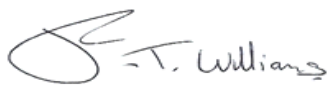


Technical Note

220 Elgar Road, South Reading, RG2 0BW

On behalf of Abri Group Limited

Report Reference: GWPR6817/TN/February 2026 V1.01		Status: Final
Issue	Prepared By	Checked and Verified By
V1.01		
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REPORT REFERENCE	The conditions and limitations of this technical note can be viewed within Appendix A. A technical glossary has also been provided within Appendix B. This Technical Note must be read in conjunction with the following reports: • Soil Environment Services Ltd Desk Study Report referenced SES/MH/ER/1#1, December 2020; • Hydrock Phase 2 Ground Investigation Report referenced 29680-HYD-XX-XX-RP-GE-1001, February 2025; • Ground and Water Limited Phase II Site Investigation Report, Ref. GWPR6540/SIR/July 2025 V1.3; and • Ground and Water Limited Site Investigate Scheme Report, ref: GWPR66540/IIMS/August 2025.																																										
AIMS	The aim of this report was to provide the most recent groundwater sampling results to help refine the conceptual site model and therefore what next steps are required at the site.																																										
SITE DETAILS	The site comprised a ~0.14ha rectangular-shaped plot of land, orientated in a north to south direction, along the western side of Elgar Road South. The site was located in south Reading, central Berkshire. The Easting Northing for the centre of the site was approximately 471502, 172109. A site location plan is given within Figure 1. At the time of the most recent site works, January 2026, the former building had been demolished and all hardstanding removed.																																										
PROPOSED DEVELOPMENT	At the time of reporting, February 2026, the proposed development was understood to comprise the demolition of existing single storey building and erection of three storey building containing 16 dwellings together with associated soft landscaping, car parking, indoor cycle spaces and refuse. The proposed development plan can be seen within Figure 2.																																										
FURTHER SITE WORKS	As outlined in the Site Investigation Scheme, site works were undertaken between the 8 - 19th January 2026 and comprised the drilling of 3No. Cable Percussion Boreholes (BH201 – BH203) to 15.00m bgl. Groundwater monitoring standpipes were installed as summarised in the following table. <table><tr><th colspan="7">Summary of Installations</th></tr><tr><th>Trial Hole</th><th>Type of Installation</th><th>Depth of Installation (m bgl)</th><th>Thickness of slotted piping with gravel filter pack (m)</th><th>Depth of plain piping with bentonite seal (m bgl)</th><th>Response Zone (m bgl)</th><th>Pipe internal diameter (mm)</th></tr><tr><td>BH201</td><td>Standpipe</td><td>15.00</td><td>11.00</td><td>4.00</td><td>4.00 – 15.00</td><td>50</td></tr><tr><td>BH202</td><td>Standpipe</td><td>15.00</td><td>10.00</td><td>5.00</td><td>5.00 – 15.00</td><td>50</td></tr><tr><td>BH203 (s)</td><td>Standpipe</td><td>4.00</td><td>3.00</td><td>1.00</td><td>1.00 – 4.00</td><td>50</td></tr><tr><td>BH203 (d)</td><td>Standpipe</td><td>15.00</td><td>10.00</td><td>5.00</td><td>5.00 – 15.00</td><td>50</td></tr></table>	Summary of Installations							Trial Hole	Type of Installation	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Response Zone (m bgl)	Pipe internal diameter (mm)	BH201	Standpipe	15.00	11.00	4.00	4.00 – 15.00	50	BH202	Standpipe	15.00	10.00	5.00	5.00 – 15.00	50	BH203 (s)	Standpipe	4.00	3.00	1.00	1.00 – 4.00	50	BH203 (d)	Standpipe	15.00	10.00	5.00	5.00 – 15.00	50
Summary of Installations																																											
Trial Hole	Type of Installation	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Response Zone (m bgl)	Pipe internal diameter (mm)																																					
BH201	Standpipe	15.00	11.00	4.00	4.00 – 15.00	50																																					
BH202	Standpipe	15.00	10.00	5.00	5.00 – 15.00	50																																					
BH203 (s)	Standpipe	4.00	3.00	1.00	1.00 – 4.00	50																																					
BH203 (d)	Standpipe	15.00	10.00	5.00	5.00 – 15.00	50																																					

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Trial Pits were also undertaken but will be reported under separate cover. This Technical Note relates to the groundwater sampling only.

As part of the Site Investigation Scheme it was intended for BH1 and BH2 from the previous investigation to be utilised for groundwater sampling. Unfortunately, BH2 was found damaged and BH1 could not be located. Therefore, these wells needed to be reinstalled.

Site works were undertaken on the 30th January 2026 and comprised the drilling of 2No. Windowless Sampler Boreholes (BH1A and BH2A – on the groundwater sample results these are called BH1 and BH2) to 5.00m bgl. Groundwater monitoring standpipes were installed to 4.80m bgl as summarised in the following table.

Summary of Installations						
Trial Hole	Type of Installation	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Response Zone (m bgl)	Piping internal diameter (mm)
BH1A	Standpipe	4.80	3.50	1.30	1.30 – 4.80	50
BH2A	Standpipe	4.80	3.60	1.20	1.20 – 4.80	50

SUMMARY OF MONITORING WELL INSTALLATIONS

The table below outlines the depth and construction of standpipes available for the monitoring at the site.

Summary of the Monitoring Standpipes				
Trial Hole	Depth	Response Zone (m bgl)	Targeted Strata	Purpose
BH1A	4.80	1.30 – 4.80	Lambeth Group	- Monitor groundwater levels; - Sample groundwater for chemical analysis.
BH2A	4.80	1.20 – 4.80		
BH203 (s)	4.00	1.00 – 4.00		
BH201	15.00	4.00 – 15.00	Seaford and Newhaven Chalk Formation	
BH202	15.00	5.00 – 15.00		
BH203 (d)	15.00	5.00 – 15.00		

EXISTING GROUNDWATER RISK ASSESSMENT

In the UK, the water environment is protected under a number of regulatory regimes, mainly governed by the Environment Agency. The Environment Agency is consulted when there may be a risk to Controlled Waters, or where a pollution incident has occurred historically. The Water Framework Directive is implemented in various guises covering groundwater, surface water and drinking water supply. In addition to the water environment receptors, contaminated groundwater has the potential to cause unacceptable risk to human health through vapours.

Background Information

The DEFRA online maps indicated that the site was located on Secondary A Aquifer associated with the bedrock Lambeth Group, underlain by a Principal Aquifer associated with the chalk. If Alluvium is encountered on-site these are classified as a Secondary A Aquifer.

From analysis of hydrogeological and topographical maps the groundwater table was anticipated to be encountered at a moderate depth within the Lambeth Group and at depth within the Chalk. Perched water was also likely to be found within the Made Ground, especially after periods of intense or prolonged rainfall. It was considered that the groundwater was flowing westwards, towards the River Kennet and in alignment with local topography.

The nearest surface water feature was recorded to be the River Kennet located ~100m north-west and 120m west. A drain connecting to the River Kennet was identified ~180m south.

The site was not located within a Source Protection Zone.

During the Hydrock investigation groundwater was encountered during drilling at depths predominantly within the Lambeth Group between 2.5m and 3.2m bgl within the external window sample boreholes, these initial strikes were noted to rise after 20 minutes by between 0.2m and 0.6m. Groundwater during the monitoring visits undertaken between 13th January 2025 and 3rd February 2025 recorded groundwater at 0.91 – 1.59m bgl.

During the previous site investigation, Made Ground was encountered to a maximum depth of 2.50m bgl, overlying sandy clay and clayey sand of the Lambeth Group to the base of the window sample boreholes (1.40-3.00m bgl). In the cable percussion boreholes chalk was encountered at 4.30 – 5.30m bgl to the base of the boreholes at 20.45m bgl. Groundwater strikes were noted between 2.00 – 4.45m bgl within the boreholes. It should be noted that groundwater strikes may be obscured by the drilling/excavation process.

During the current site investigation, Made Ground was encountered to a maximum depth of 3.00m bgl, overlying sandy clay and clayey sand of the Lambeth Group to 5.00m bgl 3.20 – 5.20m bgl where chalk was then encountered to the base of the boreholes at 5.00m bgl in the windowless sampler boreholes and 15.00m bgl in the cable percussion boreholes. Groundwater strikes were noted at 1.40m bgl in the windowless and between 3.10 – 6.10m bgl within the cable boreholes. It should be noted that groundwater strikes may be obscured by the drilling/excavation process.

A summary of the groundwater observations during site works has been provided below.

Groundwater Strikes during Drilling		
Trial Hole	Groundwater reading (m bgl)	Depth after 20 minutes (m bgl)
Previous Investigations		
BH1	3.00	2.76
BH2	2.80	2.77
	4.45	4.42
WS1	2.00	-
WS2	2.30	-
WS3	2.00	-
WS4	None	-
WS4A	2.00	-
New Investigation		
BH1A	1.40	1.40
BH2A	1.40	-
BH201	6.10	5.80
BH202	5.80	5.40
BH203	3.10	1.90
	5.90	5.10

Following the site investigation, 4No. return groundwater monitoring visits were undertaken. The groundwater levels can be seen below.

Depth of Groundwater within Trial Holes			
Trial Hole	Date	Depth of Groundwater (m bgl)	Depth of Standpipe (m bgl)
BH1	09/04/2025	3.49	-
BH2		1.74	-
BH1	16/05/2025	3.50	9.10
BH2		3.20	9.40
BH1	22/05/2025	3.20	9.10
BH2		3.10	9.40
BH1A	05/02/2026	1.41	4.47
BH2A		1.59	4.69
BH203 (s)		1.68	3.18
BH201		2.76	12.65
BH202		2.88	12.29
BH203 (d)		3.11	13.44

During the monitoring rounds on the 16th May 2025 and 22nd May 2025, samples were recovered from both boreholes. During the first visit the samples were taken following the removal of three times the borehole volume in order to develop the well. Samples were collected within a series of plastic and glass bottles, glass vials and bottles with preservatives to meet the requirements of BS5667 and as requested by the laboratory. An interface probe was used during all visits and no NAPL was identified.

Level 2 (groundwater) Risk Assessment

As the site is located on a Secondary A Aquifer of the Lambeth Group, it is considered that the aquifer may support base flow to rivers and surface water at a local level. It is therefore concluded that the most applicable screening values to be used is the Environmental Quality Standards (EQS), which are protective of ecology within the water. Where no EQS is available, other water quality standards have been noted within the table. A level 2 (groundwater) risk assessment compares the recorded concentration of a determinand to a pre-defined GAC (EQS, USEPA and UK drinking water standard).

The chemical laboratory results are presented in Appendix C and have been summarised within the table below. Only determinands that have an appropriate screening value have been included within the table.

Due to the amount of solids in the first visit samples, it was not possible to filter the groundwater sample and therefore the metals testing was not possible. The below results for metals is from the second visit only. The results reproduced below are only the determinands that are above the limit of detection and adopted screening value.

Groundwater Contamination Test Results and Screening Values				
Determinand	Minimum Concentration (µg/l)	Maximum Concentration (µg/l)	Adopted Screening Value (µg/l)	Was the adopted screening value exceeded?
METALS				
Copper	2.84	2.95	1 ^{1,4}	Yes
Nickel	6.26	6.37	4 ¹	Yes
PETROLEUM HYDROCARBONS				
Aromatic >EC21 – EC35	<10	265	90 ³	Yes
Total TPH	<10	265	10 ⁵¹	Yes
POLYCYCLIC-AROMATIC HYDROCARBONS				
Anthracene	< 0.05	0.972	0.1 ¹	Yes
Benzo(a)pyrene	< 0.02	15.1	0.00017 ¹	Yes
Benzo(b)fluoranthene	< 0.05	20.2	7	Yes
Benzo(k)fluoranthene	< 0.05	7.43		Yes
Benzo(ghi)perylene	< 0.05	14	7	Yes
Dibenzo(a,h)anthracene	< 0.05	2.08	0.0025 ⁶	Yes
Fluoranthene	< 0.05	15.1	0.0063 ¹	Yes
Indeno(1,2,3-cd)pyrene	< 0.05	14.5	7	Yes
Total EPA-16 PAHs	< 0.82	127	0.1 ⁵	Yes
SEMI-/VOLATILE ORGANIC COMPOUND				
Tetrachloroethene	15.3	61.8	34 ⁸	Yes

¹Environmental Quality Standards (EQS)

²Screening value changes as a result of calcium carbonate concentration of aquifer

³WHO Guidelines for drinking water quality, 2022

⁴Site specific threshold calculated based on the bio-availability per sample

⁵UK Drinking Water Standards

⁶United States Environmental Protection Agency

⁷For the group of priority substances for PAH, the AA EQS in water refer to the concentration of Benzo(a)pyrene on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for other PAH's, hence only Benzo(a)pyrene must be monitored for comparison with the AA EQS.

⁸SoBRA GAC_{gwvap}

The level 2 (groundwater) risk assessment has been undertaken and found determinands that are likely to have a detrimental effect on the underlying aquifer and potentially impacting the surface water nearby. Given the former use of the site as a brick works and the infilled ground which extended off-site significantly, it is likely that the determinands are a combination of the historical use on-site and off-site. Given a significant proportion of the site will be occupied by the building footprint which will involve removal of soils for the foundation excavations and the removal of 450mm of soils for the capping system in the soft landscaped areas, the majority of the worst soils will be removed. The Tetrachloroethene exceedance will be discussed separately in the vapour risk assessment below.

Human Health Risk Assessment from Dissolved Contaminants

In order to assess potential risk to site users, dissolved concentrations of potential contaminants have been compared to generic assessment criteria (GAC_{gwvap}) for assessing vapour risk to human health for volatile contaminants in groundwater for a residential end-use, published by the Society for Brownfield Risk Assessment (SoBRA). The table below and overleaf summarises the results of the laboratory analysis. Potential contaminants have been split into the groups presented in the SoBRA Report. Only determinands of concern that were detected in at least one sample over the monitoring period above the LOD where a SoBRA GAC_{gwvap} is published have been included. The results are included as Appendix D.

Groundwater Contamination Test Results			
Determinand	SoBRA GAC _{gwvap} (µg/l)	Laboratory Analysis Range (µg/l)	Was the GAC Exceeded?
POLYCYCLIC-AROMATIC HYDROCARBONS			
Acenaphthylene	220,000	<0.05 – 0.95	No
Fluorene	210,000	<0.05 - 0.178	No
HALOGENATED ORGANICS			
Tetrachloroethene (PCE)	34	15.3 – 61.8	Yes – BH2 (1 st visit)
Trichloroethene (TCE)	5.7	1.57 – 2.38	No
Trichloromethane (Chloroform)	790	<1 – 9.67	No

The assessment of risk to human health from vapours associated with dissolved contaminants in groundwater summarised in the table above indicates that the majority of the determinands are significantly below the GAC_{gwvap} adopted. The exceptions to this being the measured concentration of Tetrachloroethene in BH2 during the first visit.

