	< 0.02	< 0.02
diphenyltin (DPT)	1011-95-6	N	S395	0.02	/kg as cation	< 0.02	< 0.02
triphenyltin (TPT)	668-34-8	N	S395	0.05	/kg as cation	< 0.05	< 0.05

Deviating Samples

Report No.: 25-08472-1

Customer Reference: Not Supplied

Customer Order No: 29888

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
116440	2025151	HATP02	03/09/2025	250 mL amber glass jar	No	
116441	2025154	HATP04	03/09/2025	250 mL amber glass jar	No	

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRUCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	LIQUOR	Liquor
Water	MINEW	Mine Water
Water	MW	Mineral Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 week from the issue date of this report
Waters	1 week from the issue date of this report
Other Liquids	1 week from the issue date of this report
Solids / Soils	1 week from the issue date of this report
Sediments	1 week from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).



Amended Report

Report No.:	25-29285-2		
Initial Date of Issue:	29-Oct-2025	Date of Re-Issue:	29-Oct-2025
Re-Issue Details:	This report has been revised and directly supersedes 25-29285-1 in its entirety		
Client	<i>Spencer Quantum Ltd</i>		
Client Address:	<i>Parcau Farm Penrhiwllan Llandysul Ceredigion SA44 5NW</i>		
Contact(s):	<i>Tyler Goodrick</i>		
Project	<i>Q1881 Cardigan FRMS</i>		
Quotation No.:	<i>Q25-39408</i>	Date Received:	08-Sep-2025
Order No.:		Date Instructed:	17-Sep-2025
No. of Samples:	3		
Turnaround (Wkdays):	25	Results Due:	21-Oct-2025
Date Approved:	29-Oct-2025	Subcon Results Due:	21-Oct-2025
Approved By:			

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Leachate

Project: Q1881 Cardigan FRMS

Client: Spencer Quantum Ltd	Chemtest Job No.:					25-29285	25-29285
Quotation No.: Q25-39408	Chemtest Sample ID.:					2025151	2025154
	Client Sample ID.:					ES1	ES1
	Client Reference:					HATP02	HATP04
	Sample Type:					SOIL	SOIL
	Top Depth (m):					0.50	0.50
	Date Sampled:					03-Sep-2025	03-Sep-2025
Determinand	Accred.	SOP	Type	Units	LOD		
Chloride	U	1220	10:1	mg/l	1.0	79	61
Fluoride	U	1220	10:1	mg/l	0.050	0.18	0.14
Sulphate	U	1220	10:1	mg/l	1.0	29	46
Arsenic (Dissolved)	U	1455	10:1	µg/l	0.20	3.4	1.9
Barium (Dissolved)	U	1455	10:1	µg/l	5.00	6.4	18
Cadmium (Dissolved)	U	1455	10:1	µg/l	0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Copper (Dissolved)	U	1455	10:1	µg/l	0.50	1.6	< 0.50
Mercury (Dissolved)	U	1455	10:1	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Dissolved)	U	1455	10:1	µg/l	0.20	6.5	6.6
Nickel (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	10:1	µg/l	0.50	2.9	0.78
Antimony (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	2.6
Selenium (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	10:1	µg/l	2.5	5.3	3.7
Dissolved Organic Carbon	U	1610	10:1	mg/l	2.0	6.6	3.3
Aliphatic TPH >C5-C6	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	50	< 5.0
Aromatic TPH >C5-C7	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1780	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	50	< 10
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: Q1881 Cardigan FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29285	25-29285
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025151	2025154
		Client Sample ID.:				ES1	ES1
		Client Reference:				HATP02	HATP04
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.50	0.50
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	19	15
Soil Colour		N	2030		N/A	Brown	Brown
Other Material		N	2030		N/A	Stones	Stones
Soil Texture		N	2030		N/A	Sand	Sand
Organochlorine Pesticides		SN		mg/kg	0.00	See Attached	See Attached
pH at 20C		M	2010		4.0	7.9	8.2
Arsenic		M	2455	mg/kg	0.5	11	23
Cadmium		M	2455	mg/kg	0.10	< 0.10	2.1
Chromium		M	2455	mg/kg	0.5	16	22
Copper		M	2455	mg/kg	0.50	27	52
Mercury		M	2455	mg/kg	0.05	0.48	0.47
Nickel		M	2455	mg/kg	0.50	20	29
Lead		M	2455	mg/kg	0.50	230	700
Zinc		M	2455	mg/kg	0.50	180	660
Total Organic Carbon		M	2625	%	0.20	5.4	4.1
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	53	30
Naphthalene		M	2800	mg/kg	0.10	0.74	0.44
Acenaphthylene		N	2800	mg/kg	0.10	2.1	0.15
Acenaphthene		M	2800	mg/kg	0.10	0.28	0.12
Fluorene		M	2800	mg/kg	0.10	1.9	0.22
Phenanthrene		M	2800	mg/kg	0.10	21	0.51
Anthracene		M	2800	mg/kg	0.10	4.8	0.20
Fluoranthene		M	2800	mg/kg	0.10	37	1.3
Pyrene		M	2800	mg/kg	0.10	27	1.0
Benzo[a]anthracene		M	2800	mg/kg	0.10	15	0.98
Chrysene		M	2800	mg/kg	0.10	15	0.92
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	18	1.2
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	6.5	0.45
Benzo[a]pyrene		M	2800	mg/kg	0.10	14	0.97
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	8.5	0.51
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	1.7	0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	7.7	0.42
Total Of 16 PAH's		N	2800	mg/kg	2.0	180	9.5
PCB 28		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 81		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 52		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 77		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 105		N	2815	mg/kg	0.010	< 0.010	< 0.010

