

19ECH016/MJF/JS/WS/R1

Your ref: SO/2023/123707/02/L01 & 70222

15th May 2024

Stephen Parker
Eccleston Homes

Via email: stephen.parker@ecclestonhomes.co.uk



Dear Stephen

Mondi/Holcombe Mill, Bridge Street, Ramsbottom, Bury

Betts Geo received the Environment Agency's (EA) response (referenced above – dated 20th February 2024) noting that *"Per- and Polyfluoroalkyl Substances (PFAS) are recognised as being connected with the former industrial activities on site and pose a significant risk to controlled waters and therefore should be added to the site investigation testing regime."*

Betts Geo have therefore undertaken additional water sampling & testing on site to address these concerns.

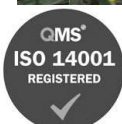
Additional Water Sampling - Overview

Betts Geo have undertaken three (3 No) additional sampling visits to collect a number of water samples from both ground water and the onsite/adjacent water courses. These visits were undertaken on the following dates:

- ❖ 14/03/2024
- ❖ 08/04/2024
- ❖ 23/04/2024

The sampling comprised of eight (8 No) samples in total – four (4 No) samples taken from the four existing wells on site – WS1, WS7, WS8 & WS16 and four (4 No) samples taken from the onsite/adjacent watercourse – one (1 No) upstream, two (2 No) midstream and one (1 No) downstream.

An extract showing the sample locations in yellow can be seen below;



Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY
Telephone: 01244 288179
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PFAS GUIDANCE VALUES IN SOILS/WATERS

The published guidance values for PFAS are largely restricted to PFOS, with limited UK guidance values (EQS for total PFOS and DWI tiered action criteria).

Ecological soil screening values (SSV's) for PFOS and PFOA have been published by the EA at 0.014 mg/kg and 0.022 mg/kg respectively based on secondary poisoning to birds and mammals, but mainly used for assessing material/ sludge to land in an agricultural settings. However, currently there are no SSV's within the UK to assess the risk of PFAS to human health.

The DWI have published guidance for individual PFAS compounds in drinking water, outlining a 0.1 ug/l threshold for 47 compounds likely to be equivalent to a future DWS. Important to note that this is a threshold for any PFAS, the 47 is just the list of compounds that the water companies are expected to analyse for.

The EU surface water EQS was set to 0.00065 ug/l for PFOS in inland surface water and applied in 2008.

CL:AIRE have recently published (June 2024) interim Category 4 Screening Levels (C4SLs) for four perfluoroalkyl substances – PFOA, PFNA, PFHxS and PFOS. These levels are shown in the table below however these limits are for soils and not waters therefore cannot be applied to this report.

Table 4.1: Interim C4SLs for PFOA, PFOS, PFHxS and PFNA.

Land-use	Interim C4SLs (mg.kg ⁻¹) (see notes below)			
	PFOA	PFOS	PFHxS	PFNA
Residential with consumption of homegrown produce	0.0076	0.013	0.0081	0.0073
Residential without consumption of homegrown produce	0.041	0.041	0.041	0.041
Allotments	0.0014	0.0027	0.0015	0.0013
Commercial	0.60	0.60	0.60	0.60
Public Open Space (residential)	0.079	0.079	0.079	0.079
Public Open Space (park)	0.17	0.17	0.17	0.17

N.B. These C4SLs are to be used with a Hazard Index approach (see Section 4.2). These C4SLs are based on chronic risk only. For further discussion of acute risks and other factors that should be considered when using these C4SL see Section 4.2 below.

PFAS WATER SAMPLING RESULTS

Betts Geo sent the water samples to a UKAS accredited laboratory and tested each water sample for PFAS (PFOS PFOA) totals which tests 49 specific PFAS compounds in total.

All of the results for each individual compound came back below the DWI guidance of 0.1ug/l on visit 1 & 2. All the results for visit 3 came back below the DWI guidance of 0.1ug/l apart from one occurrence of 6:2 FTSA; 6:2FTS (w) which had a value of 0.143ug/l.

The highest PFAS compound values encountered during each visit are given below:

- ❖ Visit 1 – PFOS (w) value of 0.0741ug/l (74.1ng/l) (WS7)
- ❖ Visit 2 – PFOS (w) value of 0.0821ug/l (82.1ng/l) (WS7)
- ❖ Visit 3 – PFOS (w) value of 0.0892ug/l (89.2ng/l) (WS7)



The chemical results can be seen in the appendix. Please note the results from the lab are in ng/l and the guidance value is in ug/l therefore caution must be applied when interpreting these results.