PCE can degrade to TCE and Chloromethane and the source of the vapours is considered to be from an off-site source. Due to the results, further groundwater sampling was recommended to understand the risk from vapours.

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REFINED GROUNDWATER RISK ASSESSMENT

On 26th January 2026, BH203 (s), BH201, BH202 and BH203 (d) were purged by the removal of three times the borehole volume in order to develop the well. The same was undertaken for BH1A and BH2A on 30th January 2026. During the monitoring rounds on the 5th February 2026, samples were recovered from BH1A, BH2A, BH203 (s), BH201, BH202 and BH203 (d). Samples were collected within a series of plastic and glass bottles, glass vials and bottles with preservatives to meet the requirements of BS5667 and as requested by the laboratory.

The chemical laboratory results are presented in Appendix C and have been summarised within the table below. Only determinands that have an appropriate screening value have been included within the table.

Due to the number of solids in BH202 sample, it was not possible to filter the groundwater sample at the laboratory and therefore the metals testing was not possible. The results reproduced below are only the determinands that are above the limit of detection and adopted screening value.

Groundwater Contamination Test Results and Screening Values				
Determinand	Minimum Concentration (µg/l)	Maximum Concentration (µg/l)	Adopted Screening Value (µg/l)	Was the adopted screening value exceeded?
METALS				
Boron	63.4	781	750 ¹	Yes – BH201
Copper	<0.3	2.1	1 ^{1,4}	Yes – BH1, BH201, BH203 (s)
Lead	0.201	7.02	1.2 ¹	Yes – BH1, BH201
Nickel	2.98	14.4	4 ¹	Yes - All
Selenium	<1	14.9	7.5 ¹	Yes - BH1
Zinc	6	20.4	10.91,4	Yes - BH1, BH203 (s)
PETROLEUM HYDROCARBONS				
Aliphatic >C21-C35	<20	8990	Not derived	Above LOD – BH2
Aromatic >EC21 – EC35	<20	2370	90 ³	Above LOD – BH2
Total TPH	<10	11,400	10 ⁵¹	Yes – BH2, BH203 (s)
POLYCYCLIC-AROMATIC HYDROCARBONS				
Anthracene	< 0.005	3.27	0.1 ¹	Yes – BH1, BH2
Benzo(a)pyrene	0.00656	116	0.00017 ¹	Yes - All
Benzo(b)fluoranthene	0.0103	172	7	Yes - All
Benzo(k)fluoranthene	< 0.005	58.8		Yes – BH1, BH2, BH202, BH203 (s)
Benzo(ghi)perylene	< 0.005	97.4	7	Yes – BH1, BH2, BH202, BH203 (s)
Dibenzo(a,h)anthracene	< 0.005	14.2	0.0025 ⁶	Yes – BH1, BH2, BH202, BH203 (s)
Fluoranthene	< 0.025	57.4	0.0063 ¹	Yes – BH1, BH2, BH201, BH202, BH203 (s)

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Indeno(1,2,3-cd)pyrene	< 0.025	84.1	⁷	Yes – BH1, BH2, BH201, BH202, BH203 (s)
Total EPA-16 PAHs	< 0.082	778	0.1 ⁵	Yes – BH1, BH2, BH201, BH202, BH203 (s)
SEMI-/VOLATILE ORGANIC COMPOUND				
Chloroethene (Vinyl Chloride)	<1	2.01	0.62	Yes - BH202
Tetrachloroethene	<1	59.7	34 ⁸	Yes – BH2
¹ Environmental Quality Standards (EQS) ² Screening value changes as a result of calcium carbonate concentration of aquifer ³ WHO Guidelines for drinking water quality, 2022 ⁴ Site specific threshold calculated based on the bio-availability per sample ⁵ UK Drinking Water Standards ⁶ United States Environmental Protection Agency ⁷ For the group of priority substances for PAH, the AA EQS in water refer to the concentration of Benzo(a)pyrene on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for other PAH's, hence only Benzo(a)pyrene must be monitored for comparison with the AA EQS. ⁸ SoBRA GAC _{gwvap}				

In order to assess potential risk to site users, dissolved concentrations of potential contaminants have been compared to generic assessment criteria (GAC_{gwvap}) for assessing vapour risk to human health for volatile contaminants in groundwater for a residential end-use, published by the Society for Brownfield Risk Assessment (SoBRA). The table below and overleaf summarises the results of the laboratory analysis. Potential contaminants have been split into the groups presented in the SoBRA Report. Only determinands of concern that were detected in at least one sample over the monitoring period above the LOD where a SoBRA GAC_{gwvap} is published have been included. The results are included as Appendix D.

Groundwater Contamination Test Results			
Determinand	SoBRA GAC _{gwvap} (µg/l)	Laboratory Analysis Range (µg/l)	Was the GAC Exceeded?
HALOGENATED ORGANICS			
Chloroethene (Vinyl Chloride)	0.62	<1 – 2.01	Yes – BH202 (3 rd Visit)
trans-1,2-Dichloroethene	160	<1 – 1.19	No
cis-1,2-Dichloroethene	130	<1 – 10.1	No
Tetrachloroethene (PCE)	34	<1 – 59.7	Yes – BH2 (1 st + 3 rd visit)
Trichloroethene (TCE)	5.7	<1 – 1.77	No
Trichloromethane (Chloroform)	790	<1 – 8.99	No

PCE can degrade to TCE, Chloromethane and eventually Vinyl Chloride. The heavier chain concentrations above limit of detection of the laboratory and above the assessment criteria for PCE are all within BH2 (south of site adjacent to the landfill thought to be the source of the vapours) and

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BH202 where the Vinyl Chloride has been identified is in the north of the site. No elevated concentrations were identified within the chalk aquifer.

PILING GROUNDWATER RISK ASSESSMENT

Given the geology at the site, piling is the preferred method for foundations. As these may extend into the aquifer beneath the site, the potential for pathways to be present need to be considered.

Review of the Wilson and Mortimer paper *Piled foundations and pathways for ground gas migration in the UK* (ICE publishing – Environmental Geotechnics), indicates that any preferential pathways for ground gases or contaminated water created by piles needs consideration for ground conditions and the nature of the pile utilised.

The Environment Agency recommend that CFA piling is undertaken on any site where contamination may be expected.

Some metals, heavy end TPHs, PAHs and TCE have been identified in the shallow aquifer. It is considered plausible the metals and PAHs could originate from the sites former use as a brick works. However, the source of the TCE and other VOCs is likely to be from the landfill adjacent to the south which also may be contributing to the other contaminants found too. The deep aquifer is does not appear to be affected in the same way.

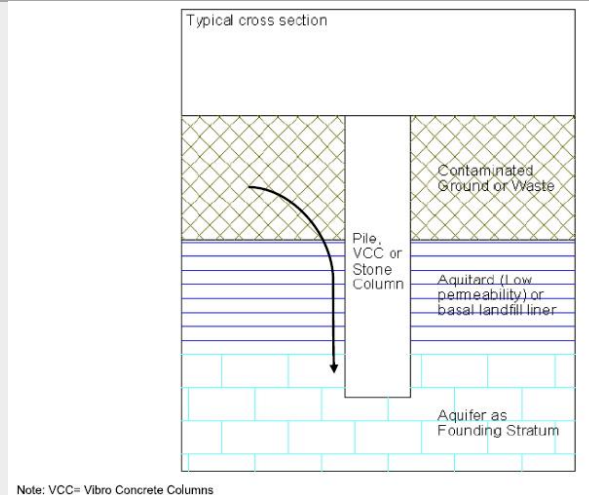
The EA identify six possible pollution scenarios where piling has a potential to cause pollution. These scenarios are summarised in the Table below.

Pollution scenario	Description
1	Creation of preferential pathways through a low permeability layer, to allow potential contamination of an underlying aquifer.
2	Creation of preferential pathways through a low permeability surface layer, to allow upward migration of landfill gas, soil gas or contaminant vapours to the surface.
3	Direct contact of site workers and others with contaminated soil arisings that have been brought to surface.
4	Direct contact of the piles with contaminated soil or leachate causing degradation of pile material.
5	Driving solid contaminants into aquifer during piling.
6	Contamination of groundwater and, subsequently, surface waters by wet concrete, cement paste or grout.

Pollution Scenario 1

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 1.

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The site was formerly a brick works and kilns and later used as a laboratory. All of these have contributed to the Made Ground underlying the site (maximum depth of 2.50m bgl).

The Made Ground is underlain by the following natural strata:

- Lambeth Group (silts, clays, sands and gravels);
- Seaford and Newhaven Chalk Formation (chalk).

The Lambeth Group appeared to be present underlying the Made Ground deposits across the site, as cohesive and granular layers. These lower permeability cohesive layers currently limit the downward migration of contaminants to the underlying Principal Aquifer in the chalk. Penetrating this layer has the potential to create a pathway to the underlying aquifer.

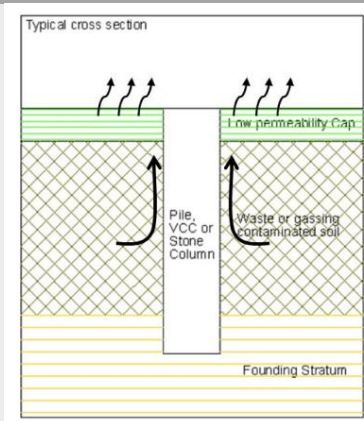
Replacement/non-displacement piling methods minimise the creation of preferential pathways along the sides of the pile, compared to displacement techniques as movement of the material surrounding the pile is reduced and there is little radial or vertical movement or densification.

CFA techniques provide a tight seal to the surrounding soil and reduce permeability at the soil-pile interface due to the placement method of the concrete under high pressure. The short time between boring and placement of concrete means that a temporary pathway may be created however it is quickly closed. To ensure support of the soil during CFA piling, the concrete should be placed at a rate consistent with the withdrawal of the auger. Therefore, the risk of pollution of groundwater with regards to the creation of preferential pathways through low permeability layers is low.

Pollution Scenario 2

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 2.

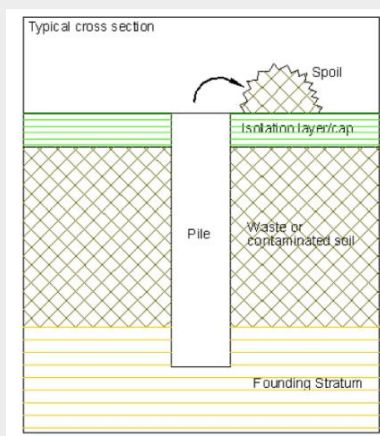
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The site investigations concluded the site is at risk from gases and vapours from primarily the off-site landfill. With respect of the Made Ground material on-site, a significant portion of this will be removed as part of foundation construction and 450mm will be removed in the soft landscaped areas as part of remedial measures. However, not all of this will be undertaken prior to construction and therefore will be present when any preferential pathways created by piling may be present. It is recommended that a watching brief and monitoring of soil arisings by a specialist is undertaken during the piling and any contaminated material will be segregated and removed in line with the specialist's recommendation, providing further assurance that any material will be dealt with appropriately.

Pollution Scenario 3

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 3.



CFA piling techniques will generate soil arisings at the surface, which will include the contaminated Made Ground material.

The controls required would depend on the lead contractor / piling contractors risk assessments, but would likely include:

- Use of PPE/RPE as identified by task specific risk assessments;
- Use of dampening down measures during the piling works so materials are dampened as they arrive at the surface;

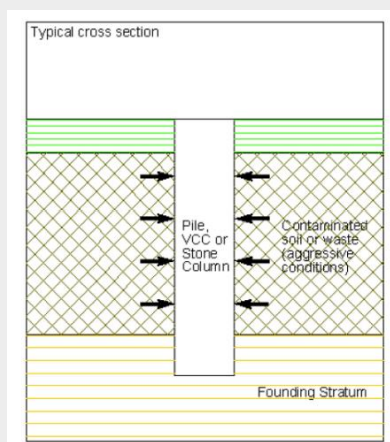
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- Airborne fibre monitoring at piling locations with control measures adapted should trigger levels be exceeded;
- Watching brief by specialist consultant to identify if visible ACMs are brought to the surface, with hand picking as required;
- Relocation of Made Ground arisings (if ACMs identified) to waste treatment compound, where they will be treated.

Providing the appropriate measures are in place the risk of site workers coming into direct contact with contaminated soil arisings is low.

Pollution Scenario 4

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 4.



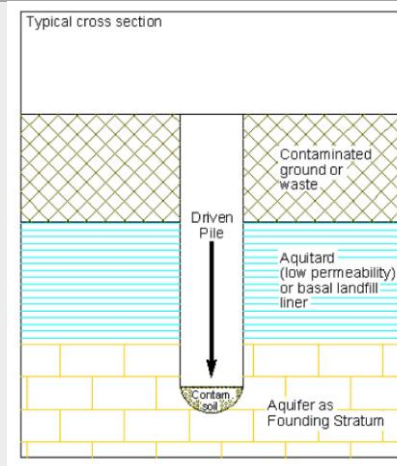
Concrete in contact with contaminated soils, leachate or groundwater may be subject to chemical attack and degradation. The degradation of concrete could reduce the effectiveness of the seal between the pile and surrounding ground resulting in pathways to open along the soil / pile interface, increasing the risk of pollution scenarios 1 and 2. In particularly aggressive scenarios, degradation of concrete can cause structural weakness, leading to long term settlement or eventual collapse of structures.

In the site investigation, Soil sulphates in the Made Ground and natural soils fall within BRE design class DS-1 and the site conditions fall within the ACEC class AC-1. This should ensure that the risk of pile degradation will be very low.

Pollution Scenario 5

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 5.

Technical Note (GWPR6817/TN/February 2026 V1.01)

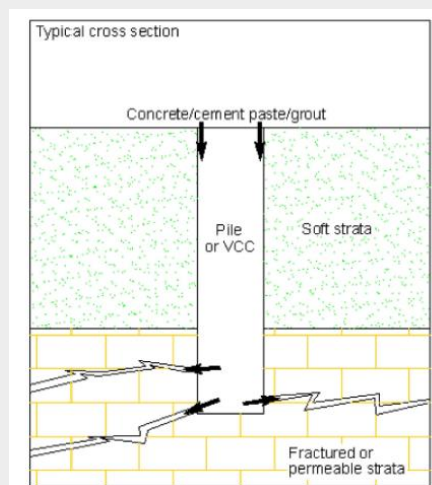


CFA piles are replacement / non-displacement grout or concrete intruded piles and a direct push of contaminants is not anticipated using this method. The ground is supported throughout the CFA piling process, initially by the auger bore and subsequently by the injected concrete through the hollow stem. As it is extended, and concrete is injected there is no need for casings or drilling fluids to support the excavation. There is no or little disturbance and the piles are formed in intimate contact with surrounding soil.