Results - Soil

Project: Q1881 Cardigan FRMS

Client: Spencer Quantum Ltd		Chemtest Job No.:				25-29285	25-29285
Quotation No.: Q25-39408		Chemtest Sample ID.:				2025151	2025154
		Client Sample ID.:				ES1	ES1
		Client Reference:				HATP02	HATP04
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.50	0.50
		Date Sampled:				03-Sep-2025	03-Sep-2025
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
PCB 101		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 114		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 153		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 123		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 126		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180		U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 156		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 157		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 167		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 169		N	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 189		N	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (12 Congeners)		N	2815	mg/kg	0.12	< 0.12	< 0.12
Total PCBs (7 Congeners)		N	2815	mg/kg	0.10	< 0.10	< 0.10
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10
Organotins suite soils		SN		mg/kg	1.000	See Attached	See Attached

Results - Single Stage WAC

Project: Q1881 Cardigan FRMS

Chemtest Job No: 25-29285						Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 2025153						Limits		
Sample Ref:						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID: ES2								
Client Reference: HATP03								
Top Depth(m): 1.00								
Bottom Depth(m):								
Sampling Date: 03-Sep-2025								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	0.78	3	5	6
Loss on Ignition						--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
TPH Total WAC	2670	EH CU 1D Total	M	mg/kg	24	500	--	--
Total (Of 17) PAH's	2700		N	mg/kg	14	100	--	--
pH						--	>6	--
Acid Neutralisation Capacity						--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0024	0.024	0.5	2	25
Barium	1455		U	0.014	0.14	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0025	0.025	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0090	0.090	0.5	10	30
Nickel	1455		U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455		U	0.0030	0.030	0.5	10	50
Antimony	1455		U	0.0012	0.012	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.008	0.084	4	50	200
Chloride	1220		U	59	590	800	15000	25000
Fluoride	1220		U	0.13	1.3	10	150	500
Sulphate	1220		U	51	510	1000	20000	50000
Total Dissolved Solids	1020		N	250	2500	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	8.6	86	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.3
WAC Sample Weight	830.8

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Chemtest Sample ID	Clients Sample Ref:	Clients Sample ID:	Clients Reference:	Sampled Date:	Deviation Code(s):	Containers Received:
2025151		ES1	HATP02	03-Sep-2025	H	Amber Glass 250ml
2025151		ES1	HATP02	03-Sep-2025	H	Amber Glass 60ml
2025151		ES1	HATP02	03-Sep-2025	H	Plastic Tub 500g
2025152		ES1	HATP03	03-Sep-2025	H	Amber Glass 250ml
2025152		ES1	HATP03	03-Sep-2025	H	Amber Glass 60ml
2025152		ES1	HATP03	03-Sep-2025	H	Plastic Tub 500g
2025153		ES2	HATP03	03-Sep-2025	E,H	Amber Glass 250ml
2025153		ES2	HATP03	03-Sep-2025	E,H	Amber Glass 60ml
2025153		ES2	HATP03	03-Sep-2025	E,H	Plastic Tub 500g
2025154		ES1	HATP04	03-Sep-2025	H	Amber Glass 250ml
2025154		ES1	HATP04	03-Sep-2025	H	Amber Glass 60ml
2025154		ES1	HATP04	03-Sep-2025	H	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44 Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection	
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44 Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16– C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection	
1780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C8, >C8–C10 Aromatics: >C5–C6, >C6–C8, >C8–C10	Water extraction / Headspace GCxGC FID detection	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2192	Asbestos Quantification in Soils Sediments Ballast & Aggregate Crushed Concrete & Demolition Rubble	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quantitation if present.	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching C2,C8,C10,WAC)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Report Information

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)

GW - Ground Water

LE - Land Leachate

NA - Not Applicable

PL - Prepared Leachate

PW - Processed Water

RE - Recreational Water

SA - Saline Water

SW - Surface Water

TE - Treated Effluent

TS - Treated Sewage

UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up

MC - Mathematical Clean Up

FC - Florisil Clean Up

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 - Aromatic only

2D - GC-GC – Double coil gas chromatography

#1 - EH_2D_Total but with humics mathematically subtracted

#2 - EH_2D_Total but with fatty acids mathematically subtracted

+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:

cs@etuki.eurofins.com

Appendix B: Waste Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



V3I61-EXLM6-735YF

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in **pale yellow**.

Report is invalid if pages are removed.

Job name

4021883 Cardigan TFRMS

Description/Comments

Project

4021883 Cardigan TFRMS

Site

Cardigan TFRMS

Classified by

Name: **Ben Tucker**
Date: **26 Nov 2025 09:57 GMT**
Telephone: **01737 856359**
Company: **Binnies UK Limited**
Treenwood House, Rowden Lane
Bradford on Avon
BA15 2AU

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

06 Apr 2023

Next 3 year Refresher due by Apr 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Strand, Cardigan, Ceredigion, Wales, United Kingdom

Post Code SA43 1EX

SIC for the process giving rise to the waste

80300 Investigation activities

Description of industry/producer giving rise to the waste

NRW Tidal Flood barrier construction.

