TECHNICAL NOTE

JBA Project Code	2025s0023 – NRW Kenson River Restoration
Contract	NRWWCS00037
Client	Natural Resources Wales
Day, Date and Time	28/05/2025
Author	Jon Howard
Reviewer / Sign-off	Michael McDonald
Subject	Ground Investigation – Contaminated Land Tech note

1 Background

JBA Consulting (JBA) have been commissioned by Natural Resources Wales (NRW) to analyse and assess the Waste Acceptance Criteria (WAC) and Per- and Poly-fluoroalkyl substances (PFAS) laboratory results taken from soil samples at the River Kenson site.

1.1 Site Area and Location

The site is located on a stretch of the River Kenson near Kenson Hill, northeast (NE) of the location where the Kenson River passes under the B4265. The river then flows southwest through grassland and riparian habitats until its confluence with the River Thaw, 500m southwest of the site boundary.

The boundary for the site is a 2.3km long reach from Kenson Hill, 250m north of Kenson to the B4265, 2km to the west of Kenson. The site is centralised on national grid reference NGR ST 04343 68371. It is irregular in shape and occupies an area of 33.3 hectares.

1.2 Development Proposal

The proposed works consist of an extensive river restoration design on the 2.3km section of the River Kenson. The project aims to improve biodiversity, increase habitat resilience and to minimise further deterioration of the WFD status. To do this, the project is proposing to take the following restoration opportunities forward:

- Embankment removal
- Riparian improvement/planting
- Scrape creation
- Bank regrading
- Install woody material/large wood
- Creation of in-channel berms
- Riffle creation/bed raising
- Reconnection of paleo channels
- Backwater creation
- Wetland/scrape creation
- Drain/channel blocking

2 Soil sampling

2.1 Waste Classification Criteria (WAC) samples

During the proposed site works highlighted above, JBA understand that some soil based materials may need to be disposed of to a licenced waste disposal facility. Therefore, a waste classification is needed to determine whether materials onsite are considered to be Hazardous or Non-Hazardous.

3No. soil samples were taken by Ecoefficiency, from shallow hand pits at 3No. locations (west of the bridge, at Kingfisher Hide and beside the pond) on 24th April 2025[1] and sent to the ChemTech Environmental laboratory for Waste Acceptance Criteria (WAC) testing. This included the testing for heavy metals, asbestos, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs) and inorganics. The laboratory tests were accredited by UKAS and the results, along with their associated MCERTS/UKAS certificates, are included in Appendix A.

Following this, Ecoefficiency ran the analysis results through the HazWaste Online system. The results classified all three of the samples as Non-Hazardous with no elevated levels of contamination. Also, no Asbestos Containing Materials (ACMs) were identified in the 3No. samples.

2.2 PFAS Analysis

PFAS are a group of several thousand anthropogenically made chemicals used in industry. They have been incorporated into firefighting foams since their introduction in the 1960s. There is growing evidence that PFAS are harmful to human health and animals/fish as they can bioaccumulate, causing higher exposure levels further up the food chain. PFAS materials do not degrade naturally so historical source areas are likely to remain an issue even where replacement products have been used for some time. They are highly mobile in water and are now widespread across groundwater and surface water courses across the UK.

Due to the presence of Cardiff Roose Airport, approximately 800m south of the upstream end of the site, it was considered necessary to undertake some PFAS monitoring. Airports have historically been associated with PFAS chemicals due to their use of firefighting foams for both training and testing. There was therefore the possibility that migration could occur from the airport to the River Kenson.

3No. soil samples were taken by Ecoefficiency, from shallow hand pits at 3No. locations (west of the bridge, at Kingfisher Hide and beside the pond), on 24th April 2025 and sent to the ChemTech Environmental laboratory for PFAS testing. The laboratory tests were accredited by UKAS and the results, with their associated MCERTS/UKAS certificates, are included in Appendix A.

No PFAS contaminants were detected above their limit of detection levels, indicating that there is low likelihood of PFAS contamination onsite. However, it should be noted that samples were only analysed under WAC criteria. The methodologies for testing for WAC and general PFAS suites are slightly different and can sometimes lead to discrepancies in reported contaminant concentrations. Since there were no detections identified within the WAC tests, it suggests that there was no PFAS contamination present, however, further testing for the potential presence PFAS contamination within soils should be undertaken to confirm this.

[1] In compiling this note JBA were not involved in the onsite sampling collection and have assumed that the selection of samples provides broad characterisation of the materials that are present on site.