As the proposed pile type is not driven, there is very little possibility of solid contaminants being pushed into the underlying aquifer. The use of CFA and bored piles will bring arisings to surface rather than driving them downwards, therefore piling risks associated with this scenario are considered to be very low.

Pollution Scenario 6

The drawing below is taken from the EA guidance and depicts an example of pollution scenario 6.



CFA and bored (cast in situ) piles will introduce concrete into the ground as part of the construction of the pile. Mitigations including designing the concrete mix to limit bleeding into pore spaces / voids in the Made Ground shall be adopted. Localised grout migration may occur until the concrete is set;

Technical Note (GWPR6817/TN/February 2026 V1.01)

however, this would be anticipated to be in the order of minutes of hours, rather than days, and any impact is likely to be very localised. Waste concrete at the surface of the pile will be collected and disposed of appropriately.

As the concrete design will not permit significant seepage of wet concrete the risks associated with this scenario are considered to be very low.

Piling Risk Assessment Summary

Pollution Scenario	CFA piles		
	Probability	Consequence	Risk
1	Low	Medium	Low
2	Low	Low	Low
3	Very Low	Low	Very Low
4	Very Low	Medium	Very Low
5	Very Low	Medium	Very Low
6	Medium	Low	Low

The assessment indicated there is an overall low to very low risk of pollution from CFA piling techniques. The CFA piling technique will minimise any contaminants reaching the deeper more vulnerable aquifer.

REFINED CONCEPTUAL SITE MODEL

It appears vapours are migrating from the landfill to the south and onto the site, these are degrading as they travel across the site towards the north within the shallow superficial Secondary A Aquifer. CFA piling is the method of foundation construction to be used at the site, therefore to ensure piling does not create a pathway to the underlying Principal Aquifer monitoring will need to be undertaken during and post piling.

PROPOSED MONITORING

Proposed Investigation:

It is anticipated the piling will take 10 days to complete. It is recommended that during piling 2No. groundwater sampling visits are undertaken on days 3 and 7. Post piling it is recommended sampling is undertaken once a month for three months.

During the monitoring visits, a number of monitored natural attenuation (MNA) parameters will be assessed. The parameters monitored should be specific to the issues relating to the site. The parameters required to assess are the following:

- Aquifer hydraulics
- Concentration of parent contaminant
- Dissolved oxygen
- Total organic carbon

Technical Note (GWPR6817/TN/February 2026 V1.01)

- pH

During each monitoring visit, groundwater levels will be recorded. An interface meter will be used within all boreholes to determine the presence or absence of NAPL, either floating at the air-water interface (LNAPL), or at the base of the aquiclude (DNAPL).

Groundwater level data will be obtained to determine the groundwater flow direction in each Aquifer.

Groundwater samples will be recovered from all boreholes with sufficient groundwater for sampling. Prior to each sample being obtained, the wells will be developed in line with the Environment Agency guidance (Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water) as well as BS5667-11:2009 (Water quality Sampling Part 11: Guidance on sampling of groundwaters) by pumping a minimum of three well volumes.

For the sampling of shallow standpipes (BH1, BH2 and BH203) and deeper standpipes (BH201 – BH203), it was deemed that low flow purging and sampling using thin tubes should be undertaken, to limit disturbance to the water column. Well head parameters (electrical conductivity (EC), temperature, pH and dissolved oxygen (DO)) should be monitored. A suitable pump for sampling could be an SP1 suction pump with spark arrestor, shown here: <https://in-situ.com/uk/sp1-suction-pump-with-spark-arrestor>.

After water level recovery a groundwater sample will be recovered and transferred to laboratory supplied sampling bottles and vials. The samples will be filtered and preserved for specific analysis in line with the requirements of BS5667-3:2018 (Water quality Sampling Part 3: Preservation and handling of water samples), e.g. water samples preserved in nitric acid for metal analysis, glass bottles for hydrocarbons and glass vials with no airspace for VOCs. The samples will then be placed in a cool box with ice packs for transfer to the MCERTS/UKAS accredited laboratory.

The proposed chemical analysis suite for the groundwater sampling would be as follows;

- Polycyclic Aromatic Hydrocarbons (PAH's) incl. Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(ghi)perylene;
- TPH-CWG, including full aliphatic/aromatic split;
- BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene);
- Volatile & Semi-Volatile Organic Compounds (VOCs/SVOCs).

Samples will be sent to a suitable MCERT and UKAS accredited laboratory to undergo analysis. Testing will be undertaken ensuring a limit of detection lower than the adopted screening values.

Reporting

Following the completion of groundwater monitoring, sampling and testing, and in line with the current guidance, a risk assessment report will be produced summarising the findings of the site investigation. The results of the chemical laboratory analysis and monitoring visits will be compared to the

Technical Note (GWPR6817/TN/February 2026 V1.01)

Assessment Criteria. The report will build on the understanding of the site, achieved through the desk study and CSM developed and will identify any plausible risks that may be present as part of the development.

Once all test results are received, the groundwater risk assessment will consider a three-tier approach. The first tier will consider the concentrations identified within the laboratory analysis of the soils and whether these concentrations are likely to pose a risk to groundwater. The second tier will compare laboratory analysis of groundwater samples to the outlined screening values that relate to the Environment Quality Standards (EQS). The concentrations will provide information as to whether the groundwater is impacted beneath the site and poses an unacceptable risk to receptors. The third tier will assess if the contaminated groundwater will pose a risk to receptors in close proximity to the site.

The report will provide an updated CSM as part of the quantitative risk assessment and will indicate whether any remediation is required. Any additional investigation that is deemed to be necessary following the next phase of the investigation must be identified and undertaken prior to submitting the final Ground Investigation and Quantitative Risk Assessment to the council.

Decommissioning

Any standpipes (existing and proposed, where applicable) are to be decommissioned in the future, the voids left behind will be grouted to avoid opening a pathway between the source (groundwater) and receptors at the surface. Bentonite grout should be mixed with water prior to pouring down the void, to assure quality results.

DUTY OF CARE

Groundworkers must maintain a good standard of personal hygiene including the wearing of overalls, boots, gloves and eye protectors and the use of dust masks during periods of dry weather.

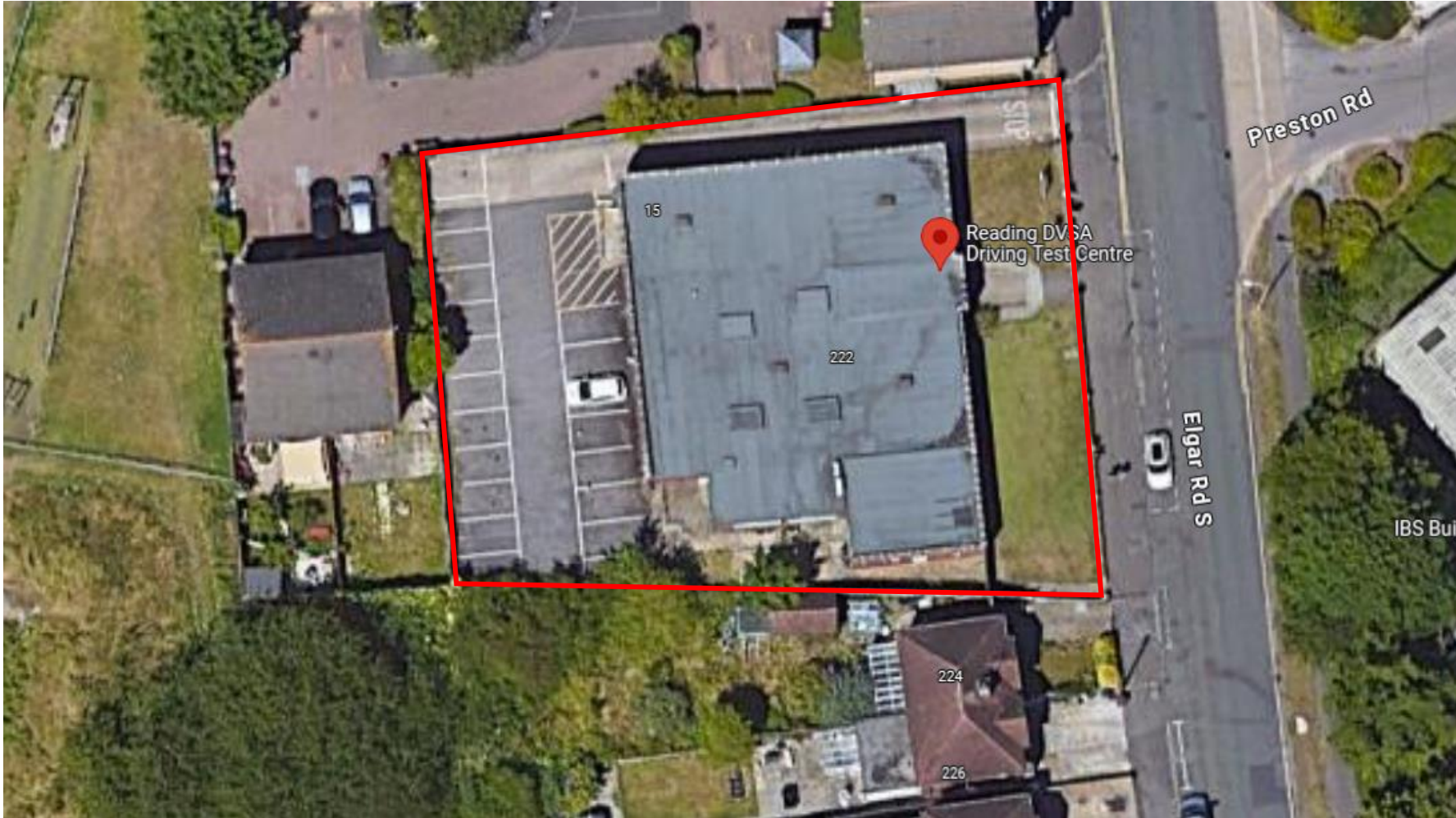
To prevent exposure to airborne dust by both the general public and construction personnel the site should be kept damp during dry weather and at other times when dust is generated as a result of construction activities.

The site should be securely fenced at all times to prevent unauthorised access. Washing facilities should be provided and eating restricted to mess huts.

The standpipes installed must be protected during the construction phase so that they can be utilised throughout for sampling.

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FIGURES




 Site boundary

220 Elgar Road, South Reading RG2 0BW

Abri

February 2026

Figure 1 – Site Location Plan

GWPR6817



Permeable Bloc paving
100x200 to parking bays laid
in herringbone bond.
Colour:Bracken

Bloc paving 100x200 laid in
herringbone bond.
Colour:charcoal

Disabled Parking

Allocated Parking

Stainless steel
wall-mounted low-level
light fitting.
Downlighting only

Electric Vehicle charger

Evergreen hedge

Proposed Play Area.
Grassed area

Proposed Light
Bollard(down lighting)

Planting bed

Amenity Space
with seating. Self
binding gravel

Patio Areas.
Concrete Paving Slabs -
Private defensible space in
front of flat windows

Private defensible
space in front of
flat windows

no.1-12

no.224

Vehicular and pedestrian security
gates. Decorated black to match
other metalwork. Fob and keypad
control

Proposed brick boundary wall,
capped with metal railings, as
elevations. Brickwork to match
proposed building. Railings
decorated black

Access steps to private unit and
private amenity space. Metal
railing access gate, decorated
black. Concrete paving, buff
sandstone colour

Private defensible space in
front of flat windows

Soft landscaping as UBU Design
plans

Proposed metal railing with gate
as access control to rear of site,
against southern boundary.
Decorated black.

Proposed brick boundary wall,
capped with metal railings, as
elevations. Brickwork to match
proposed building. Railings
decorated black

Note: To be read in conjunction
with UBU Design
Planting/Landscaping Plan



220 Elgar Road, South Reading RG2 0BW

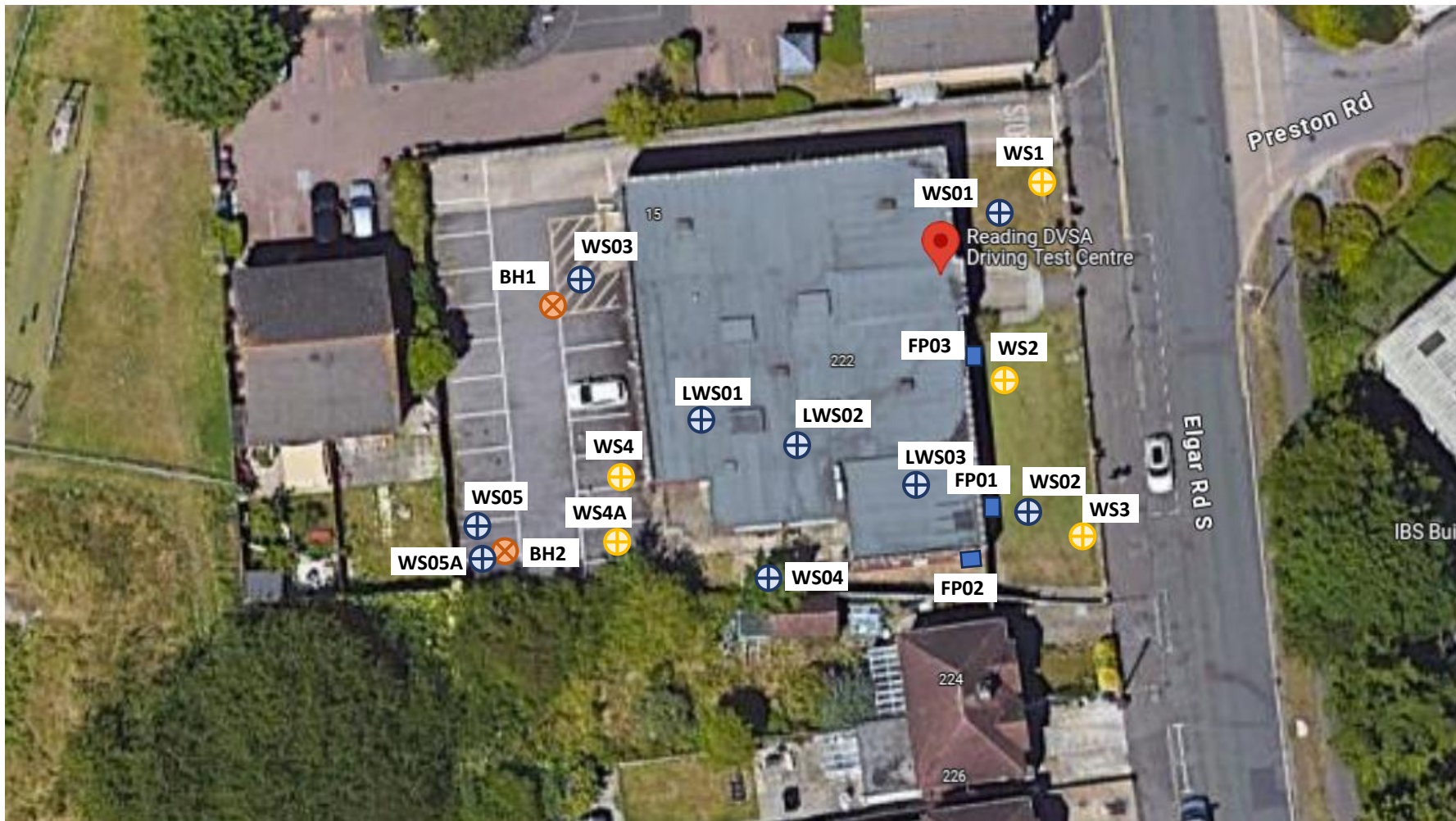
Abri

February 2026

Figure 2 – Proposed Development Plan

GWPR6817





Site boundary

Previous Hydrock SI:

Windowless Sampler Borehole

Hand Excavated Trial Pit Foundation Exposure

G&W SI:

Cable Percussion Borehole

Windowless Sampler Borehole

220 Elgar Road, South Reading RG2 0BW

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February 2026

Figure 3A – GWPR6540 Trial Hole Location Plan

GWPR6817





Site boundary

G&W SI Visit 1:

Cable Percussion Borehole

G&W SI Visit 2:

Cable Percussion Borehole

Machine Excavated Trial Pit

220 Elgar Road, South Reading RG2 0BW

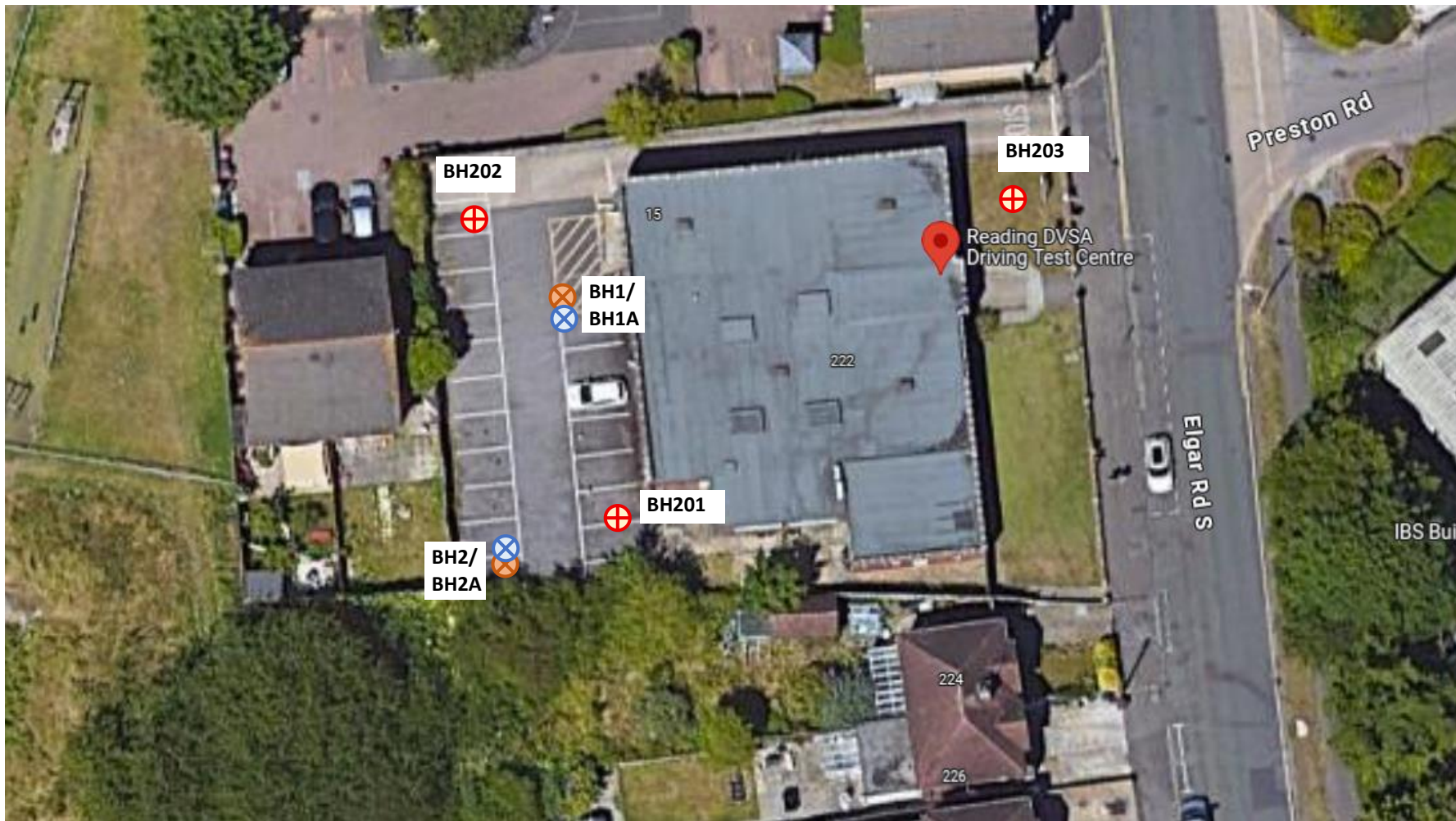
Abri

February 2026

Figure 3B – GWPR6817 Trial Hole Location Plan

GWPR6817





220 Elgar Road, South Reading RG2 0BW

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February 2026

Figure 3C – Well Location Plan

GWPR6817



APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report (“you” or “the Recipient”) are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to 220 Elgar Road, South Reading, RG2 0BW.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

The aim of the investigation was understood to be to supply the client and their designers with information regarding the ground conditions underlying the site to assist them in preparing an appropriate scheme for development.

APPENDIX B: Technical Glossary

TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary (A) Aquifers consist of deposits with permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as Minor Aquifers.

Secondary (B) Aquifers consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Aquifers (Undifferentiated) are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

FLOOD ZONES:

Environment Agency Flood Zone 2, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Environment Agency Flood Zone 3 shows the extent of a river flood with a 1 in 100 (1%0 or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

Environment Agency Flood Zone 3 area that benefits from flood defences, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

Inner Zone (SPZ1): This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

Outer Zone (SPZ2): This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.

Total Catchment (SPZ3): This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

Zone of Special Interest (SPZ4): This zone is where local conditions require additional protection.

IN-SITU STRENGTH GEOTECHNICAL TESTING:

Windowless Sample and/or Cable Percussion and/or Rotary Boreholes provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

Dynamic Probing involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).

APPENDIX C: Chemical Laboratory Testing



Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Ground and Water Ltd
Head Office
2 The Long Barn
Norton Farm, Selborne Road
Alton
Hampshire
GU34 3NB

Attention: Natasha Kearn

CERTIFICATE OF ANALYSIS

Date of report Generation:	29 May 2025
Customer:	Ground and Water Ltd
Sample Delivery Group (SDG):	250517-53
Your Reference:	GWPR6540
Location:	220 Elgar Road South, Reading RG2 0BW
Report No:	766145
Order Number:	GWPR6540

We received 2 samples on Saturday May 17, 2025 and 2 of these samples were scheduled for analysis which was completed on Thursday May 29, 2025. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Justin Keeton

Business Unit Leader - Land



1291



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
31527954	BH1		0.00 - 0.00	16/05/2025
31527971	BH2		0.00 - 0.00	16/05/2025

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		31527954	31527971
	Customer Sample Reference		BH1	BH2
	AGS Reference			
	Depth (m)		0.00 - 0.00	0.00 - 0.00
	Container		Vial (ALE297)	Vial (ALE297)
	Sample Type		NaOH (ALE245)	NaOH (ALE245)
			500ml Plastic (ALE208)	500ml Plastic (ALE208)
Anions by Kone (w)	All	NDPs: 0 Tests: 2	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2		X
Dissolved Metals by ICP-MS	All	NDPs: 2 Tests: 0	N	N
EPH and CWG by FID	All	NDPs: 0 Tests: 2	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 2		X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2	X	X
Mercury Dissolved	All	NDPs: 2 Tests: 0	N	N
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2	X	X
pH Value	All	NDPs: 0 Tests: 2	X	X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2	X	X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 2	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 2	X	X
VOC MS (W)	All	NDPs: 0 Tests: 2		X

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145

Superseded Report:

Location: 220 Elgar Road South, Reading RG2 0BW

[illegible]

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145

Superseded Report:

Location: 220 Elgar Road South, Reading RG2 0BW

PAH Spec MS - Aqueous (W)

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145

Superseded Report:
Location: 220 Elgar Road South, Reading RG2 0BW

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	BH1	BH2			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Ground Water (GW)			
M	mCERTS accredited.		16/05/2025	16/05/2025			
aq	Aqueous / settled sample.		00:00	00:00			
diss.filt	Dissolved / filtered sample.		17/05/2025	17/05/2025			
tot.unfilt	Total / unfiltered sample.		250517-53	250517-53			
*	Subcontracted - refer to subcontractor report for accreditation status.		31527954	31527971			
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
***	6:2 FTAB (see appendix)						
1-4*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Chlorophenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Methylphenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Nitroaniline (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
2-Nitrophenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
3-Nitroaniline (aq)	<1 µg/l	TM176	<10	<100			
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
4-Chloroaniline (aq)	<1 µg/l	TM176	<10	<100			
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
4-Methylphenol (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
4-Nitroaniline (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
4-Nitrophenol (aq)	<1 µg/l	TM176	<10	<100			
Azobenzene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
Acenaphthylene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
Acenaphthene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
Anthracene (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<20 ♦ #	<200 #			
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<10 ♦ #	<100 #			



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH2			
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00 Ground Water (GW) 16/05/2025 00:00 17/05/2025 250517-53 31527954	0.00 - 0.00 Ground Water (GW) 16/05/2025 00:00 17/05/2025 250517-53 31527971			
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
***	6:2 FTAB (see appendix)								
1-4+5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<10		<100				
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Carbazole (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Chrysene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Dibenzofuran (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Diethyl phthalate (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Dimethyl phthalate (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<50	◆ #	<500	#			
Fluoranthene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Fluorene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Hexachlorobenzene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Pentachlorophenol (aq)	<1 µg/l	TM176	<10		<100				
Phenol (aq)	<1 µg/l	TM176	<10		<100				
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Hexachloroethane (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Nitrobenzene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Naphthalene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Isophorone (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<10		<100				
Phenanthrene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			
Pyrene (aq)	<1 µg/l	TM176	<10	◆ #	<100	#			



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145

Superseded Report:

Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

Results Legend		Customer Sample Ref.	BH1	BH2			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted - refer to subcontractor report for accreditation status.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
***	6:2 FTAB (see appendix)						
1-4*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM208	106	103			
Toluene-d8**	%	TM208	98.9	95.8			
4-Bromofluorobenzene**	%	TM208	98.9	84.5			
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1			
Chloromethane	<1 µg/l	TM208	<1	<1			
Vinyl chloride	<1 µg/l	TM208	<1	<1			
Bromomethane	<1 µg/l	TM208	<1	<1			
Chloroethane	<1 µg/l	TM208	<1	<1			
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1			
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1			
Carbon disulphide	<1 µg/l	TM208	<1	<1			
Dichloromethane	<3 µg/l	TM208	<3	<3			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1			
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1			
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1			
Bromochloromethane	<1 µg/l	TM208	<1	<1			
Chloroform	<1 µg/l	TM208	<1	9.67			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1			
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1			
Carbontetrachloride	<1 µg/l	TM208	<1	<1			
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1			
Benzene	<1 µg/l	TM208	<1	<1			
Trichloroethene	<1 µg/l	TM208	2.38	2.01			
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1			
Dibromomethane	<1 µg/l	TM208	<1	<1			
Bromodichloromethane	<1 µg/l	TM208	<1	<1			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1			
Toluene	<1 µg/l	TM208	<1	<1			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1			



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH2			
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00 Ground Water (GW) 16/05/2025 00:00 17/05/2025 250517-53 31527954	0.00 - 0.00 Ground Water (GW) 16/05/2025 00:00 17/05/2025 250517-53 31527971			
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
***	6:2 FTAB (see appendix)								
1-4*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #					
Tetrachloroethene	<1 µg/l	TM208	15.3 #	61.8 #					
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #					
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #					
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #					
o-Xylene	<1 µg/l	TM208	<1 #	<1 #					
Styrene	<1 µg/l	TM208	<1 #	<1 #					
Bromoform	<1 µg/l	TM208	<2 #	<1 #					
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #					
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #					
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #					
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #					
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #					
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #					
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #					
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 #	<1 #					
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #					
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #					
Naphthalene	<1 µg/l	TM208	<1 #	<1 #					

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145

Superseded Report:

Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 17/05/2025 08:13:22

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
31527954	BH1	0.00 - 0.00	Mercury Dissolved	nple contains sediment-unsuitable for filtered anal
31527954	BH1	0.00 - 0.00	Dissolved Metals by ICP-MS	nple contains sediment-unsuitable for filtered anal
31527971	BH2	0.00 - 0.00	Mercury Dissolved	nple contains sediment-unsuitable for filtered anal
31527971	BH2	0.00 - 0.00	Dissolved Metals by ICP-MS	nple contains sediment-unsuitable for filtered anal



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Table of Results - Appendix

Method No	Description
TM176	Determination of SVOCs in Water by GCMS
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Test Completion Dates

Lab Sample No(s)	31527954	31527971
Customer Sample Ref.	BH1	BH2
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water
Anions by Kone (w)	21-May-2025	21-May-2025
Cyanide Comp/Free/Total/Thiocyanate	27-May-2025	27-May-2025
EPH and CWG by FID	23-May-2025	29-May-2025
GRO by GC-FID (W)	27-May-2025	27-May-2025
Hexavalent Chromium (w)	20-May-2025	20-May-2025
PAH Spec MS - Aqueous (W)	22-May-2025	22-May-2025
pH Value	23-May-2025	23-May-2025
Phenols by HPLC (W)	22-May-2025	22-May-2025
SVOC MS (W) - Aqueous	28-May-2025	22-May-2025
TPH CWG (W)	27-May-2025	29-May-2025
VOC MS (W)	27-May-2025	27-May-2025



CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

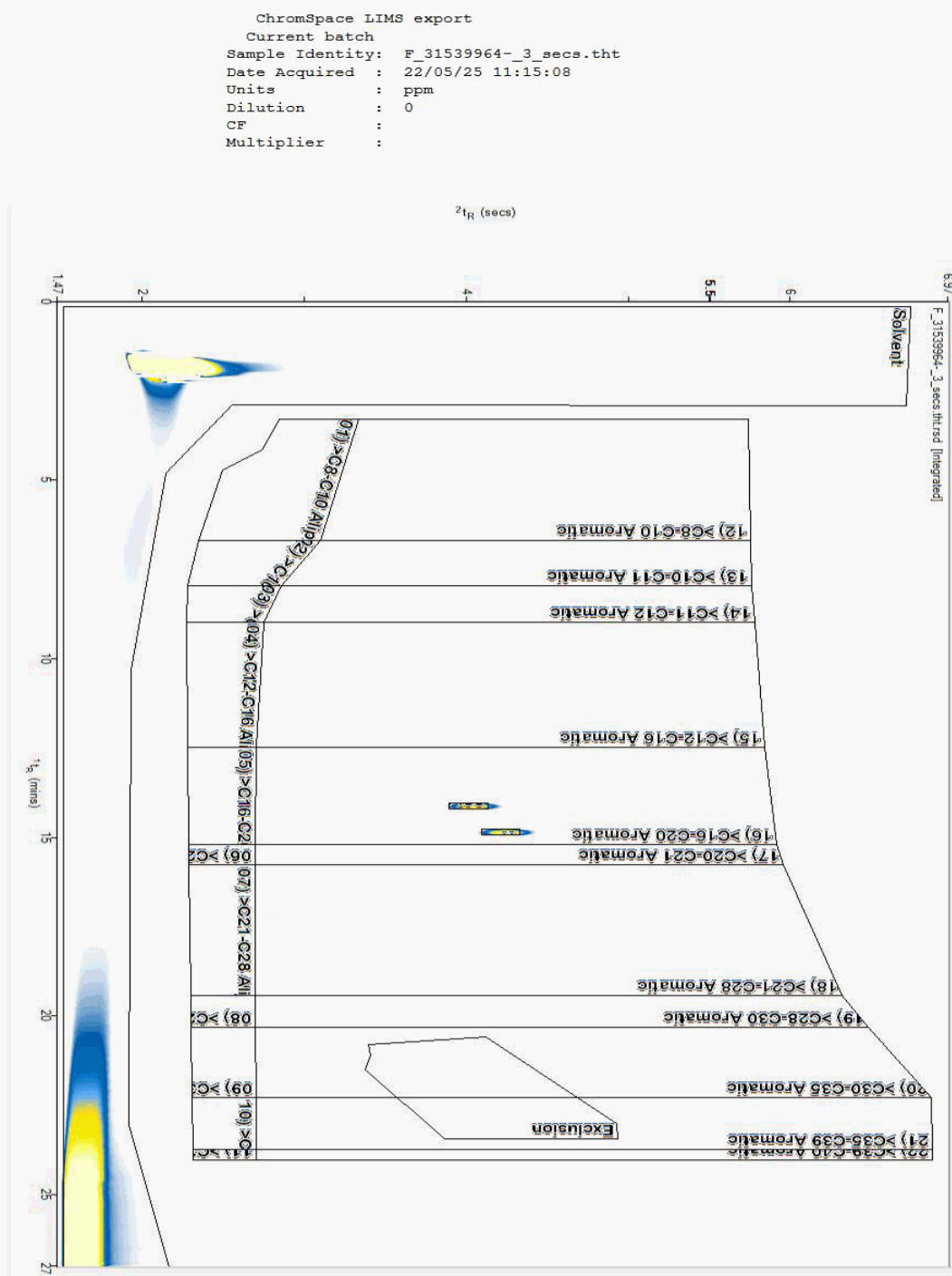
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 31539964
Sample ID : BH1

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

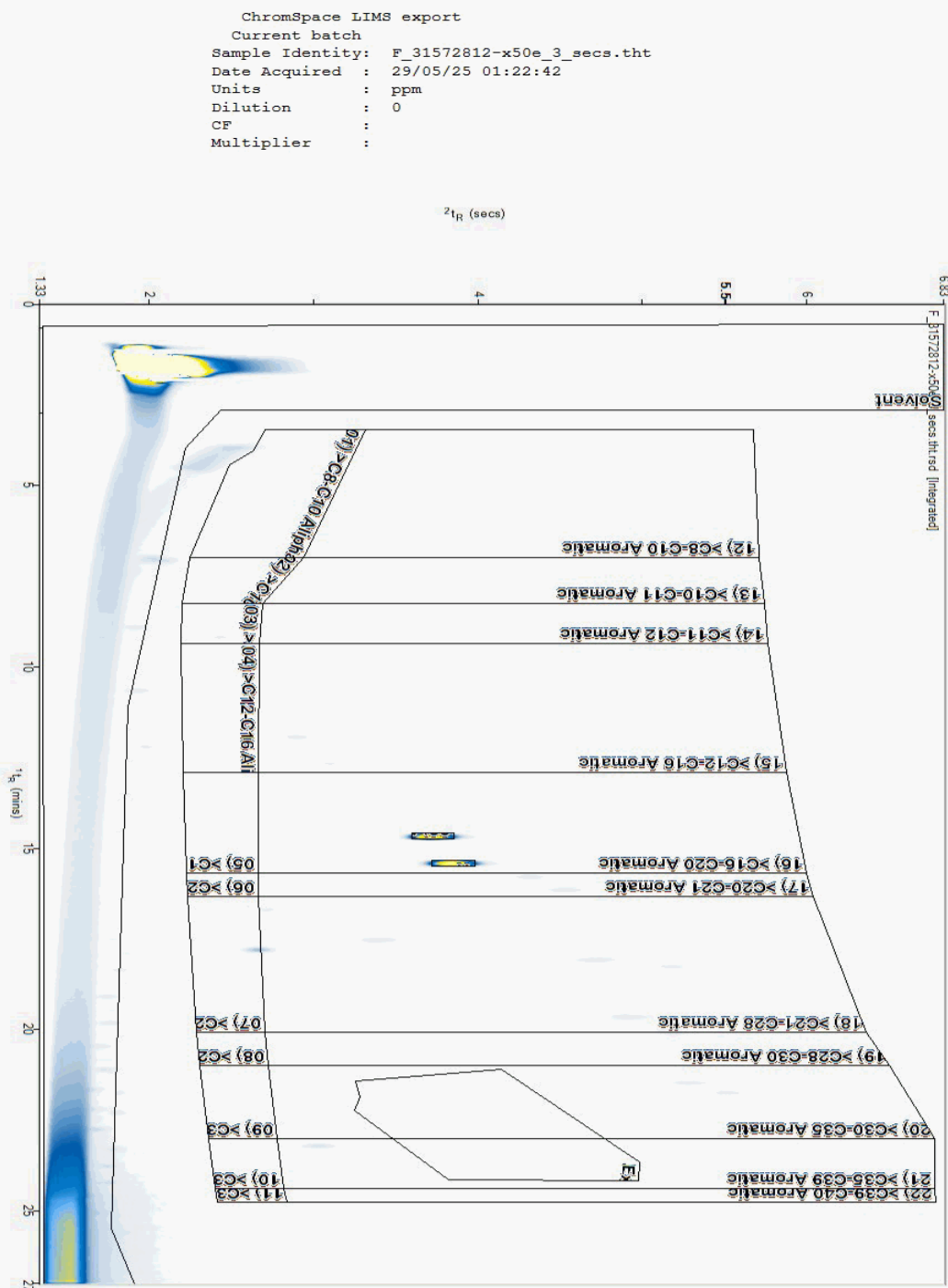
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 31572812
Sample ID : BH2

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

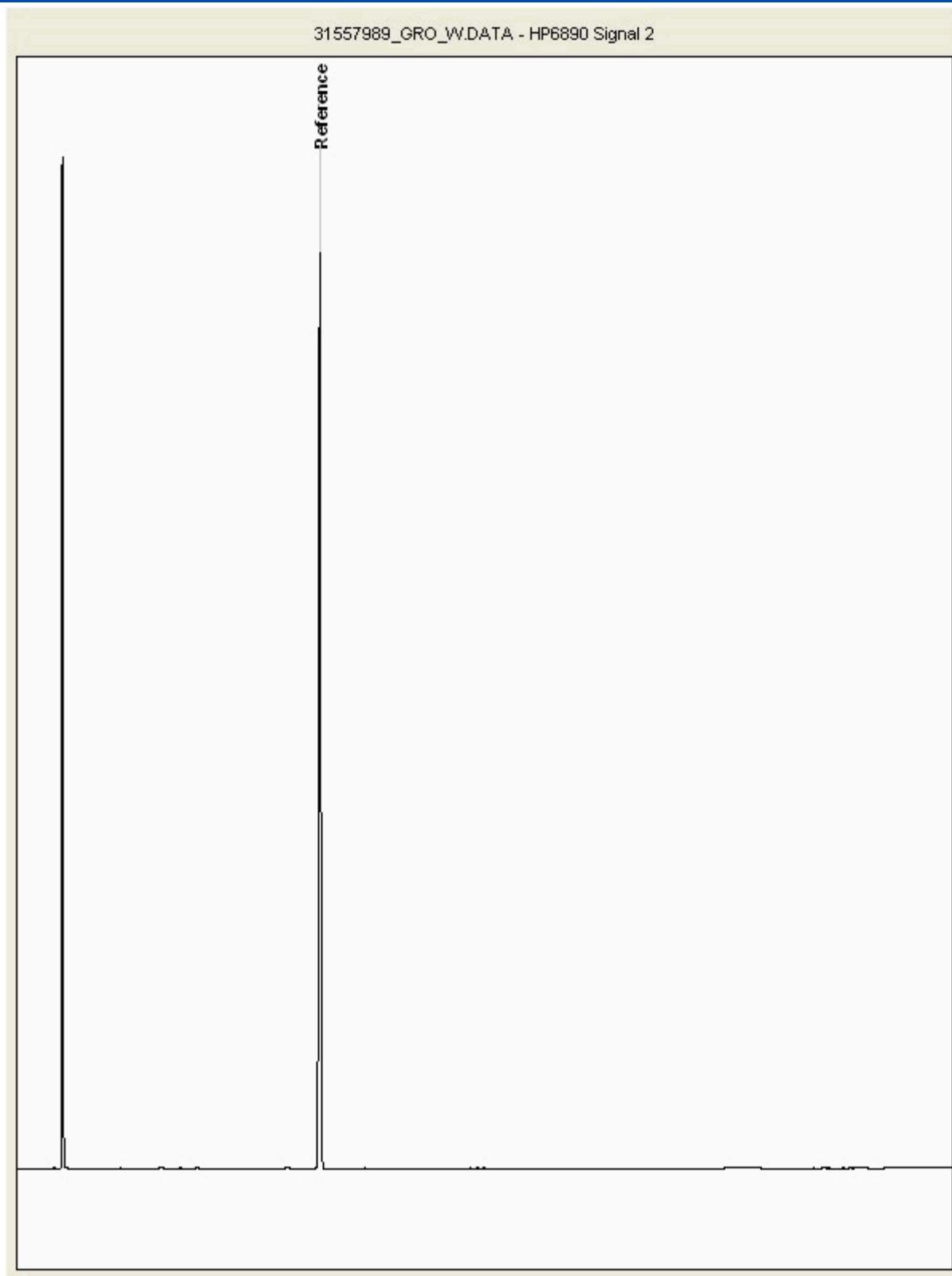
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 31557989
Sample ID : BH1

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 250517-53
Client Ref.: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

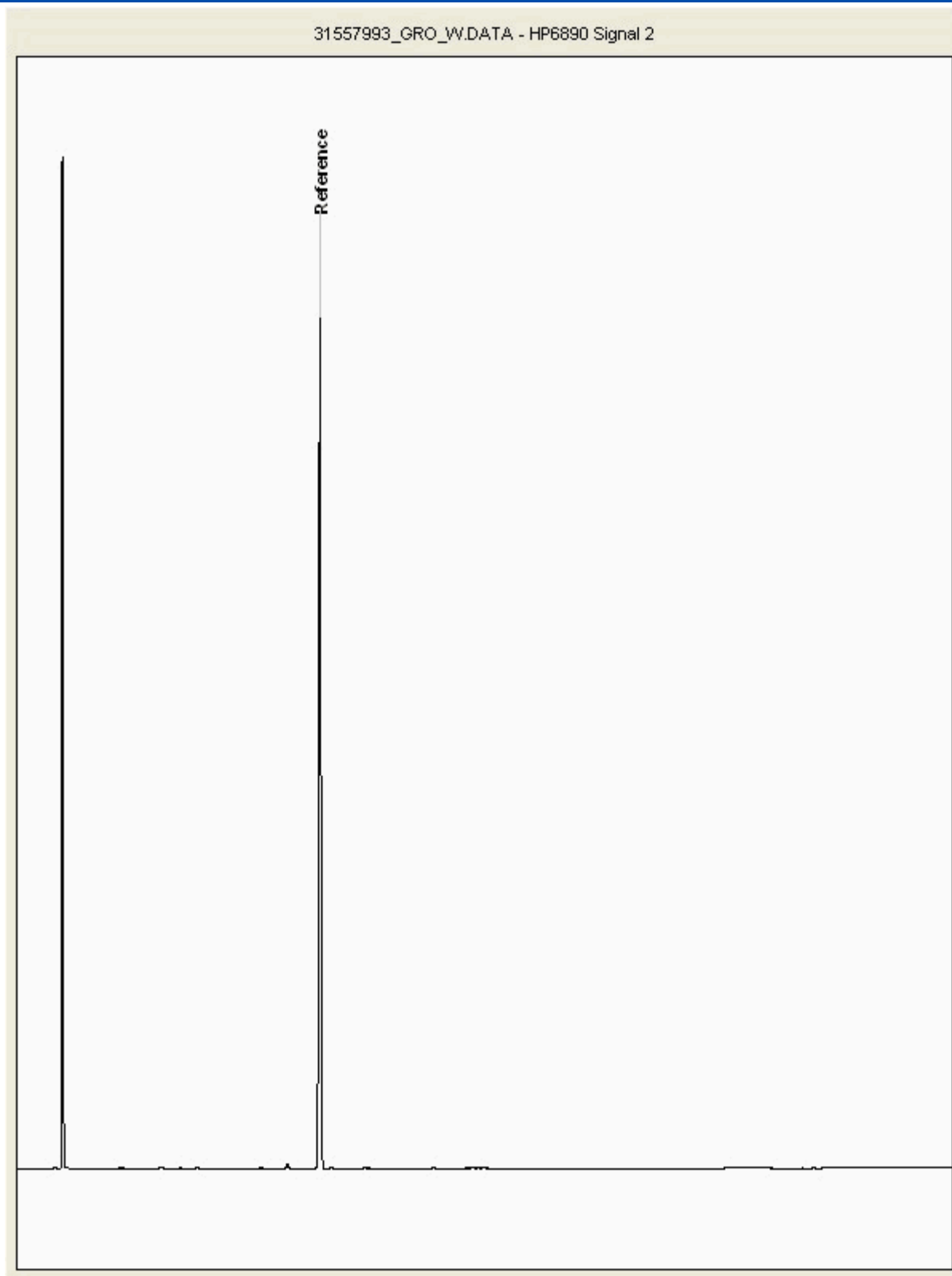
Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 31557993
Sample ID : BH2

Depth : 0.00 - 0.00

31557993_GRO_W.DATA - HP6890 Signal 2





CERTIFICATE OF ANALYSIS

SDG: 250517-53
Client Ref: GWPR6540

Report Number: 766145
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur - e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

If during the search of the two 'pinch' samples by PLM only 1 or 2 fibres or fibre bundles are seen and identified as asbestos, the term 'trace asbestos identified' is reported.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Potentially respirable fibres are identified by using a Phase Contrast Microscope.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

21. 6:2 FTAB

Recovery of 6:2 FTAB in the quality control samples has been observed to be <50% of the target value. Please note the 6:2 FTAB result is supplied as indicative only.



Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Ground and Water Ltd
Head Office
2 The Long Barn
Norton Farm, Selborne Road
Alton
Hampshire
GU34 3NB

Attention: Natasha Kearn

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 June 2025
Customer:	Ground and Water Ltd
Sample Delivery Group (SDG):	250523-66
Your Reference:	GWPR6540
Location:	220 Elgar Road South, Reading RG2 0BW
Report No:	766678
Order Number:	GWPR6540

This report has been revised and directly supersedes 766474 in its entirety.

We received 2 samples on Friday May 23, 2025 and 2 of these samples were scheduled for analysis which was completed on Tuesday June 03, 2025. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Justin Keeton

Business Unit Leader - Land



1291



CERTIFICATE OF ANALYSIS

Validated

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
31560773	BH1		0.00 - 0.00	22/05/2025
31560786	BH2		0.00 - 0.00	22/05/2025

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		31560773		31560786
	Customer Sample Reference		BH1		BH2
	AGS Reference				
	Depth (m)		0.00 - 0.00		0.00 - 0.00
	Container		Vial (ALE297)		Vial (ALE297)
	Sample Type		0.5l glass bottle (ALE227)		0.5l glass bottle (ALE227)
			500ml Plastic (ALE208)		500ml Plastic (ALE208)
			H2SO4 (ALE244)		H2SO4 (ALE244)
			NaOH (ALE245)		NaOH (ALE245)
			GW		GW
Anions by Kone (w)	All	NDPs: 0 Tests: 2		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2			X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2	X		X
EPH and CWG by FID	All	NDPs: 0 Tests: 2	X		X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 2		X	X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2	X		X
Mercury Dissolved	All	NDPs: 0 Tests: 2	X		X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2	X		X
pH Value	All	NDPs: 0 Tests: 2	X		X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2		X	X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 2	X		X
TPH CWG (W)	All	NDPs: 0 Tests: 2	X		X
VOC MS (W)	All	NDPs: 0 Tests: 2		X	X

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678

Superseded Report: 766474

Location: 220 Elgar Road South, Reading RG2 0BW

[illegible]

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678

Superseded Report: 766474

Location: 220 Elgar Road South, Reading RG2 0BW

PAH Spec MS - Aqueous (W)

[illegible]



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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678

Superseded Report: 766474

Location: 220 Elgar Road South, Reading RG2 0BW

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	BH1	BH2			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00			
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)			
aq	Aqueous / settled sample.		22/05/2025	22/05/2025			
diss.filt	Dissolved / filtered sample.		00:00	00:00			
tot.unfilt	Total / unfiltered sample.		23/05/2025	23/05/2025			
*	Subcontracted - refer to subcontractor report for accreditation status.		250523-66	250523-66			
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		31560773	31560786			
***	6:2 FTAB (see appendix)						
1-4*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<100 #	<40 #			
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Chlorophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Methylphenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Nitroaniline (aq)	<1 µg/l	TM176	<100 #	<40 #			
2-Nitrophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
3-Nitroaniline (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Chloroaniline (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Methylphenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Nitroaniline (aq)	<1 µg/l	TM176	<100 #	<40 #			
4-Nitrophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
Azobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Acenaphthylene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Acenaphthene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Anthracene (aq)	<1 µg/l	TM176	<100 #	<40 #			
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<100 #	<40 #			
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<100 #	<40 #			
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<200 #	<80 #			
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<100 #	<40 #			



CERTIFICATE OF ANALYSIS

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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	BH1	BH2			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW) 22/05/2025 00:00 23/05/2025 250523-66 31560773	0.00 - 0.00 Ground Water (GW) 22/05/2025 00:00 23/05/2025 250523-66 31560786			
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
dis.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted - refer to subcontractor report for accreditation status.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
***	6:2 FTAB (see appendix)						
1-4+5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Carbazole (aq)	<1 µg/l	TM176	<100 #	<40 #			
Chrysene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Dibenzofuran (aq)	<1 µg/l	TM176	<100 #	<40 #			
n-Butyl phthalate (aq)	<1 µg/l	TM176	<100 #	<40 #			
Diethyl phthalate (aq)	<1 µg/l	TM176	<100 #	<40 #			
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Dimethyl phthalate (aq)	<1 µg/l	TM176	<100 #	<40 #			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<500 #	<200 #			
Fluoranthene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Fluorene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Hexachlorobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Pentachlorophenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
Phenol (aq)	<1 µg/l	TM176	<100 #	<40 #			
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<100 #	<40 #			
Hexachloroethane (aq)	<1 µg/l	TM176	<100 #	<40 #			
Nitrobenzene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Naphthalene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Isophorone (aq)	<1 µg/l	TM176	<100 #	<40 #			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Phenanthrene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<100 #	<40 #			
Pyrene (aq)	<1 µg/l	TM176	<100 #	<40 #			

SDG: 250523-66
Client Ref.: GWPR6540

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Location: 220 Elgar Road South, Reading RG2 0BW

TPH CWG (W)

[illegible]



CERTIFICATE OF ANALYSIS

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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

VOC MS (W)

Results Legend		Customer Sample Ref.	BH1	BH2			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00			
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)			
aq	Aqueous / settled sample.		22/05/2025	22/05/2025			
diss.filt	Dissolved / filtered sample.		00:00	00:00			
tot.unfilt	Total / unfiltered sample.		23/05/2025	23/05/2025			
*	Subcontracted - refer to subcontractor report for accreditation status.		250523-66	250523-66			
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		31560773	31560786			
***	6:2 FTAB (see appendix)						
1-4*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM208	114	112			
Toluene-d8**	%	TM208	99.6	101			
4-Bromofluorobenzene**	%	TM208	96.8	99.8			
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1			
Chloromethane	<1 µg/l	TM208	<1 #	<1 #			
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #			
Bromomethane	<1 µg/l	TM208	<1 #	<1 #			
Chloroethane	<1 µg/l	TM208	<1 #	<1 #			
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #			
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #			
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #			
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #			
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #			
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1			
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #			
Chloroform	<1 µg/l	TM208	5.64 #	4.95 #			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #			
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #			
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #			
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #			
Benzene	<1 µg/l	TM208	<1 #	<1 #			
Trichloroethene	<1 µg/l	TM208	1.6 #	1.57 #			
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #			
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #			
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #			
Toluene	<1 µg/l	TM208	<1 #	<1 #			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #			



CERTIFICATE OF ANALYSIS

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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678

Superseded Report: 766474

Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH2			
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00 Ground Water (GW) 22/05/2025 00:00 23/05/2025 250523-66 31560773	0.00 - 0.00 Ground Water (GW) 22/05/2025 00:00 23/05/2025 250523-66 31560786			
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
+	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
***	6:2 FTAB (see appendix)								
1-4*6@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #					
Tetrachloroethene	<1 µg/l	TM208	21.6 #	19.4 #					
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #					
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #					
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #					
o-Xylene	<1 µg/l	TM208	<1 #	<1 #					
Styrene	<1 µg/l	TM208	<1 #	<1 #					
Bromoform	<1 µg/l	TM208	<1 #	<1 #					
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #					
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #					
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #					
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #					
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #					
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #					
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #					
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #					
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 #	<1 #					
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #					
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #					
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #					
Naphthalene	<1 µg/l	TM208	<1 #	<1 #					

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678

Superseded Report: 766474

Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

[illegible]



CERTIFICATE OF ANALYSIS

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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

Table of Results - Appendix

Method No	Description
TM176	Determination of SVOCs in Water by GCMS
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids
TM152	Analysis of Aqueous Samples by ICP-MS
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

Test Completion Dates

Lab Sample No(s)	31560773	31560786
Customer Sample Ref.	BH1	BH2
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water

Anions by Kone (w)	28-May-2025	28-May-2025
Cyanide Comp/Free/Total/Thiocyanate	30-May-2025	30-May-2025
Dissolved Metals by ICP-MS	03-Jun-2025	03-Jun-2025
EPH and CWG by FID	30-May-2025	30-May-2025
GRO by GC-FID (W)	02-Jun-2025	02-Jun-2025
Hexavalent Chromium (w)	30-May-2025	30-May-2025
Mercury Dissolved	02-Jun-2025	02-Jun-2025
PAH Spec MS - Aqueous (W)	02-Jun-2025	02-Jun-2025
pH Value	30-May-2025	30-May-2025
Phenols by HPLC (W)	29-May-2025	29-May-2025
SVOC MS (W) - Aqueous	30-May-2025	30-May-2025
TPH CWG (W)	02-Jun-2025	02-Jun-2025
VOC MS (W)	30-May-2025	30-May-2025



CERTIFICATE OF ANALYSIS

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SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