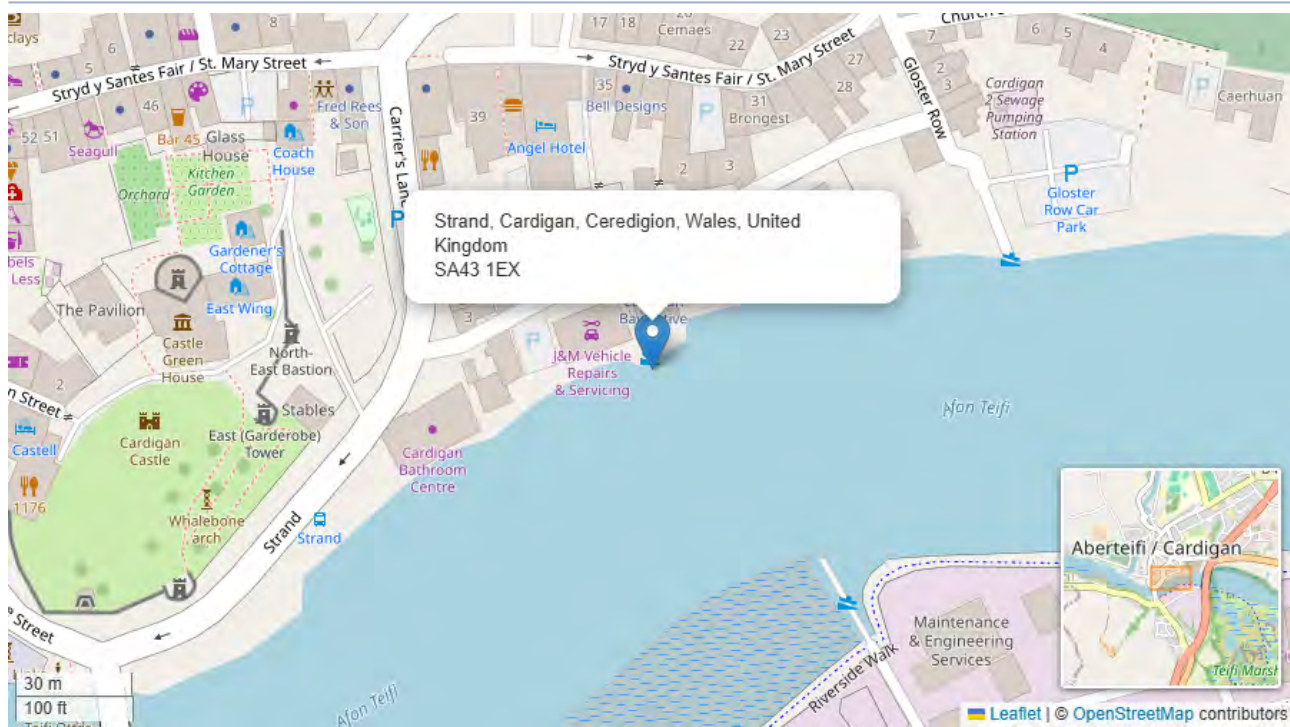
Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during investigation for proposed sheet pile flood barrier.

Description of the waste

Alluvial deposits and Made Ground typically comprising grey/dark grey sandy gravelly SILT with medium cobble content of brick and slate.

Waste Location



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results			Page
					Inert	SNRHW	Hazardous	
1	HATP02-0.50	0.50	Non Hazardous		-	-	-	5
2	HATP03-1.00	1.00	Unknown. Chemistry data not provided.		Pass	-	N/A	7
3	HATP04-0.50	0.50	Non Hazardous		-	-	-	9
4	HATP05-1.00	1.00	Unknown. Chemistry data not provided.		Pass	-	N/A	11
5	HATP06-1.00	1.00	Non Hazardous		-	-	-	13
6	HATP08-0.50	0.50	Unknown. Chemistry data not provided.		Pass	-	N/A	15
7	HATP08-1.00	1.00	Non Hazardous		-	-	-	17

Related documents

#	Name	Description
1	HWOL_25-29285-20251029 101615.batch	Eurofins Chemtest .batch file used to populate the Job
2	HWOL_25-29285-20251029 101615.hwol	Eurofins Chemtest .hwol file used to populate the Job
3	HWOL_25-29288-20251022 172542.hwol	Eurofins Chemtest .hwol file used to populate the Job
4	Example worst case waste stream template: 17 05 04 or 17 05 03 *	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate the samples in this Job: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Ben Tucker

Created date: 26 Nov 2025 09:57 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	19
Appendix B: Rationale for selection of metal species	20
Appendix C: Version	20