3 Conclusions and Recommendations

Laboratory testing and HazWaste Online Assessments have classified all of the samples onsite as Non-Hazardous with no elevated concentrations of contaminants. If there are materials produced during the site works which are deemed to be in surplus, and need to be disposed of at a licenced waste facility, then confirmation should be obtained from the receiving landfill site in relation to any additional waste classification testing that may be required.

3No. samples were taken for PFAS testing and none resulted in any concentrations above laboratory detection level which suggests that there is a low likelihood of PFAS contamination onsite. However, samples were only analysed using WAC testing criteria so to further quantify the potential risk from PFAS, a full PFAS suite should be undertaken on the materials.

Appendices

A References

Ecoefficiency (2025). Waste Classification Assessment Report for Soils: Natural Resources Wales. Natural Resources Wales River Re, Kenson River, Rhoose, Barry, CF62 3BL. Report Ref: 25-03965.

ecofficiency
better waste solutions

Waste Classification Assessment Report for Soils

Natural Resources Wales

Natural Resources Wales River Restoration, Kenson River, Rhoose, Barry, CF62 3BL

www.ecofficiency.co.uk | enquiries@ecofficiency.co.uk

Ecofficiency Ltd | Armstrong House | First Avenue | Finningley Estate | DN9 3GA

Report Reference:	25-03965
Date of Report:	16/05/2025
Client:	Natural Resources Wales
Site Address:	Natural Resources Wales River Restoration, Kenson River, Rhoose, Barry, CF62 3BL
Customer Contact:	Elinor Meloy
Customer Job Reference:	4123
Date Samples Received:	01/05/2025
Date Report Completed:	16/05/2025

Limitations and Uncertainties

The information reported herein is based on the interpretation of data collected during the site visit only, pertaining specifically to the soil samples retained from the identified locations.

This report has been prepared by Ecofficiency Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client.

The evaluation and conclusions do not preclude the existence of other waste classifications, which could not reasonably have been revealed by the site investigation works undertaken at the time of writing. This report should be used for information purposes only and should not be construed as a comprehensive characterisation of all site conditions or potential waste streams.

This report has been prepared solely for the use of the above client, and may not be relied upon by other parties without written consent from Ecofficiency Ltd.

Ecofficiency Ltd disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Section A: Sample and Testing Information

Material type:	Brown Clayey Loam with Gravel and Vegetation.
Material Volume:	2KM of Riverbed Still in Situ
Number of representation samples:	3
Historic:	River Kenson in the Vale of Glamorgan Due to be Re-meandered
Sample by:	Ralph McHugh - Ecofficiency
Sample date:	24/04/2025

Objective:

Classification of waste for removal from site.

Section B: Waste Classification

Image	Sample ID	Waste Classification	EWC Code	Contaminants
View	POND-1-2-3-4	Non-Hazardous (No Elevated Contamination)	17 05 04	No contamination
View	GATE-1-2-3-4	Non-Hazardous (No Elevated Contamination)	17 05 04	No contamination
View	KF-1-2-3-4	Non-Hazardous (No Elevated Contamination)	17 05 04	No contamination