INTERPRETATION OF PFAS RESULTS

Levels of PFOS (w) were found to be elevated in WS7 when compared against the EU Surface EQS that was set to 0.00065ug/l. It is however important to note that WS7 contained groundwater not surface water, and therefore this guidance value may not be the most appropriate guidance value to use. WS7 is also located adjacent to the MS1b surface water sample location, proving that there is no active migration pathway present from the site to the surface water.

The vast majority of the 49 PFAS tested compounds (including PFOS (w)) are below the DWI guidance of 0.1ug/l (deemed more appropriate guidance value given the site setting).

One elevated occurrence of 6:2 FTSA; 6:2FTS (w) did however, come back above the DWI guidance value of 0.1ug/l - value of 0.143ug/l in DS1 on visit 3. DS1 is located approximately 250m from the former industrial area of site, therefore it is unlikely that this elevation is coming from site else it would have been picked up in MS1/MS1b sample location.

6:2 fluorotelomer sulfonate (6:2 FTS) has been used as a replacement for legacy per- and polyfluoroalkyl substances (PFAS). A scientific study (available at: [https://pubmed.ncbi.nlm.nih.gov/36629485/#:~:text=6%3A2%20fluorotelomer%20sulfonate%20\(6,w,th%20these%20sensitive%20life%20stages.\)](https://pubmed.ncbi.nlm.nih.gov/36629485/#:~:text=6%3A2%20fluorotelomer%20sulfonate%20(6,w,th%20these%20sensitive%20life%20stages.))) has characterized 6:2 FTS as potentially being less toxic than other PFAS however, no guidance specific to this determinant is currently available.

Based on the level of 6:2 FTSA; 6:2FTS (w) being only slightly above the DWI guidance value of 0.1ug/l and the fact 6:2 FTSA; 6:2FTS (w) has been identified as potentially been less toxic than other PFAS determinants, the risk of this potential contaminant of concern on site is deemed low. It is however important to note that this assessment has been based on worldwide guidance on PFAS substances as currently there are no SSV's within the UK.

I trust you will find the above of assistance, however, if you have any queries or require further information please do not hesitate to contact me.

Yours sincerely

Jenny Skues
Senior Geo-Environmental Engineer
BETTS GEO ENVIRONMENTAL

Appendix A – Chemical test results

Betts Geo Environmental Ltd trading as Betts Geo. Registered in England and Wales No. 5927295



FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/02660
Issue Number: 1
Date: 26 March, 2024

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Graham Clark
Project Name: Mondri
Project Ref: 19ECH016
Order No: BG5317
Date Samples Received: 14/03/24
Date Instructions Received: 15/03/24
Date Analysis Completed: 26/03/24

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 24/02660

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/02660/1	24/02660/2	24/02660/3	24/02660/4	24/02660/5	24/02660/6	24/02660/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	US1	MS1B	MS3			
Depth to Top										
Depth To Bottom										
Date Sampled	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - SW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFAS (49) (w)										
PFBA (w) _A [#]	2.46	7.64	1.9	<1.00	2.25	2.86	1.15	ng/l	1	Subcon Veritas
PFPeA (w) _A [#]	5.28	4.83	<1.00	<1.00	<1.00	1.06	<1.00	ng/l	1	Subcon Veritas
PFHxA (w) _A [#]	4.08	4.48	<1.00	<1.00	1.18	1.72	<1.00	ng/l	1	Subcon Veritas
PFHpA (w) _A [#]	1.79	5.98	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOA (w) _A [#]	3.76	25.2	<1.00	1.75	2.58	2.76	4.37	ng/l	1	Subcon Veritas
PFNA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoA(w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTriDA; PFTriA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTeA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFODA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFBS (w) _A [#]	2.45	1.79	1.41	<1.00	1.9	2.17	<1.00	ng/l	1	Subcon Veritas
PFPeS (w) _A [#]	1.07	1.13	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxS (w) _A [#]	11.6	7.47	<1.00	<1.00	<1.00	1	<1.00	ng/l	1	Subcon Veritas
PFHpS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOS (w) _A [#]	9.90	74.1	<1.00	7.20	1.30	2.33	23.1	ng/l	1	Subcon Veritas
PFNS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-TA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
DONA; ADONA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOPra (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NFDHA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOBA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFecHS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
3:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
5:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
7:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas

Envirolab Job Number: 24/02660

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/02660/1	24/02660/2	24/02660/3	24/02660/4	24/02660/5	24/02660/6	24/02660/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	US1	MS1B	MS3			
Depth to Top										
Depth To Bottom										
Date Sampled	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24	14-Mar-24			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - SW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFEESA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 Cl-PFESA; 9 Cl-PF3ONS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
8:2 Cl-PFESA; 11 Cl-PF3OUdS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w)A [#]	<1.00	1.05	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FBSA (w) A [#]	<1.00	1.55	1.86	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas

Envirolab Job Number: 24/02660

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/02660/8									
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	14-Mar-24									
Sample Type	WATER - SW									
Sample Matrix Code	N/A									
PFAS (49) (w)										
PFBA (w) ^{A#}	2.32							ng/l	1	Subcon Veritas
PFPeA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxA (w) ^{A#}	1.81							ng/l	1	Subcon Veritas
PFHpA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOA (w) ^{A#}	2.83							ng/l	1	Subcon Veritas
PFNA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDoA(w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTrDA; PFTriA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTeA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFODA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFBS (w) ^{A#}	2.1							ng/l	1	Subcon Veritas
PFPeS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHpS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOS (w) ^{A#}	2.31							ng/l	1	Subcon Veritas
PFNS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDoS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-TA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
DONA; ADONA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOPrA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
NFDHA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOBA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFecHS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
3:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
5:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
7:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas

Envirolab Job Number: 24/02660/8

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/02660/8									
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	14-Mar-24									
Sample Type	WATER - SW									
Sample Matrix Code	N/A									
								Units	Limit of Detection	Method ref
PFEESA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 CI-PFESA; 9 CI-PF3ONS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
8:2 CI-PFESA; 11 CI-PF3OUdS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w) A [#]	1.1							ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FBSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	<1.00							ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The results reported herein relate only to the material supplied to the laboratory.
 The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
 Analytical results reflect the quality of the sample at the time of analysis only.
 Opinions and Interpretations expressed are outside our scope of accreditation.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
 Stones etc. are not removed from the sample prior to analysis
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
 For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
 For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
 All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
 Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
 Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: Mondi
Clients Project No: 19ECH016

Project No: 24/02660
Date Received: 15/03/2024 (am)
Cool Box Temperatures (°C): 14.8

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/02660/1	24/02660/2	24/02660/3	24/02660/4	24/02660/5	24/02660/6	24/02660/7	24/02660/8
Client Sample No								
Client Sample ID/Depth	WS1	WS7	WS8	WS16	US1	MS1B	MS3	DS1
Date Sampled	14/03/24	14/03/24	14/03/24	14/03/24	14/03/24	14/03/24	14/03/24	14/03/24

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/03478
Issue Number: 1
Date: 19 April, 2024

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Graham Clark
Project Name: Mondri
Project Ref: 19ECH016
Order No: BG5355
Date Samples Received: 08/04/24
Date Instructions Received: 08/04/24
Date Analysis Completed: 19/04/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/03478

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/03478/1	24/03478/2	24/03478/3	24/03478/4	24/03478/5	24/03478/6	24/03478/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	MS1B	MS3	US1			
Depth to Top										
Depth To Bottom										
Date Sampled	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24			
Sample Type	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFAS (49) (w)										
PFBA (w) _A [#]	2.41	10.1	3.25	1.46	1.36	1.3	3.95	ng/l	1	Subcon Veritas
PFPeA (w) _A [#]	4.21	5.01	<1.00	<1.00	<1.00	<1.00	1.71	ng/l	1	Subcon Veritas
PFHxA (w) _A [#]	2.49	4.38	<1.00	<1.00	1.29	<1.00	1.53	ng/l	1	Subcon Veritas
PFHpA (w) _A [#]	<1.00	6.51	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOA (w) _A [#]	2.61	26.1	<1.00	1.85	2.50	4.99	2.99	ng/l	1	Subcon Veritas
PFNA (w) _A [#]	<1.00	3.44	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTriA; PFTriA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTeA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFODA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFBS (w) _A [#]	1.58	2.48	1.64	<1.00	2.51	<1.00	1.9	ng/l	1	Subcon Veritas
PFPeS (w) _A [#]	<1.00	1.5	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxS (w) _A [#]	4.47	5.66	<1.00	<1.00	<1.00	1.24	<1.00	ng/l	1	Subcon Veritas
PFHpS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOS (w) _A [#]	7.02	82.1	<1.00	6.49	<1.00	33	<1.00	ng/l	1	Subcon Veritas
PFNS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-TA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
DONA; ADONA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOPra (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NFDHA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOBA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFecHS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	1	<1.00	ng/l	1	Subcon Veritas
3:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
5:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
7:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas

Envirolab Job Number: 24/03478

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/03478/1	24/03478/2	24/03478/3	24/03478/4	24/03478/5	24/03478/6	24/03478/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	MS1B	MS3	US1			
Depth to Top										
Depth To Bottom										
Date Sampled	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24	08-Apr-24			
Sample Type	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFEESA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 Cl-PFESA; 9 Cl-PF3ONS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
8:2 Cl-PFESA; 11 Cl-PF3OUdS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w)A [#]	1.25	1.77	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FBSA (w) A [#]	1.05	1.63	1.31	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	2.1	1.74	2.37	2.16	2.11	2.11	1.6	ng/l	1	Subcon Veritas

Envirolab Job Number: 24/03478

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/03478/8									
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	08-Apr-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
PFAS (49) (w)										
PFBA (w) ^{A#}	2.14							ng/l	1	Subcon Veritas
PFPeA (w) ^{A#}	1.1							ng/l	1	Subcon Veritas
PFHxA (w) ^{A#}	2.08							ng/l	1	Subcon Veritas
PFHpA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOA (w) ^{A#}	2.91							ng/l	1	Subcon Veritas
PFNA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDaA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTDA; PFTriA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTeA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFODA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFBS (w) ^{A#}	2.8							ng/l	1	Subcon Veritas
PFPeS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHpS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFNS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDoS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-TA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
DONA; ADONA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOPra (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
NFDHA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOBA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFecHS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
3:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
5:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
7:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas

Envirolab Job Number: 24/03478

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/03478/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	08-Apr-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
PFEESA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 Cl-PFESA; 9 Cl-PF3ONS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
8:2 Cl-PFESA; 11 Cl-PF3OUdS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FBSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	2.92							ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	2.21							ng/l	1	Subcon Veritas

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The results reported herein relate only to the material supplied to the laboratory.
 The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
 Analytical results reflect the quality of the sample at the time of analysis only.
 Opinions and Interpretations expressed are outside our scope of accreditation.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
 Stones etc. are not removed from the sample prior to analysis
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
 For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
 For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
 All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
 Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
 Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: Mondi
Clients Project No: 19ECH016

Project No: 24/03478
Date Received: 08/04/2024 (am)
Cool Box Temperatures (°C): 16.1

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/03478/1	24/03478/2	24/03478/3	24/03478/4	24/03478/5	24/03478/6	24/03478/7	24/03478/8
Client Sample No								
Client Sample ID/Depth	WS1	WS7	WS8	WS16	MS1B	MS3	US1	DS1
Date Sampled	08/04/24	08/04/24	08/04/24	08/04/24	08/04/24	08/04/24	08/04/24	08/04/24

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/04034
Issue Number: 1

Date: 02 May, 2024

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Andy Gerrard/Betts Geolab
Project Name: Mondri
Project Ref: 19ECH016
Order No: BG5365
Date Samples Received: 23/04/24
Date Instructions Received: 23/04/24
Date Analysis Completed: 02/05/24

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 24/04034

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/04034/1	24/04034/2	24/04034/3	24/04034/4	24/04034/5	24/04034/6	24/04034/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	US1	MS1b	MS3			
Depth to Top										
Depth To Bottom										
Date Sampled	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24			
Sample Type	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFAS (49) (w)										
PFBA (w) _A [#]	2.5	11.5	2.75	1.5	1.71	1.54	<1.00	ng/l	1	Subcon Veritas
PFPeA (w) _A [#]	<1.00	4.8	<1.00	<1.00	1.1	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxA (w) _A [#]	1.09	5.12	<1.00	<1.00	1.35	1.27	<1.00	ng/l	1	Subcon Veritas
PFHpA (w) _A [#]	<1.00	7.04	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOA (w) _A [#]	2.11	52.6	2.21	4.47	5.27	5.06	3.06	ng/l	1	Subcon Veritas
PFNA (w) _A [#]	<1.00	3.61	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTriA; PFTriA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFTeA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxDA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFODA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFBS (w) _A [#]	2.12	2.58	1.77	<1.00	2.84	2.54	<1.00	ng/l	1	Subcon Veritas
PFPeS (w) _A [#]	<1.00	1.44	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHxS (w) _A [#]	<1.00	6.56	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFHpS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFOS (w) _A [#]	1.66	89.2	1.69	6.34	2.82	1.12	3.30	ng/l	1	Subcon Veritas
PFNS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFUnDS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFDoS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
HFPO-TA (w) _A [#]	1.78	<1.00	1.35	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
DONA; ADONA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOPra (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NFDHA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFMOBA (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
PFecHS (w) _A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
3:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
5:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas
7:3 FTCA (w) _A [#]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ng/l	2	Subcon Veritas