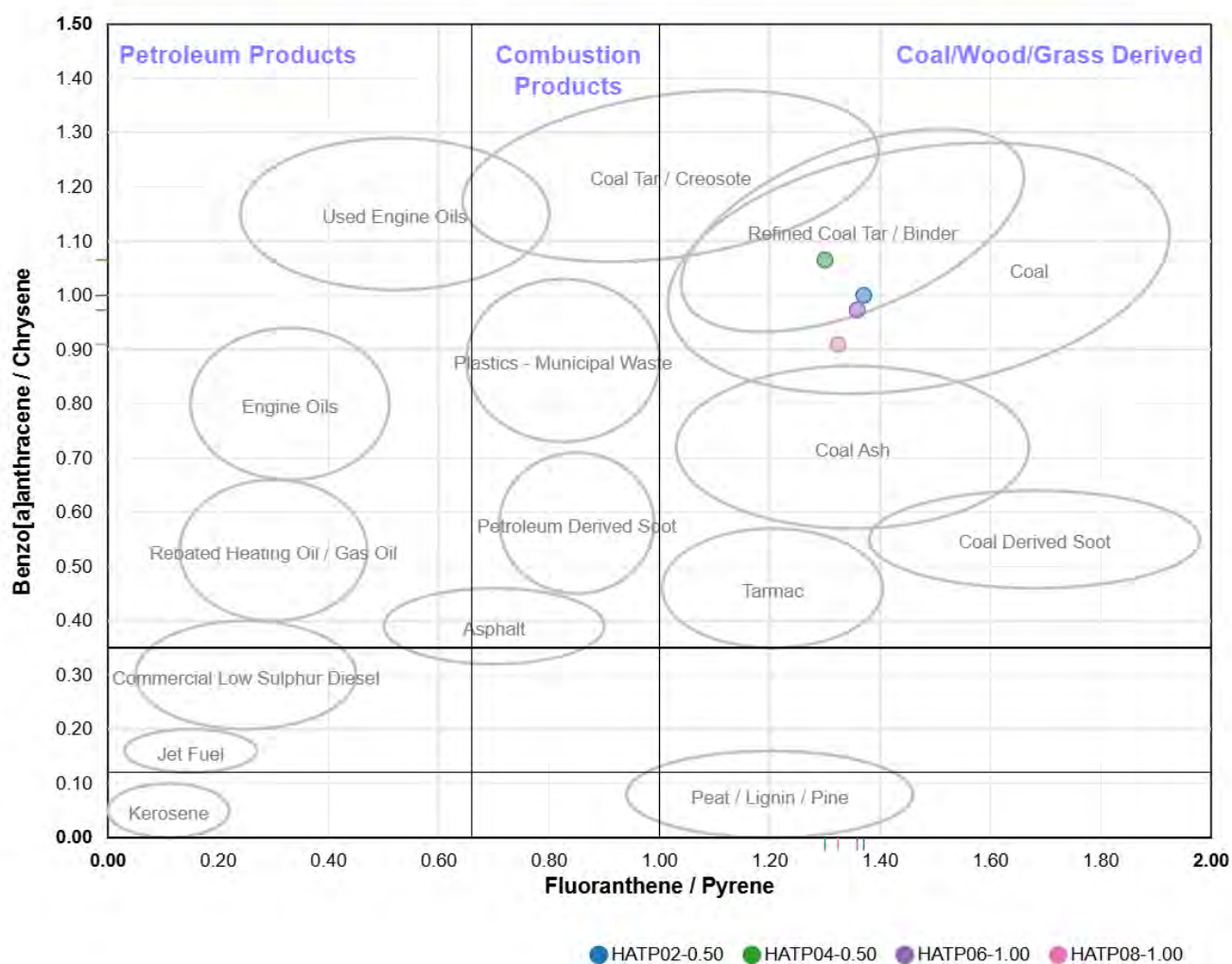
PAH Double Ratio Plots

Disclaimer

The domains, oval areas and the plotted points are **indicators only** and must be combined with other lines of evidence to form conclusions. Samples marked with an empty circle are not plotted as they fall outside of the graph's boundaries.