Section C: Conclusion and Recommendations

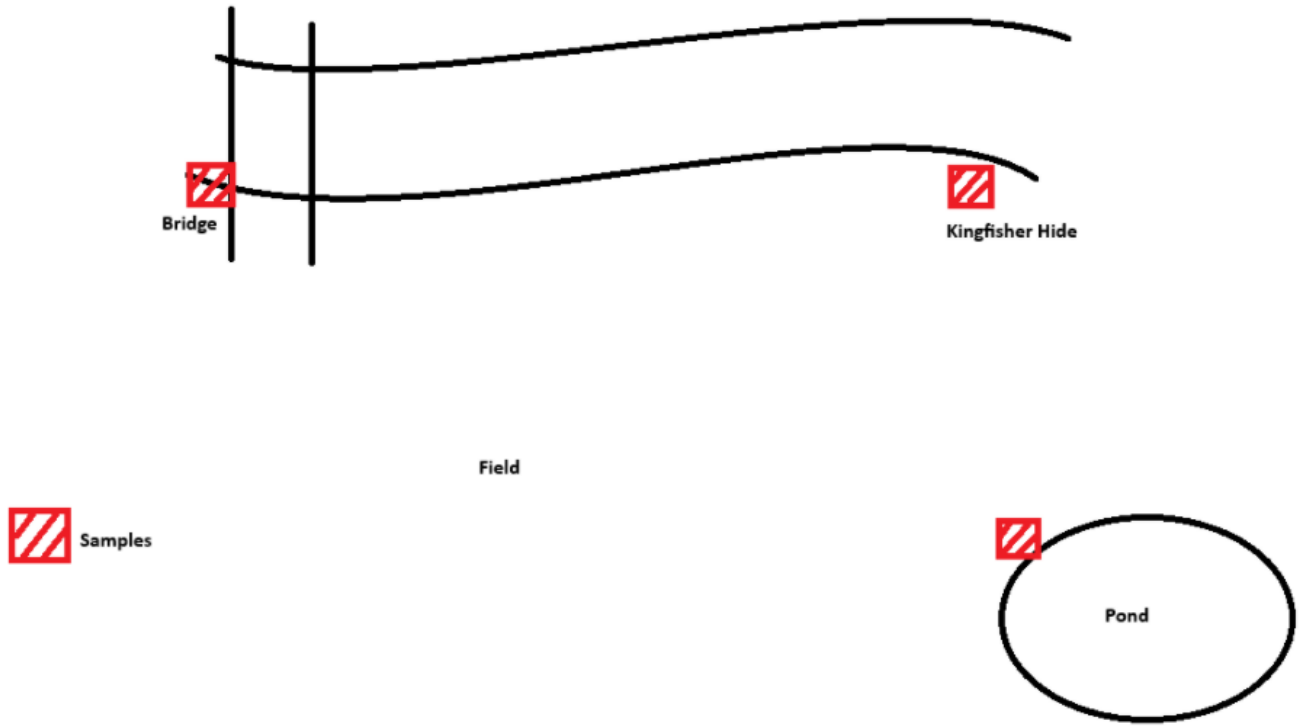
Removal of Non-Hazardous samples with no elevated contamination can potentially be removed to licensed recovery and restoration sites to avoid landfill tax costs and the need for further WAC Testing.

Further WAC Testing may be necessary if this material is intended for removal to Inert Landfill.

Section D: List of Appendices

Sample and Testing Information
Waste Classification
Sample Location Plan
Site Photographs
Laboratory Results
UKAS & MCERTs Accredited Report

Sample Location Plan



Site Photographs

Classification Test Suite

Lab Number			46303	46304	46305
Client Reference			SOIL	SOIL	SOIL
Sample ID			POND-1-2-3-4	GATE-1-2-3-4	KF-1-2-3-4
Sample Type					
Sample Location			-	-	-
Depth (m)			-	-	-
Sampling Date			24/04/2025	24/04/2025	24/04/2025
Sampling Time			-	-	-
Test	Method	Units			
Asbestos					
Asbestos Identification	SUBCON	-	NAD	NAD	NAD
Metals					
Arsenic	CE264	mg/kg	12	10.1	6.6
Cadmium	CE264	mg/kg	< 1.6	< 1.6	< 1.6
Chromium	CE264	mg/kg	31.3	36.1	28.1
Copper	CE264	mg/kg	97.4	29.1	20.9
Lead	CE264	mg/kg	45.4	49.7	34
Mercury	CE264	mg/kg	< 0.7	< 0.7	< 0.7
Nickel	CE264	mg/kg	19	22.9	17.4
Selenium	CE264	mg/kg	< 3.0	< 3.0	< 3.0
Zinc	CE264	mg/kg	98.1	211	181
Colourimetric					
Water Soluble Chromium VI	CE263	mg/kg	< 0.040	< 0.040	< 0.040
Chromium III	CE208	mg/kg	31.30	36.10	28.10
Combustion					
Moisture Content	CE001	%	35.7	39.8	42
Polyaromatic hydrocarbons					
Naphthalene	CE087	mg/kg	0.02	< 0.016	< 0.016
Acenaphthylene	CE087	mg/kg	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	mg/kg	< 0.013	0.059	0.056
Fluorene	CE087	mg/kg	< 0.013	0.043	0.049
Phenanthrene	CE087	mg/kg	0.046	0.268	0.371
Anthracene	CE087	mg/kg	< 0.017	0.064	0.132
Fluoranthene	CE087	mg/kg	0.09	0.772	1.15
Pyrene	CE087	mg/kg	0.081	0.567	0.836
Benzo(a)anthracene	CE087	mg/kg	0.074	0.604	0.851
Chrysene	CE087	mg/kg	0.071	0.5	0.71
Benzo(b)fluoranthene	CE087	mg/kg	0.137	0.899	1.24
Benzo(k)fluoranthene	CE087	mg/kg	0.039	0.303	0.429
Benzo(a)pyrene	CE087	mg/kg	0.093	0.628	0.868
Indeno(1,2,3-cd)pyrene	CE087	mg/kg	0.098	0.496	0.681