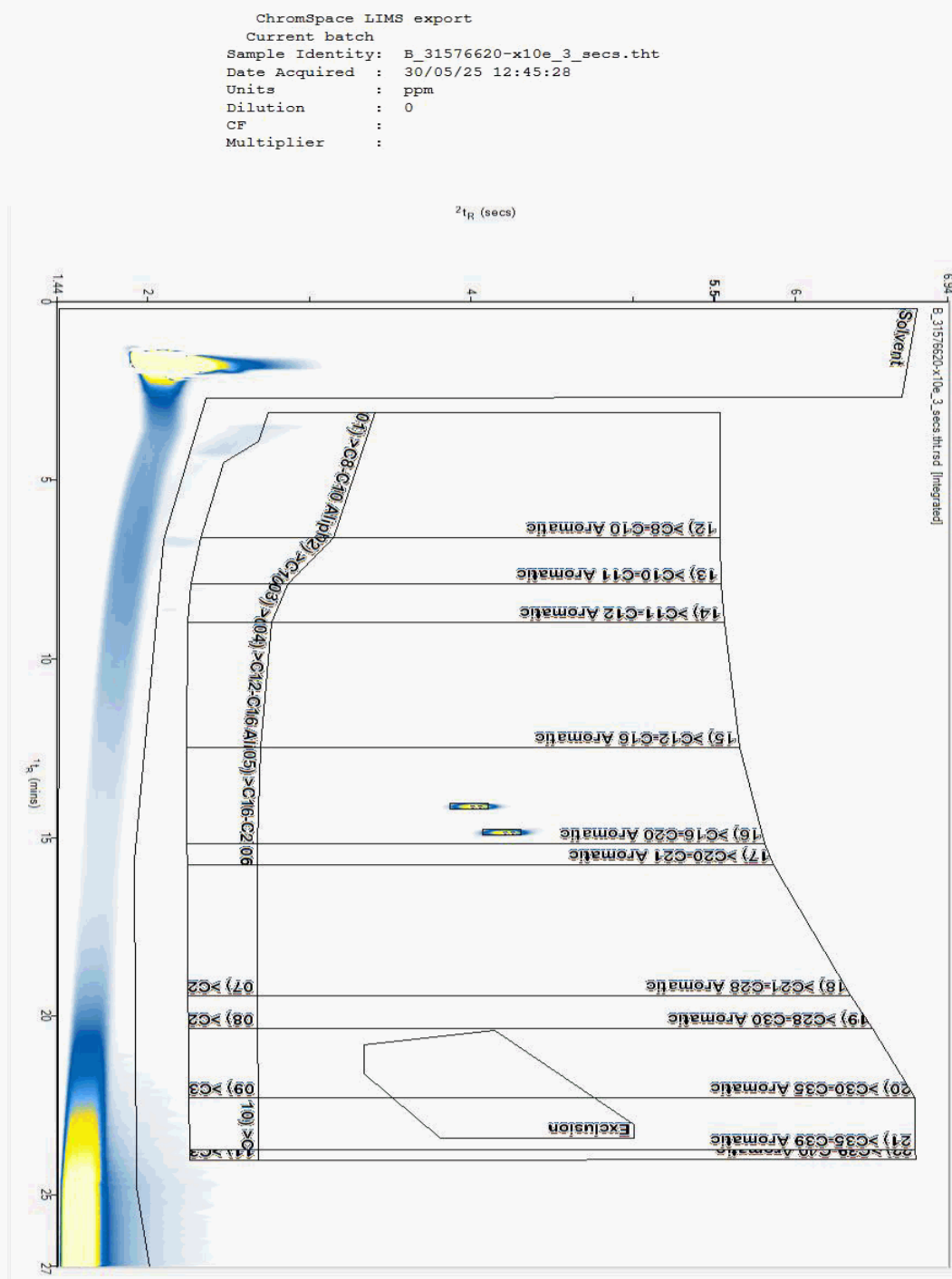
Superseded Report: 766474

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 31576620
Sample ID : BH2

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

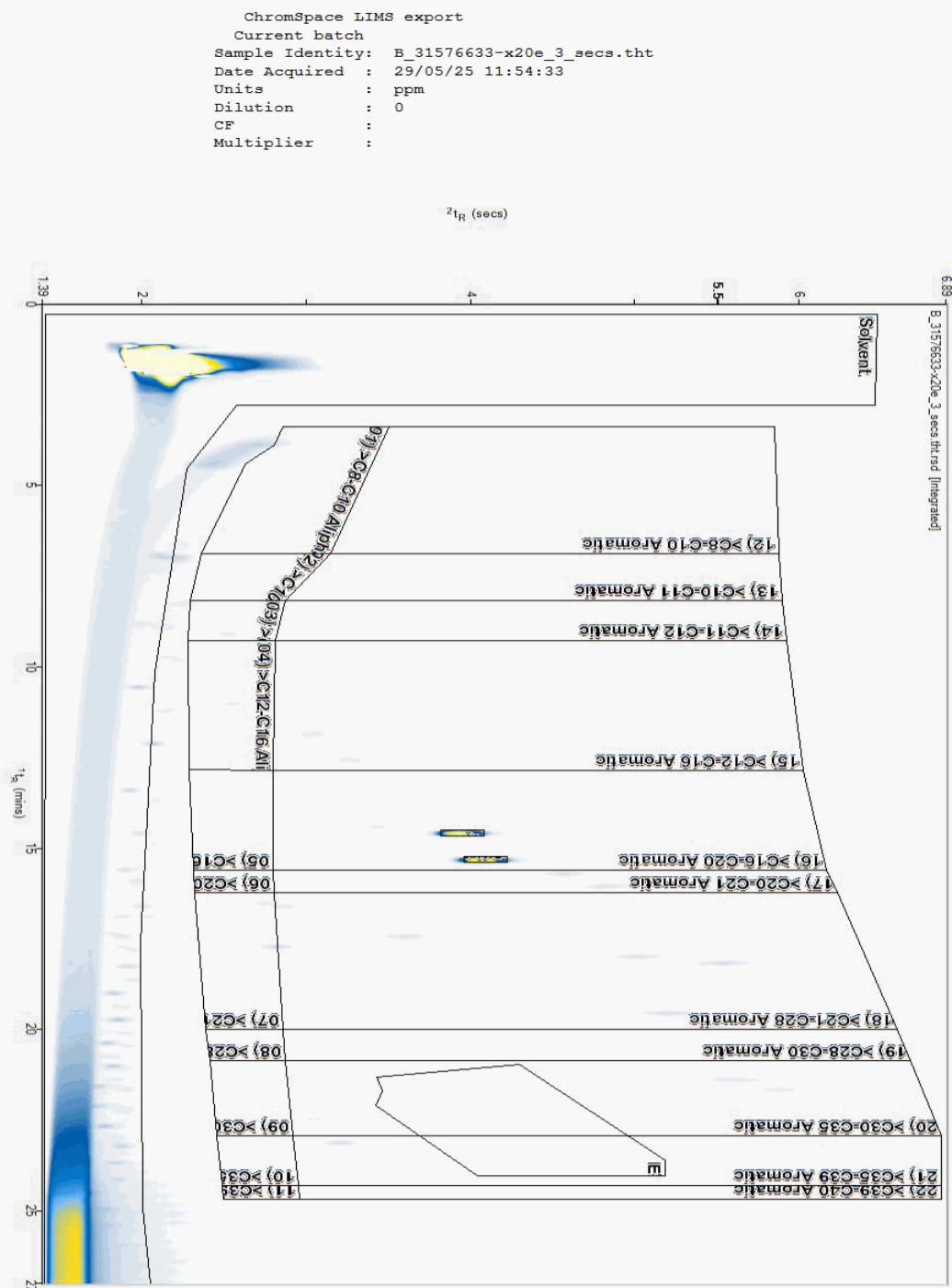
Superseded Report: 766474

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 31576633
Sample ID : BH1

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

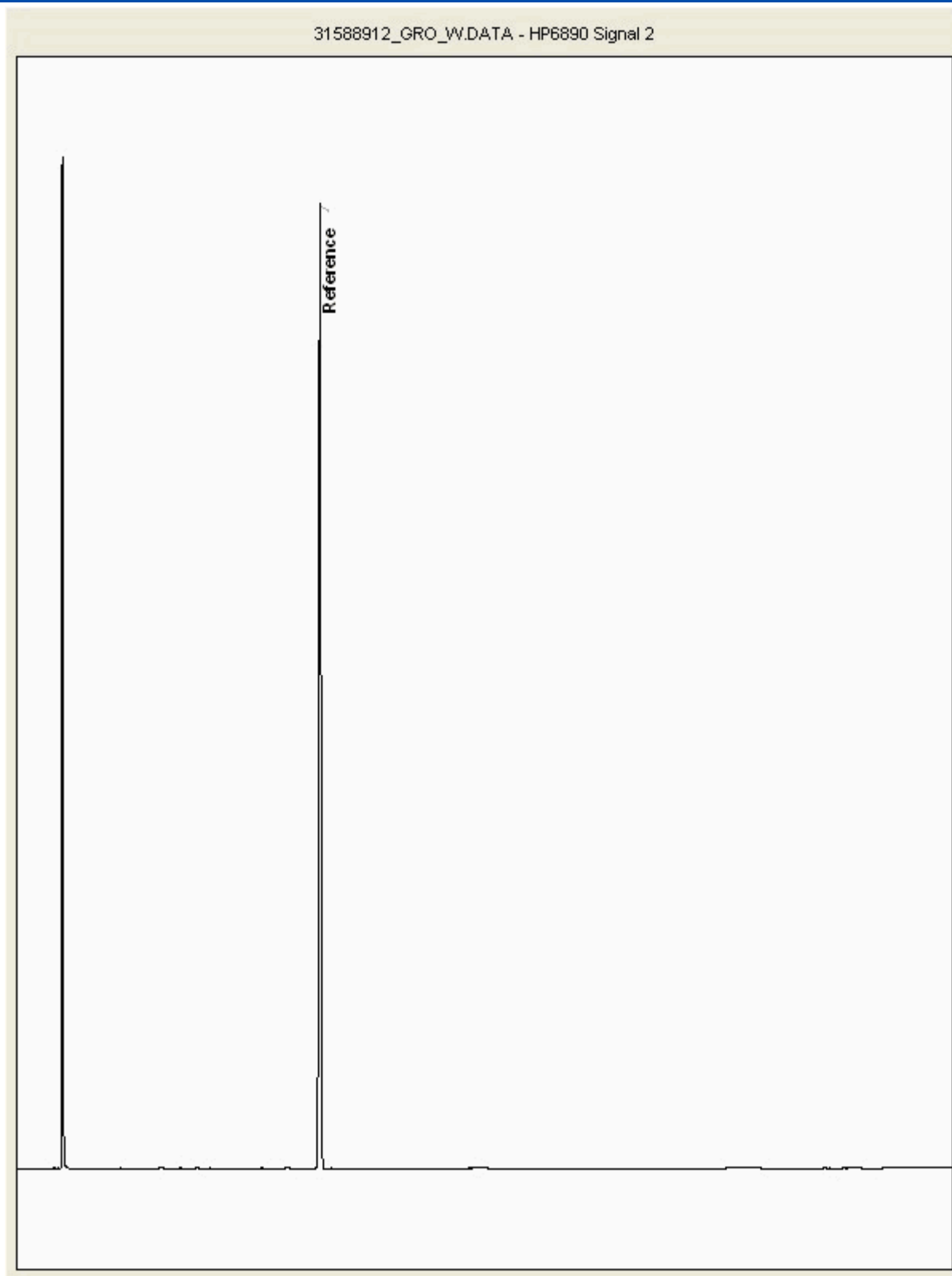
Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 31588912
Sample ID : BH1

Depth : 0.00 - 0.00

31588912_GRO_W.DAT - HP6890 Signal 2





CERTIFICATE OF ANALYSIS

Validated

SDG: 250523-66
Client Ref.: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

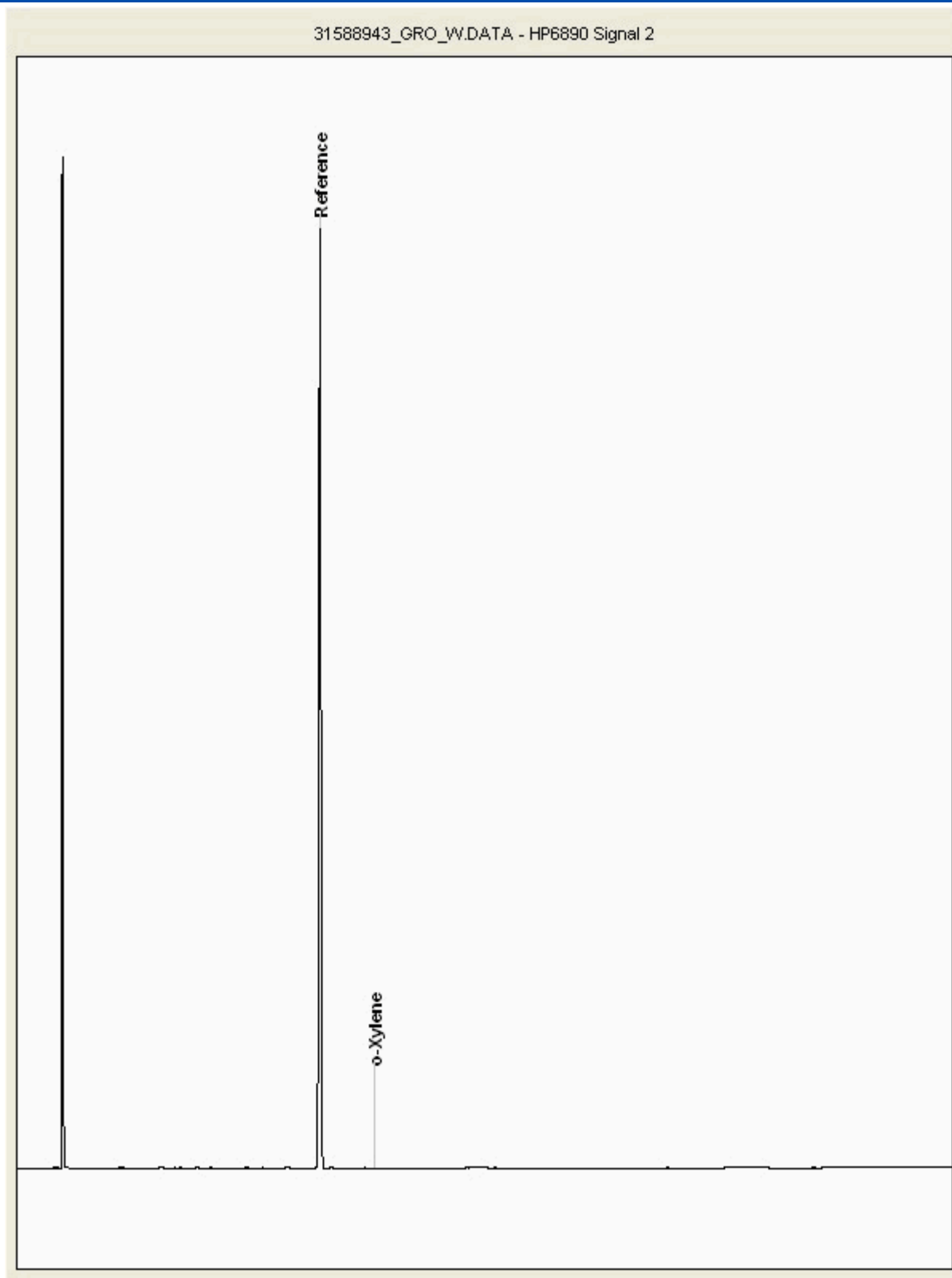
Superseded Report: 766474

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 31588943
Sample ID : BH2

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

SDG: 250523-66
Client Ref: GWPR6540

Report Number: 766678
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report: 766474

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur - e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

If during the search of the two 'pinch' samples by PLM only 1 or 2 fibres or fibre bundles are seen and identified as asbestos, the term 'trace asbestos identified' is reported.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Potentially respirable fibres are identified by using a Phase Contrast Microscope.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

21. 6:2 FTAB

Recovery of 6:2 FTAB in the quality control samples has been observed to be <50% of the target value. Please note the 6:2 FTAB result is supplied as indicative only.



Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Ground and Water Ltd
Head Office
2 The Long Barn
Norton Farm, Selborne Road
Alton
Hampshire
GU34 3NB

Attention: Natasha Kearn

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 February 2026
Customer:	Ground and Water Ltd
Sample Delivery Group (SDG):	260206-67
Your Reference:	GWPR6817
Location:	220 Elgar Road South, Reading RG2 0BW
Report No:	792230
Order Number:	GWPR6817

We received 6 samples on Friday February 06, 2026 and 6 of these samples were scheduled for analysis which was completed on Wednesday February 18, 2026. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Justin Keeton

Business Unit Leader - Land



1291



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
32857431	BH1		0.00 - 0.00	05/02/2026
32857440	BH2		0.00 - 0.00	05/02/2026
32857449	BH201		0.00 - 0.00	05/02/2026
32857458	BH202		0.00 - 0.00	05/02/2026
32857467	BH203 (d)		0.00 - 0.00	05/02/2026
32857422	BH203 (s)		0.00 - 0.00	05/02/2026

Only received samples which have had analysis scheduled will be shown on the following pages.

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230

Superseded Report:

Location: 220 Elgar Road South, Reading RG2 0BW

[illegible]



Location: 220 Elgar Road South, Reading RG2 0BW

Page 5 of 28



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230

Superseded Report:
Location: 220 Elgar Road South, Reading RG2 0BW

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH2	BH201	BH202	BH203 (d)	BH203 (s)
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026
diss.filt	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.		06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026
*	Subcontracted - refer to subcontractor report for accreditation status.	260206-67	260206-67	260206-67	260206-67	260206-67	260206-67	260206-67	260206-67	260206-67
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	32857431	32857440	32857449	32857458	32857467	32857467	32857467	32857422	32857422
***	6:2 FTAB (see appendix)									
1-4*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Chlorophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Methylphenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Nitroaniline (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
2-Nitrophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
3-Nitroaniline (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Chloroaniline (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Methylphenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Nitroaniline (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
4-Nitrophenol (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
Azobenzene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
Acenaphthylene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
Acenaphthene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
Anthracene (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<80	#	<100	#	<8	#	<8	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<40	#	<50	#	<4	#	<4	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230

Superseded Report:
Location: 220 Elgar Road South, Reading RG2 0BW

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref. Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	BH1	BH2	BH201	BH202	BH203 (d)	BH203 (s)
#	ISO17025 accredited.			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.			05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026
*	Subcontracted - refer to subcontractor report for accreditation status.			260206-67	260206-67	260206-67	260206-67	260206-67	260206-67
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			32857431	32857440	32857449	32857458	32857467	32857422
***	6:2 FTAB (see appendix)								
1-4*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<40 #	51.9 #	<4 #	<4 #	<10 #	<20 #	
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<40 #	113 #	<4 #	<4 #	<10 #	<20 #	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<40 #	76.8 #	<4 #	<4 #	<10 #	<20 #	
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<40 #	82.1 #	<4 #	<4 #	<10 #	<20 #	
Carbazole (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Chrysene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Dibenzofuran (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Diethyl phthalate (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Dimethyl phthalate (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<200 #	<250 #	<20 #	<20 #	<50 #	<100 #	
Fluoranthene (aq)	<1 µg/l	TM176	<40 #	69.4 #	<4 #	<4 #	<10 #	<20 #	
Fluorene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Hexachlorobenzene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Pentachlorophenol (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Phenol (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Hexachloroethane (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Nitrobenzene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Naphthalene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Isophorone (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Phenanthrene (aq)	<1 µg/l	TM176	<40 #	<50 #	<4 #	<4 #	<10 #	<20 #	
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<40 #	61.2 #	<4 #	<4 #	<10 #	<20 #	
Pyrene (aq)	<1 µg/l	TM176	<40 #	64.8 #	<4 #	<4 #	<10 #	<20 #	



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230

Superseded Report:
Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

Results Legend		Customer Sample Ref.	BH1	BH2	BH201	BH202	BH203 (d)	BH203 (s)
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026	05/02/2026
diss.filt	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.		06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026	06/02/2026
*	Subcontracted - refer to subcontractor report for accreditation status.		260206-67	260206-67	260206-67	260206-67	260206-67	260206-67
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		32857431	32857440	32857449	32857458	32857467	32857422
***	6:2 FTAB (see appendix)							
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	106	106	108	106	107	106
Toluene-d8**	%	TM208	101	99.6	102	102	101	102
4-Bromofluorobenzene**	%	TM208	95	89.5	97.5	98	98.1	97.2
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	2.04	<1	<1
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1 µg/l	TM208	2.5	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	<3
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	1.19	<1	<1
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	1.01	10.1	<1	<1
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloroform	<1 µg/l	TM208	<1	8.99	<1	<1	<1	<1
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Trichloroethene	<1 µg/l	TM208	<1	1.77	<1	<1	<1	<1
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230