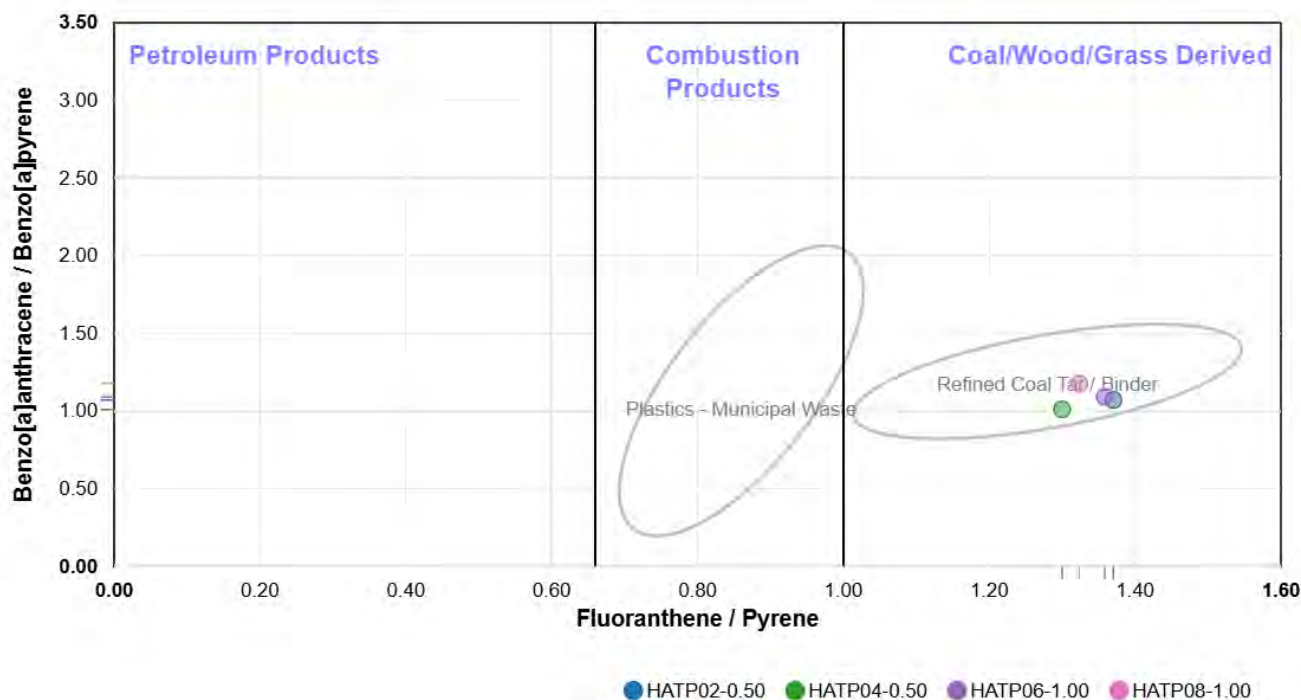
Credits

The domains and the horizontal and vertical lines are derived from Yunker et al. 2002 (Organic Geochemistry 33, 489-515)