Dibenzo(a,h)anthracene	CE087	mg/kg	0.028	0.141	0.186
Benzo(g,h,i)perylene	CE087	mg/kg	0.106	0.426	0.584
Total PAH(16)	CE087	mg/kg	0.883	5.77	8.14
Total Petroleum Hydrocarbons					
>C5-C10 Total (HS_1D_Total)	CE267	mg/kg	< 0.10	< 0.10	< 0.10
>C10-C25 Soil (EH_1D_Total)	CE033	mg/kg	67.6	30.1	35.4
>C25-C40 Soil (EH_1D_Total)	CE033	mg/kg	419	55.7	83.2
>C10-C40 Soil (EH_1D_Total)	CE033	mg/kg	487	86.9	119
Total Hydrocabons C5-C40 (HS_1D+EH_1D_Total)	CE033	mg/kg	487	86.9	119
Wet Chem					
pH	CE004	pH units	8.7	8.3	8.2
PFAS					
Perfluorobutanoic acid (PFBA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
perfluorononanoic acid (PFNA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUdA, PFUnA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA, PFTriA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexadecanoic acid (PFHxDA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctadecanoic acid (PFODA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorobutane sulfonate (PFBS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoropentane sulfonate (PFPeS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexane sulfonate (PFHxS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroheptane sulfonate (PFHpS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
perfluorooctane sulfonate (PFOS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorononane sulfonate (PFNS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorodecane sulfonate (PFDS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroundecane sulfonate (PFUdS, PFUnDS, PFUnS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorododecane sulfonate (PFDoS)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorohexane sulfonate (4:2 FTS, 4:2 FTSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorooctane sulfonate (6:2 FTS, 6:2 FTSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorodecane sulfonate (8:2 FTS, 8:2 FTSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA, MeFOSA	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA, EtFOSAA	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-1-butanesulfonamide (FBSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-1-hexanesulfonamide (FHxSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctane sulfonamide (FOSA, PFOSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
N-methyl perfluorooctane sulfonamide (N-MeFOSA, MeFOSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
N-ethyl perfluooroctane sulfonamide (N-EtFOSA, EtFOSA)	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
2-(N-methyl perfluorooctane sulfonamido)-ethanol (N-MeFOSE, MeFOS	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
2-(N-ethyl perfluorooctane sulfonamido)-ethanol (N-EtFOSE, EtFOSE	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01
2,3,3,3-tetrafluoro-2-(1,2,2,3,3,3-heptafluoropropoxy)propanoic a	SCPFAS	mg/kg	< 0.01	< 0.01	< 0.01

Perfluoro-2,5-dimethyl-3,6-dioxanonanoic acid (HFPO-TA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Dodecafluoro-3H-4,8-dioxanonanoate (ADONA, DONA, NaDONA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Perfluoro-4-methoxybutanoic acid (PFMOBA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
3-Perfluoropropyl propanoic acid (3:3 FTCA, FPrPA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
3-Perfluoropentyl propanoic acid (5:3 FTCA, FPePA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
3-Perfluoroheptyl propanoic acid (7:3 FTCA, FHpPA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Perfluoro(2-ethoxyethane) sulfonate (PFEESA)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate (9Cl-PF3ONS, 6:2 C	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
11-chloroeicosafluoro-3-oxanundecane-1-sulfonate (11Cl-PF3OUdS, 8	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01
Perfluoro-4-ethylcyclohexane sulfonate (PFECHS)	**SCPFAS**	**mg/kg**	< 0.01	< 0.01	< 0.01

UKAS & MCERTs Accredited Report

CHEMTECH environmental part of Cawood

ANALYTICAL TEST REPORT

Report Number	25-03965, issue number 1
Contract name:	EcoEnvironmental Cash Account Rapid Resp, Natural Resources Wales River Restoratio, Kenson River, Rh
Client reference:	WCR-004123
Clients name:	Ecofficiency Ltd
Clients address:	Doncaster US18 Armstrong House 4-6 First Avenue Finningley Doncaster DN9 3GA
Samples received:	28/04/2025
Analysis started:	28/04/2025
Analysis completed:	16/05/2025
Report issued:	16/05/2025