Envirolab Job Number: 24/04034

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/04034/1	24/04034/2	24/04034/3	24/04034/4	24/04034/5	24/04034/6	24/04034/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS7	WS8	WS16	US1	MS1b	MS3			
Depth to Top										
Depth To Bottom										
Date Sampled	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24	23-Apr-24			
Sample Type	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW	WATER - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PFEESA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 Cl-PFESA; 9 Cl-PF3ONS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
8:2 Cl-PFESA; 11 Cl-PF3OUdS (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w)A [#]	3.65	1.89	3.65	1.32	1.19	1.77	1.1	ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FBSA (w) A [#]	2.16	1.95	2.1	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w)A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ng/l	1	Subcon Veritas

Envirolab Job Number: 24/04034

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/04034/8									
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	23-Apr-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
PFAS (49) (w)										
PFBA (w) ^{A#}	1.7							ng/l	1	Subcon Veritas
PFPeA (w) ^{A#}	1.25							ng/l	1	Subcon Veritas
PFHxA (w) ^{A#}	3.3							ng/l	1	Subcon Veritas
PFHpA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOA (w) ^{A#}	6.60							ng/l	1	Subcon Veritas
PFNA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnA; PFUDa (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDoA(w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTriDA; PFTriA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFTeA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxDA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFODA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFBS (w) ^{A#}	2.36							ng/l	1	Subcon Veritas
PFPeS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHxS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFHpS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFOS (w) ^{A#}	1.11							ng/l	1	Subcon Veritas
PFNS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFUnDS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFDoS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-DA (Gen X) (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
HFPO-TA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
DONA; ADONA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOPrA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
NFDHA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFMOBA (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
PFecHS (w) ^{A#}	<1.00							ng/l	1	Subcon Veritas
3:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
5:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas
7:3 FTCA (w) ^{A#}	<2.00							ng/l	2	Subcon Veritas

Envirolab Job Number: 24/04034

Client Project Name: Mondri

Client Project Ref: 19ECH016

Lab Sample ID	24/04034/8									
Client Sample No										
Client Sample ID	DS1									
Depth to Top										
Depth To Bottom										
Date Sampled	23-Apr-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
PFEESA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 CI-PFESA; 9 CI-PF3ONS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
8:2 CI-PFESA; 11 CI-PF3OUdS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
4:2 FTSA; 4:2FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas
6:2 FTSA; 6:2FTS (w) A [#]	143							ng/l	1	Subcon Veritas
8:2 FTSA; 8:2FTS (w) A [#]	1.14							ng/l	1	Subcon Veritas
FBSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FHxSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSA; N-MeFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSA; N-EtFOSA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
MeFOSE (w) A [#]	<1.00							ng/l	1	Subcon Veritas
EtFOSE (w) A [#]	<1.00							ng/l	1	Subcon Veritas
NMeFOSAA; MeFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
NEtFOSAA; EtFOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
FOSAA (w) A [#]	<1.00							ng/l	1	Subcon Veritas
10:2 FTS (w) A [#]	<1.00							ng/l	1	Subcon Veritas

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The results reported herein relate only to the material supplied to the laboratory.
 The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
 Analytical results reflect the quality of the sample at the time of analysis only.
 Opinions and Interpretations expressed are outside our scope of accreditation.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
 Stones etc. are not removed from the sample prior to analysis
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
 For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
 For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
 All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
 Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
 Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: Mondi
Clients Project No: 19ECH016

Project No: 24/04034
Date Received: 23/04/2024 (pm)
Cool Box Temperatures (°C): 12.0

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/04034/1	24/04034/2	24/04034/3	24/04034/4	24/04034/5	24/04034/6	24/04034/7	24/04034/8
Client Sample No								
Client Sample ID/Depth	WS1	WS7	WS8	WS16	US1	MS1b	MS3	DS1
Date Sampled	23/04/24	23/04/24	23/04/24	23/04/24	23/04/24	23/04/24	23/04/24	23/04/24

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report