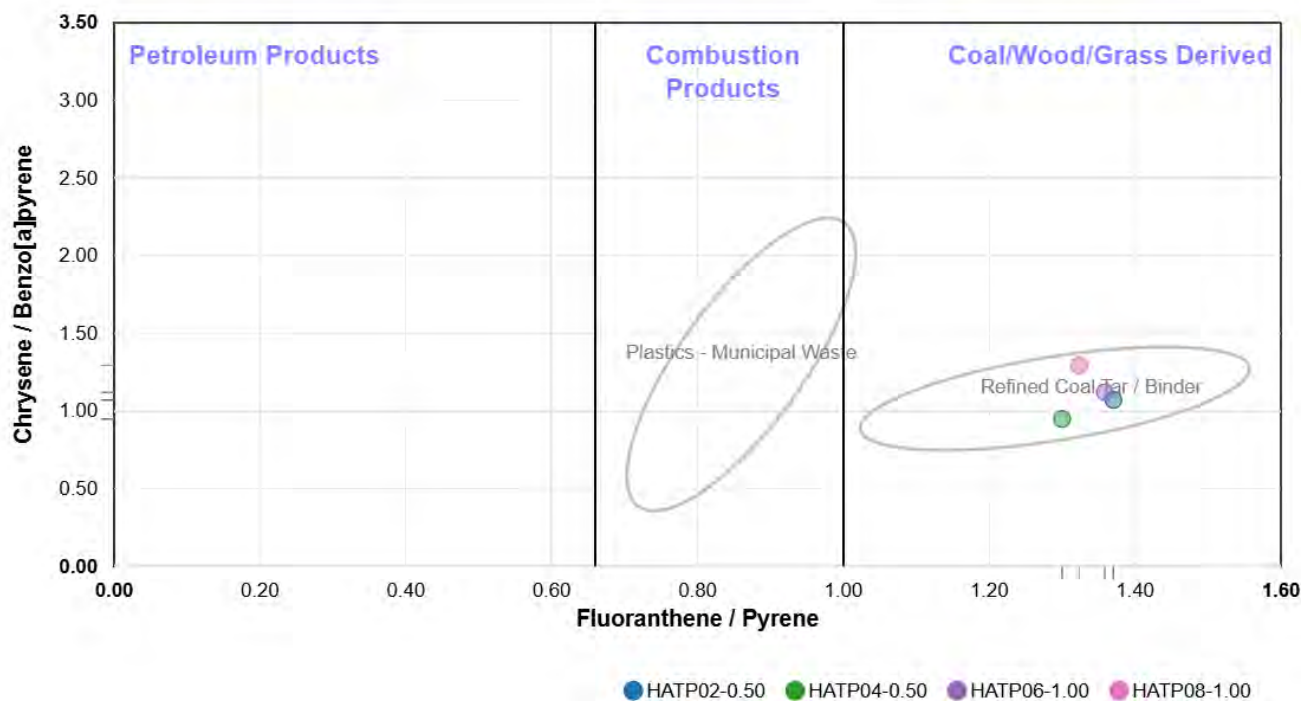
Credits for the oval areas and labels

HazWasteOnline, 2023; Jones Environmental Forensics, 2014



Credits for the oval areas and labels

HazWasteOnline, 2023



Credits for the oval areas and labels

HazWasteOnline, 2023

Classification of sample: HATP02-0.50

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP02-0.50	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				11 mg/kg	1.895	16.88	mg/kg	0.00169 %	✓	
	033-005-00-1										
2	cadmium { cadmium sulfate }				<0.1 mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4								
3	copper { copper sulphate pentahydrate }				27 mg/kg	3.929	85.928	mg/kg	0.00859 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
4	lead { lead chromate }			1	230 mg/kg	1.56	290.594	mg/kg	0.0186 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
5	mercury { mercury dichloride }				0.48 mg/kg	1.353	0.526	mg/kg	0.0000526 %	✓	
	080-010-00-X	231-299-8	7487-94-7								
6	nickel { nickel dibromate }				20 mg/kg	5.358	86.805	mg/kg	0.00868 %	✓	
	028-053-00-5	238-596-1	14550-87-9								
7	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				180 mg/kg	4.398	641.218	mg/kg	0.0641 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
8	TPH (C6 to C40) petroleum group				53 mg/kg		42.93	mg/kg	0.00429 %	✓	
			TPH								
9	pH				7.9 pH		7.9	pH	7.9 pH		
			PH								
10	naphthalene				0.74 mg/kg		0.599	mg/kg	0.0000599 %	✓	
	601-052-00-2	202-049-5	91-20-3								
11	acenaphthylene				2.1 mg/kg		1.701	mg/kg	0.00017 %	✓	
		205-917-1	208-96-8								
12	acenaphthene				0.28 mg/kg		0.227	mg/kg	0.0000227 %	✓	
		201-469-6	83-32-9								
13	fluorene				1.9 mg/kg		1.539	mg/kg	0.000154 %	✓	
		201-695-5	86-73-7								
14	phenanthrene				21 mg/kg		17.01	mg/kg	0.0017 %	✓	
		201-581-5	85-01-8								
15	anthracene				4.8 mg/kg		3.888	mg/kg	0.000389 %	✓	
		204-371-1	120-12-7								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		37 mg/kg		29.97 mg/kg	0.003 %	✓	
17	pyrene	204-927-3	129-00-0		27 mg/kg		21.87 mg/kg	0.00219 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6		15 mg/kg		12.15 mg/kg	0.00122 %	✓	
19	chrysene	601-048-00-0	205-923-4		15 mg/kg		12.15 mg/kg	0.00122 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9		18 mg/kg		14.58 mg/kg	0.00146 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6		6.5 mg/kg		5.265 mg/kg	0.000527 %	✓	
22	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		14 mg/kg		11.34 mg/kg	0.00113 %	✓	
23	indeno[123-cd]pyrene	205-893-2	193-39-5		8.5 mg/kg		6.885 mg/kg	0.000689 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8		1.7 mg/kg		1.377 mg/kg	0.000138 %	✓	
25	benzo[ghi]perylene	205-883-8	191-24-2		7.7 mg/kg		6.237 mg/kg	0.000624 %	✓	
26	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	chromium { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			16 mg/kg	2.27	29.419 mg/kg	0.00294 %	✓	
28	monohydric phenols		P1186		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.124 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%)

because: The hazard phase HP 3 refers to flammable substances however as the material is solid and no free product is visibly present this is not applicable and has been discounted from further consideration. Concentrations <10,000mg/kg are unlikely to be flammable if in soil mass.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00429%)

Classification of sample: HATP03-1.00



Unknown. Chemistry data not provided.

Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP03-1.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
Total:								0%		

Key

User supplied data

WAC results for sample: HATP03-1.00

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample **PASSES** the Inert (Inert waste landfill) criteria.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	0.78	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.01	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.05	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	24	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	14	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	0.024	0.5	2	25
10	barium	mg/kg	0.14	20	100	300
11	cadmium	mg/kg	<0.0011	0.04	1	5
12	chromium	mg/kg	<0.005	0.5	10	70
13	copper	mg/kg	0.025	2	50	100
14	mercury	mg/kg	<0.0005	0.01	0.2	2
15	molybdenum	mg/kg	0.09	0.5	10	30
16	nickel	mg/kg	<0.005	0.4	10	40
17	lead	mg/kg	0.03	0.5	10	50
18	antimony	mg/kg	0.012	0.06	0.7	5
19	selenium	mg/kg	<0.005	0.1	0.5	7
20	zinc	mg/kg	0.084	4	50	200
21	chloride	mg/kg	590	800	15,000	25,000
22	fluoride	mg/kg	1.3	10	150	500
23	sulphate	mg/kg	510	1,000	20,000	50,000
24	phenol index	mg/kg	<0.3	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	86	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	2500	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: HATP04-0.50