Key

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

Approved by: Georgia Hunter, Reporting Administrator

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Telephone: (01207) 528578, Email supportsquad@chemtech-env.co.uk

SAMPLE INFORMATION

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

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
46303	POND-1-2-3-4	-	Brown Clayey Loam with Gravel and Vegetation.	-	-	39.8
46304	GATE-1-2-3-4	-	Brown Clayey Loam with Gravel and Vegetation.	-	-	39.8
46305	KF-1-2-3-4	-	Brown Clayey Loam with Gravel and Vegetation.	-	-	42.0

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

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

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
46303	POND-1-2-3-4	-	N	
46304	GATE-1-2-3-4	-	N	
46305	KF-1-2-3-4	-	N	

SOILS

Lab Number					46303	46304	46305
Client Reference					SOIL	SOIL	SOIL
Sample ID					POND-1-2-3-4	GATE-1-2-3-4	KF-1-2-3-4
Sampling Date					24/04/2025	24/04/2025	24/04/2025
Test	Method	Accred.	LoD	Units			
Asbestos							
Asbestos Identification	SUBCONTN	SU	0	-	NAD	NAD	NAD
Metals							
Arsenic	CE264	U	1.8	mg/kg	12.0	10.1	6.6
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	31.3	36.1	28.1
Copper	CE264	M	1.6	mg/kg	97.4	29.1	20.5
Lead	CE264	U	2.3	mg/kg	45.4	49.7	34.0
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	19.0	22.9	17.4
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	98.1	211	181
Colourimetric							
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	< 0.040	< 0.040	< 0.040
Chromium III	CE208	N	2	mg/kg	31.3	36.1	28.1
Combustion							
Moisture Content	CE001	N	0.1	%	39.7	39.8	42.0
Polyaromatic hydrocarbons							
Naphthalene	CE087	M	0.016	mg/kg	0.020	< 0.016	< 0.016
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	0.059	0.055
Fluorene	CE087	U	0.013	mg/kg	< 0.013	0.043	0.049
Phenanthrene	CE087	M	0.014	mg/kg	0.046	0.268	0.371
Anthracene	CE087	U	0.017	mg/kg	< 0.017	0.064	0.132
Fluoranthene	CE087	M	0.017	mg/kg	0.090	0.772	1.15
Pyrene	CE087	M	0.016	mg/kg	0.081	0.567	0.836
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.074	0.604	0.851
Chrysene	CE087	M	0.028	mg/kg	0.071	0.200	0.710
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.137	0.899	1.24
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.039	0.303	0.429

CHEMTECH environmental part of Cawood

UKAS TESTING 2531 ///CERT

SOILS

Lab Number					46303	46304	46305
Client Reference					SOIL	SOIL	SOIL
Sample ID					POND-1-2-3-4	GATE-1-2-3-4	KF-1-2-3-4
Sampling Date					24/04/2025	24/04/2025	24/04/2025
Test	Method	Accred	LoD	Units			
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.093	0.628	0.868
Indeno(1,2,3-c)pyrene	CE087	M	0.019	mg/kg	0.098	0.496	0.681
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.028	0.141	0.186
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.106	0.426	0.594
Total PAH(16)	CE087	N	0.28	mg/kg	0.883	5.77	8.14
Total Petroleum Hydrocarbons							
>C5-C10 Total (HS_1D_Total)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10
>C10-C25 Soil (EH_1D_Total)	CE033	M	12	mg/kg	67.6	39.1	35.4
>C25-C40 Soil (EH_1D_Total)	CE033	M	16	mg/kg	419	57.7	83.2
>C10-C40 Soil (EH_1D_Total)	CE033	M	19	mg/kg	487	86.9	119
Total Hydrocarbons (C5-C40 (HS_1D+EH_1D_Total))	CE033	N	19	mg/kg	487	86.9	119
Wet Chem							
pH	CE004	M	0.1	pH units	8.7	8.3	8.2
PFAS							
Perfluorobutanoic acid (PFBA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
perfluorononanoic acid (PFNA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUdA, PFUnA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA, PFTrA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexadecanoic acid (PFHxDA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctadecanoic acid (PFODA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorobutane sulfonate (PFBS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoropentane sulfonate (PFPeS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorohexane sulfonate (PFHxS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01

CHEMTECH environmental part of Cawood

UKAS TESTING 2531 ///CERT

SOILS

Lab Number					46303	46304	46305
Client Reference					SOIL	SOIL	SOIL
Sample ID					POND-1-2-3-4	GATE-1-2-3-4	KF-1-2-3-4
Sampling Date					24/04/2025	24/04/2025	24/04/2025
Test	Method	Accred	LoD	Units			
Perfluoroheptane sulfonate (PFHpS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
perfluorooctane sulfonate (PFOS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorononane sulfonate (PFNS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorodecane sulfonate (PFDS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoroundecane sulfonate (PFUdS, PFUnDS, PFUnS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorododecane sulfonate (PFDoS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorohexane sulfonate (6:2 FTS, 6:2 FTSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorooctane sulfonate (6:2 FTS, 6:2 FTSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorodecane sulfonate (8:2 FTS, 8:2 FTSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA, NMeFOSAA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA, EtFOSAA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-1-butanesulfonamide (FBSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-1-hexanesulfonamide (FHxSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluorooctane sulfonamide (FOSA, PFOSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
N-methyl perfluorooctane sulfonamide (N-MeFOSA, MeFOSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
N-ethyl perfluorooctane sulfonamide (N-EtFOSA, EtFOSA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-(N-methyl perfluorooctane sulfonamido)-ethanol (N-MeFOSE, MeFOS	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-(N-ethyl perfluorooctane sulfonamido)-ethanol (N-EtFOSE, EtFOSE	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,3,3,3-tetrafluoro-2-(1,2,2,3,3,3-heptafluoropropoxy)propanoic a	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-2,5-dimethyl-3,6-dioxanonanoic acid (NFDTA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dodecafluoro-3H-4,8-dioxanonanoate (ADONA, DONA, NaDONA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-4-methoxybutanoic acid (PFMOBA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
3-Perfluoropropyl propanoic acid (3:3 FTCA, PFPA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
3-Perfluoropentyl propanoic acid (5:3 FTCA, PFPA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
3-Perfluoroheptyl propanoic acid (7:3 FTCA, PFPA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Perfluoro(2-ethoxyethane) sulfonate (PFEESA)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate (9Cl-PF3ONS, 6:2 C	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01
11-chloroicosafluoro-3-oxaundecane-1-sulfonate (11Cl-PF3OUdS, 8	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01

CHEMTECH environmental part of Cawood

UKAS TESTING 2531 ///CERT

SOILS

Lab Number					46303	46304	46305
Client Reference					SOIL	SOIL	SOIL
Sample ID					POND-1-2-3-4	GATE-1-2-3-4	KF-1-2-3-4
Sampling Date					24/04/2025	24/04/2025	24/04/2025
Test	Method	Accred	LoD	Units			
Perfluoro-4-ethylcyclohexane sulfonate (PFECHS)	SCPFAS	SN	0.01	mg/kg	< 0.01	< 0.01	< 0.01

CHEMTECH environmental part of Cawood

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
SUBCON	Asbestos Solid	HSG248	Air Dried Sample
CE033	EPH in Solids	Acetone:Hexane Extraction and GCFID	As submitted sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE263	Chromium VI by Discrete Analyser in Solid	Colitry	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE208	Chromium Hexavalent in Soil	Colorimetry	Air dried sample
SCPFAS	PFAS	LCMSQQQ	As submitted sample

CHEMTECH environmental part of Cawood

REPORT INFORMATION

Report No.:25-03965, issue number 1

Key

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

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
This report shall not be reproduced except in full, without prior written approval.
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
The results relate only to the sample received.
Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.
Moisture Content Calculated on a Wet Weight basis
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Sampling was undertaken by Chemtech Environmental Limited and is outside the UKAS accreditation scope.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying
For soils and solids, analytical results are inclusive of stones, where applicable.

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt
All water samples will be retained for a period of 2 weeks from the point of Reporting
Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

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

Vat Reg No. 772 5703 18 Registered in England number 4284013

Page 9 of 9 Pages

ecofficiency
better waste solutions

QUICK COLLECTION
Our soil testing kits reduce
Sample collection times.

FAST RESULTS
Get fast tracked
Laboratory results.

ACCURATE CLASSIFICATION
Waste classification reporting with
Assured accuracy supported by.

HazWasteOnline™
Click here to view

REDUCE CO2 FOOTPRINT
Environmentally friendly
And cost reducing.

waste
better waste management

soilsolutions
better materials management

environmental
better waste classification

aggregates
better materials recycling

0800 030 5051 | enquiries@ecofficiency.co.uk
Ecofficiency Ltd | Armstrong House | First Avenue | Finningley Estate | DN9 3GA