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP04-0.50	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				23 mg/kg	1.895	37.038	mg/kg	0.0037 %	✓	
	033-005-00-1										
2	cadmium { cadmium sulfate }				2.1 mg/kg	1.855	3.31	mg/kg	0.000331 %	✓	
	048-009-00-9	233-331-6	10124-36-4								
3	copper { copper sulphate pentahydrate }				52 mg/kg	3.929	173.664	mg/kg	0.0174 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
4	lead { lead chromate }			1	700 mg/kg	1.56	928.09	mg/kg	0.0595 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
5	mercury { mercury dichloride }				0.47 mg/kg	1.353	0.541	mg/kg	0.0000541 %	✓	
	080-010-00-X	231-299-8	7487-94-7								
6	nickel { nickel dibromate }				29 mg/kg	5.358	132.082	mg/kg	0.0132 %	✓	
	028-053-00-5	238-596-1	14550-87-9								
7	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				660 mg/kg	4.398	2467.236	mg/kg	0.247 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
8	TPH (C6 to C40) petroleum group				30 mg/kg		25.5	mg/kg	0.00255 %	✓	
			TPH								
9	pH				8.2 pH		8.2	pH	8.2 pH		
			PH								
10	naphthalene				0.44 mg/kg		0.374	mg/kg	0.0000374 %	✓	
	601-052-00-2	202-049-5	91-20-3								
11	acenaphthylene				0.15 mg/kg		0.128	mg/kg	0.0000128 %	✓	
		205-917-1	208-96-8								
12	acenaphthene				0.12 mg/kg		0.102	mg/kg	0.0000102 %	✓	
		201-469-6	83-32-9								
13	fluorene				0.22 mg/kg		0.187	mg/kg	0.0000187 %	✓	
		201-695-5	86-73-7								
14	phenanthrene				0.51 mg/kg		0.434	mg/kg	0.0000433 %	✓	
		201-581-5	85-01-8								
15	anthracene				0.2 mg/kg		0.17	mg/kg	0.000017 %	✓	
		204-371-1	120-12-7								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		1.3 mg/kg		1.105 mg/kg	0.000111 %	✓	
17	pyrene	204-927-3	129-00-0		1 mg/kg		0.85 mg/kg	0.000085 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6		0.98 mg/kg		0.833 mg/kg	0.0000833 %	✓	
19	chrysene	601-048-00-0	205-923-4		0.92 mg/kg		0.782 mg/kg	0.0000782 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.2 mg/kg		1.02 mg/kg	0.000102 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.45 mg/kg		0.383 mg/kg	0.0000383 %	✓	
22	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.97 mg/kg		0.825 mg/kg	0.0000824 %	✓	
23	indeno[123-cd]pyrene	205-893-2	193-39-5		0.51 mg/kg		0.434 mg/kg	0.0000433 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.1 mg/kg		0.085 mg/kg	0.0000085 %	✓	
25	benzo[ghi]perylene	205-883-8	191-24-2		0.42 mg/kg		0.357 mg/kg	0.0000357 %	✓	
26	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	chromium { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			22 mg/kg	2.27	42.449 mg/kg	0.00424 %	✓	
28	monohydric phenols		P1186		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.348 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%)

because: The hazard phase HP 3 refers to flammable substances however as the material is solid and no free product is visibly present this is not applicable and has been discounted from further consideration. Concentrations <10,000mg/kg are unlikely to be flammable if in soil mass.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00255%)

Classification of sample: HATP05-1.00



Unknown. Chemistry data not provided.

Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:	
HATP05-1.00	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.00 m		

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
Total:								0%		

Key

User supplied data

WAC results for sample: HATP05-1.00

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample **PASSES** the Inert (Inert waste landfill) criteria.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	2.5	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.01	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.05	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	7.8	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	0.071	0.5	2	25
10	barium	mg/kg	0.059	20	100	300
11	cadmium	mg/kg	<0.0011	0.04	1	5
12	chromium	mg/kg	<0.005	0.5	10	70
13	copper	mg/kg	0.039	2	50	100
14	mercury	mg/kg	<0.0005	0.01	0.2	2
15	molybdenum	mg/kg	0.13	0.5	10	30
16	nickel	mg/kg	<0.005	0.4	10	40
17	lead	mg/kg	0.018	0.5	10	50
18	antimony	mg/kg	0.019	0.06	0.7	5
19	selenium	mg/kg	<0.005	0.1	0.5	7
20	zinc	mg/kg	0.11	4	50	200
21	chloride	mg/kg	570	800	15,000	25,000
22	fluoride	mg/kg	1.8	10	150	500
23	sulphate	mg/kg	380	1,000	20,000	50,000
24	phenol index	mg/kg	<0.3	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	89	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	2400	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: HATP06-1.00

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP06-1.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
29%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 29% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				7.5	mg/kg	1.895	10.088	mg/kg	0.00101 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				14	mg/kg	3.929	39.055	mg/kg	0.00391 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead chromate }			1	64	mg/kg	1.56	70.878	mg/kg	0.00454 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
5	mercury { mercury dichloride }				0.23	mg/kg	1.353	0.221	mg/kg	0.0000221 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
6	nickel { nickel dibromate }				16	mg/kg	5.358	60.87	mg/kg	0.00609 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
7	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				130	mg/kg	4.398	405.929	mg/kg	0.0406 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
8	TPH (C6 to C40) petroleum group				35	mg/kg		24.85	mg/kg	0.00249 %	✓	
			TPH									
9	pH				8.1	pH		8.1	pH	8.1 pH		
			PH									
10	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.39	mg/kg		0.277	mg/kg	0.0000277 %	✓	
		201-581-5	85-01-8									
15	anthracene				0.16	mg/kg		0.114	mg/kg	0.0000114 %	✓	
		204-371-1	120-12-7									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		0.72 mg/kg		0.511 mg/kg	0.0000511 %	✓	
17	pyrene	204-927-3	129-00-0		0.53 mg/kg		0.376 mg/kg	0.0000376 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6		0.36 mg/kg		0.256 mg/kg	0.0000256 %	✓	
19	chrysene	601-048-00-0	205-923-4		0.37 mg/kg		0.263 mg/kg	0.0000263 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.45 mg/kg		0.32 mg/kg	0.0000319 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.14 mg/kg		0.0994 mg/kg	0.00000994 %	✓	
22	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.33 mg/kg		0.234 mg/kg	0.0000234 %	✓	
23	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	chromium { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			14 mg/kg	2.27	22.564 mg/kg	0.00226 %	✓	
28	monohydric phenols		P1186		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0611 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%)

because: The hazard phase HP 3 refers to flammable substances however as the material is solid and no free product is visibly present this is not applicable and has been discounted from further consideration. Concentrations <10,000mg/kg are unlikely to be flammable if in soil mass.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00249%)

Classification of sample: HATP08-0.50



Unknown. Chemistry data not provided.

Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP08-0.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
Total:								0%		

Key

User supplied data

WAC results for sample: HATP08-0.50

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample **PASSES** the Inert (Inert waste landfill) criteria.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	3	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.01	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.05	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	11	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	13	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	0.046	0.5	2	25
10	barium	mg/kg	0.056	20	100	300
11	cadmium	mg/kg	<0.0011	0.04	1	5
12	chromium	mg/kg	<0.005	0.5	10	70
13	copper	mg/kg	0.055	2	50	100
14	mercury	mg/kg	<0.0005	0.01	0.2	2
15	molybdenum	mg/kg	0.11	0.5	10	30
16	nickel	mg/kg	<0.005	0.4	10	40
17	lead	mg/kg	0.014	0.5	10	50
18	antimony	mg/kg	0.015	0.06	0.7	5
19	selenium	mg/kg	<0.005	0.1	0.5	7
20	zinc	mg/kg	0.063	4	50	200
21	chloride	mg/kg	730	800	15,000	25,000
22	fluoride	mg/kg	1.7	10	150	500
23	sulphate	mg/kg	340	1,000	20,000	50,000
24	phenol index	mg/kg	<0.3	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	82	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	2600	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: HATP08-1.00

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HATP08-1.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
32%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 32% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				1.7	mg/kg	1.895	2.19	mg/kg	0.000219 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				3.8	mg/kg	3.929	10.153	mg/kg	0.00102 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead chromate }			1	21	mg/kg	1.56	22.274	mg/kg	0.00143 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
5	mercury { mercury dichloride }				0.05	mg/kg	1.353	0.046	mg/kg	0.0000046 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
6	nickel { nickel dibromate }				4.3	mg/kg	5.358	15.668	mg/kg	0.00157 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
7	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				54	mg/kg	4.398	161.492	mg/kg	0.0161 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
8	TPH (C6 to C40) petroleum group				11	mg/kg		7.48	mg/kg	0.000748 %	✓	
			TPH									
9	pH				7.6	pH		7.6	pH	7.6 pH		
			PH									
10	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.24	mg/kg		0.163	mg/kg	0.0000163 %	✓	
		201-581-5	85-01-8									
15	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		0.45 mg/kg		0.306 mg/kg	0.0000306 %	✓	
17	pyrene	204-927-3	129-00-0		0.34 mg/kg		0.231 mg/kg	0.0000231 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.2 mg/kg		0.136 mg/kg	0.0000136 %	✓	
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.22 mg/kg		0.15 mg/kg	0.000015 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.28 mg/kg		0.19 mg/kg	0.000019 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.17 mg/kg		0.116 mg/kg	0.0000116 %	✓	
23	indeno[123-cd]pyrene	205-893-2	193-39-5		0.12 mg/kg		0.0816 mg/kg	0.00000816 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	chromium { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			4.1 mg/kg	2.27	6.329 mg/kg	0.000633 %	✓	
28	monohydric phenols		P1186		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0219 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%)

because: The hazard phase HP 3 refers to flammable substances however as the material is solid and no free product is visibly present this is not applicable and has been discounted from further consideration. Concentrations <10,000mg/kg are unlikely to be flammable if in soil mass.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00074%)

Appendix A: Classifier defined and non GB MCL determinands

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

■ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

■ **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

■ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for arsenic acid H₃AsO₄. (edit as required)

cadmium {cadmium sulfate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

copper {copper sulphate pentahydrate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming no evidence for the use of explosives. (edit as required)

nickel {nickel dibromate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Insufficient Cr(VI) to make hazardous levels of the Metal chromate. Next worst case species selected.

chromium {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case scenario

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**
HazWasteOnline Classification Engine Version: 2025.322.6869.12419 (18 Nov 2025)
HazWasteOnline Database: 2025.321.6868.12417 (17 Nov 2025)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025

GB MCL List v7.0 - version 7.0 of 23rd September 2025

Appendix C: Site Specific Assessment Results (Lead and Zinc)

Pb Screening Tool 1.0

[Back](#)

Calculate

Clear Data

[illegible]

Lead Screening Tool results.

Back

Calculate

Clear Data

INPUT DATA

ID	Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l ⁻¹)	Measured Zn Concentration (dissolved) (µg l ⁻¹)	Measured Mn Concentration (dissolved) (µg l ⁻¹)	Measured Ni Concentration (dissolved) (µg l ⁻¹)	pH	DOC	Ca	Site-specific PNEC Dissolved Zinc (µg l ⁻¹)	BioF	Bioavailable Zinc Concentration (µg l ⁻¹)	Risk Characterisation Ratio
1	HAT06 @ 1m.	River Teifi	03/09/2025		9.4			8.1	9.6	160	45.19	0.24	2.27	0.21
2	HAT06 @ 1m.	River Teifi	03/09/2025		9.4			8.1	9.6	3	50.77	0.21	2.02	0.19
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														

Metal Bioavailability Assessment Tool (M-BAT) results for Zinc.