Superseded Report:
Location: 220 Elgar Road South, Reading RG2 0BW

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH2	BH201	BH202	BH203 (d)	BH203 (s)
#	ISO17025 accredited. mCERTS accredited.									
aq	Aqueous / settled sample.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857431	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857440	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857449	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857458	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857467	0.00 - 0.00 Ground Water (GW) 05/02/2026 00:00 06/02/2026 260206-67 32857422	
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
***	6:2 FTAB (see appendix)									
1-4*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Tetrachloroethene	<1 µg/l	TM208	1.49 #	59.7 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Styrene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Bromoform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	
Naphthalene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #	



Location: 220 Elgar Road South, Reading RG2 0BW



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 06/02/2026 12:22:23

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
32857458	BH202	0.00 - 0.00	Mercury Dissolved	nple contains sediment-unsuitable for filtered anal
32857458	BH202	0.00 - 0.00	Dissolved Metals by ICP-MS	nple contains sediment-unsuitable for filtered anal



CERTIFICATE OF ANALYSIS

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SDG: 260206-67
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Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Table of Results - Appendix

Method No	Description
TM176	Determination of SVOCs in Water by GCMS
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids
TM152	Analysis of Aqueous Samples by ICP-MS
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

32857431	32857440	32857449	32857458	32857467	32857422
BH1	BH2	BH201	BH202	BH203 (d)	BH203 (s)
0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Anions by Kone (w)	11-Feb-2026	11-Feb-2026	10-Feb-2026	11-Feb-2026	11-Feb-2026
Cyanide Comp/Free/Total/Thiocyanate	13-Feb-2026	13-Feb-2026	13-Feb-2026	13-Feb-2026	13-Feb-2026
Dissolved Metals by ICP-MS	11-Feb-2026	11-Feb-2026	11-Feb-2026	11-Feb-2026	11-Feb-2026
EPH and CWG by FID	17-Feb-2026	18-Feb-2026	18-Feb-2026	13-Feb-2026	18-Feb-2026
GRO by GC-FID (W)	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026
Hexavalent Chromium (w)	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026
Mercury Dissolved	13-Feb-2026	13-Feb-2026	13-Feb-2026	13-Feb-2026	13-Feb-2026
PAH Spec MS - Aqueous (W)	16-Feb-2026	16-Feb-2026	15-Feb-2026	16-Feb-2026	16-Feb-2026
pH Value	10-Feb-2026	10-Feb-2026	10-Feb-2026	10-Feb-2026	10-Feb-2026
Phenols by HPLC (W)	12-Feb-2026	12-Feb-2026	12-Feb-2026	12-Feb-2026	12-Feb-2026
SVOC MS (W) - Aqueous	16-Feb-2026	16-Feb-2026	16-Feb-2026	11-Feb-2026	16-Feb-2026
TPH CWG (W)	17-Feb-2026	18-Feb-2026	18-Feb-2026	13-Feb-2026	18-Feb-2026
VOC MS (W)	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026



CERTIFICATE OF ANALYSIS

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Client Ref.: GWPR6817

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Location: 220 Elgar Road South, Reading RG2 0BW

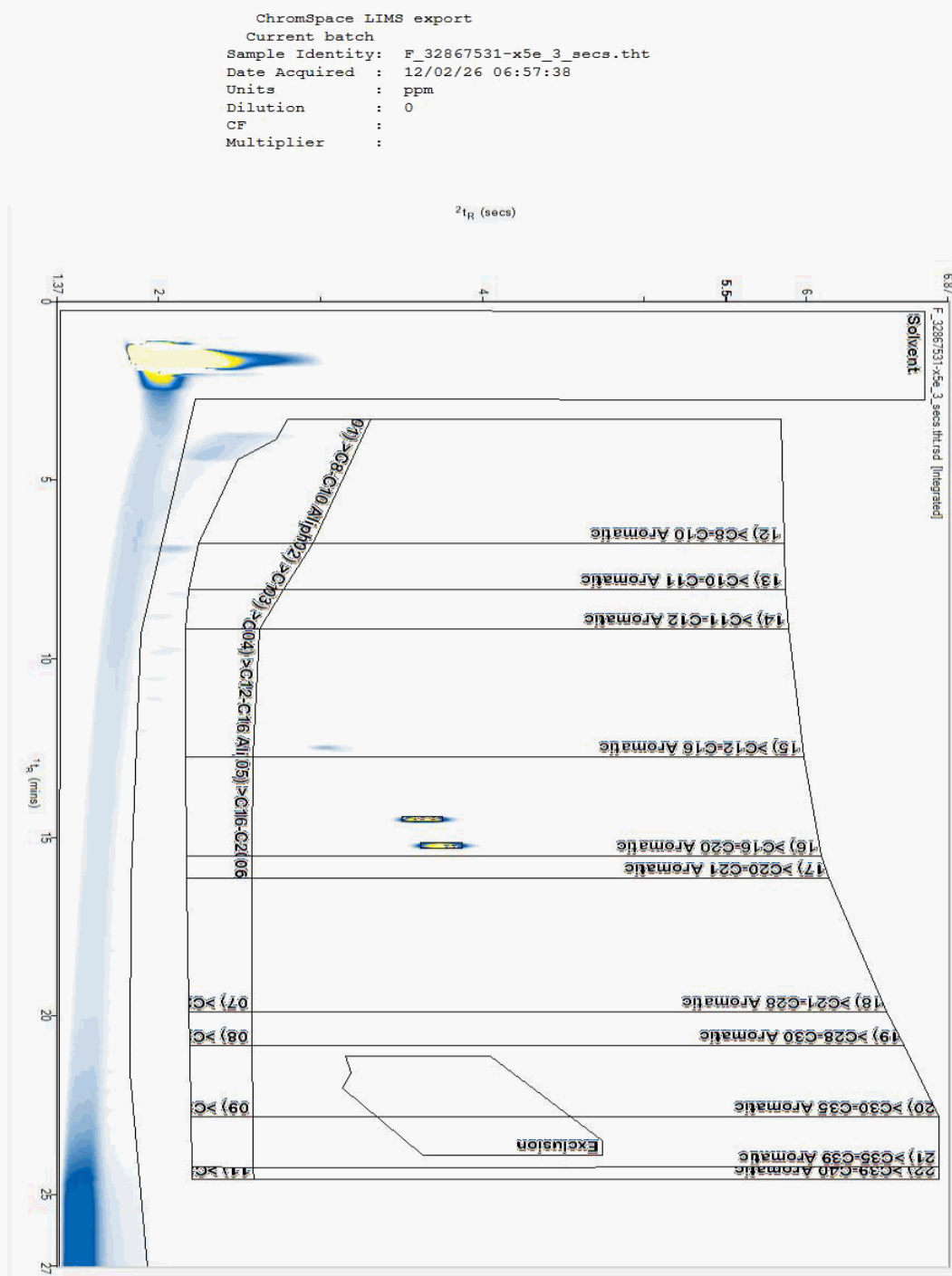
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32867531
Sample ID : BH202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

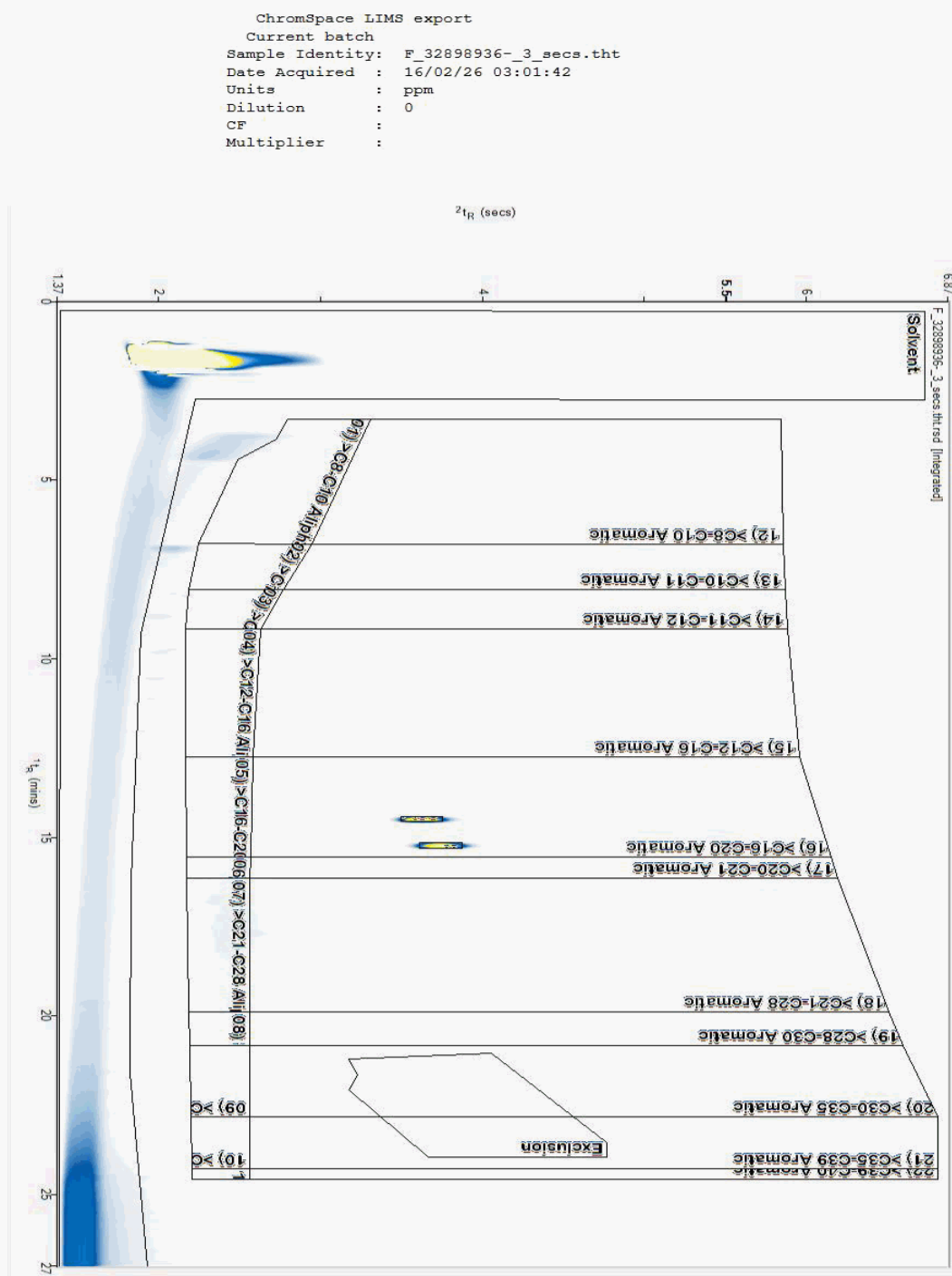
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32898936
Sample ID : BH1

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

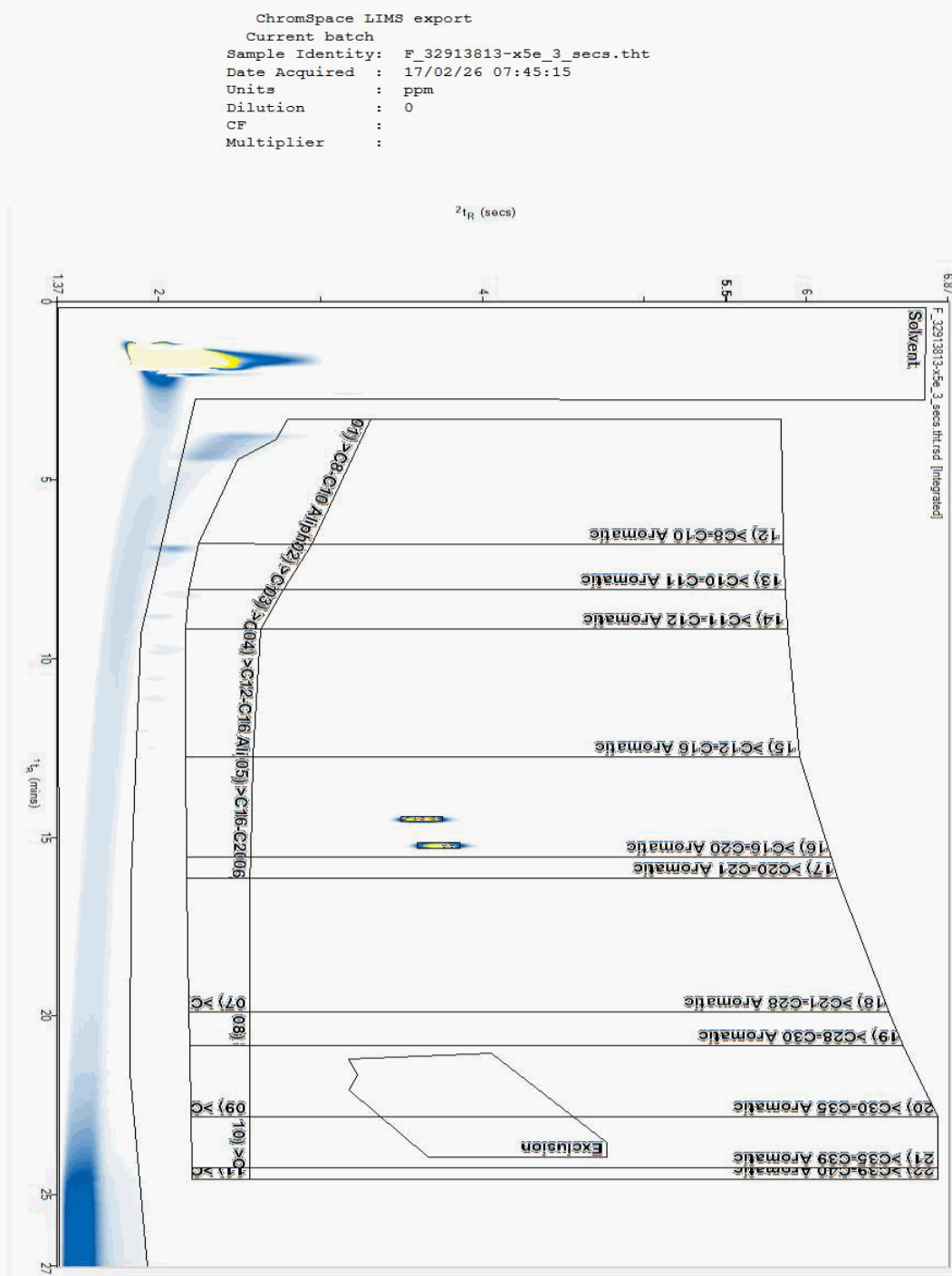
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32913813
Sample ID : BH203 (d)

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

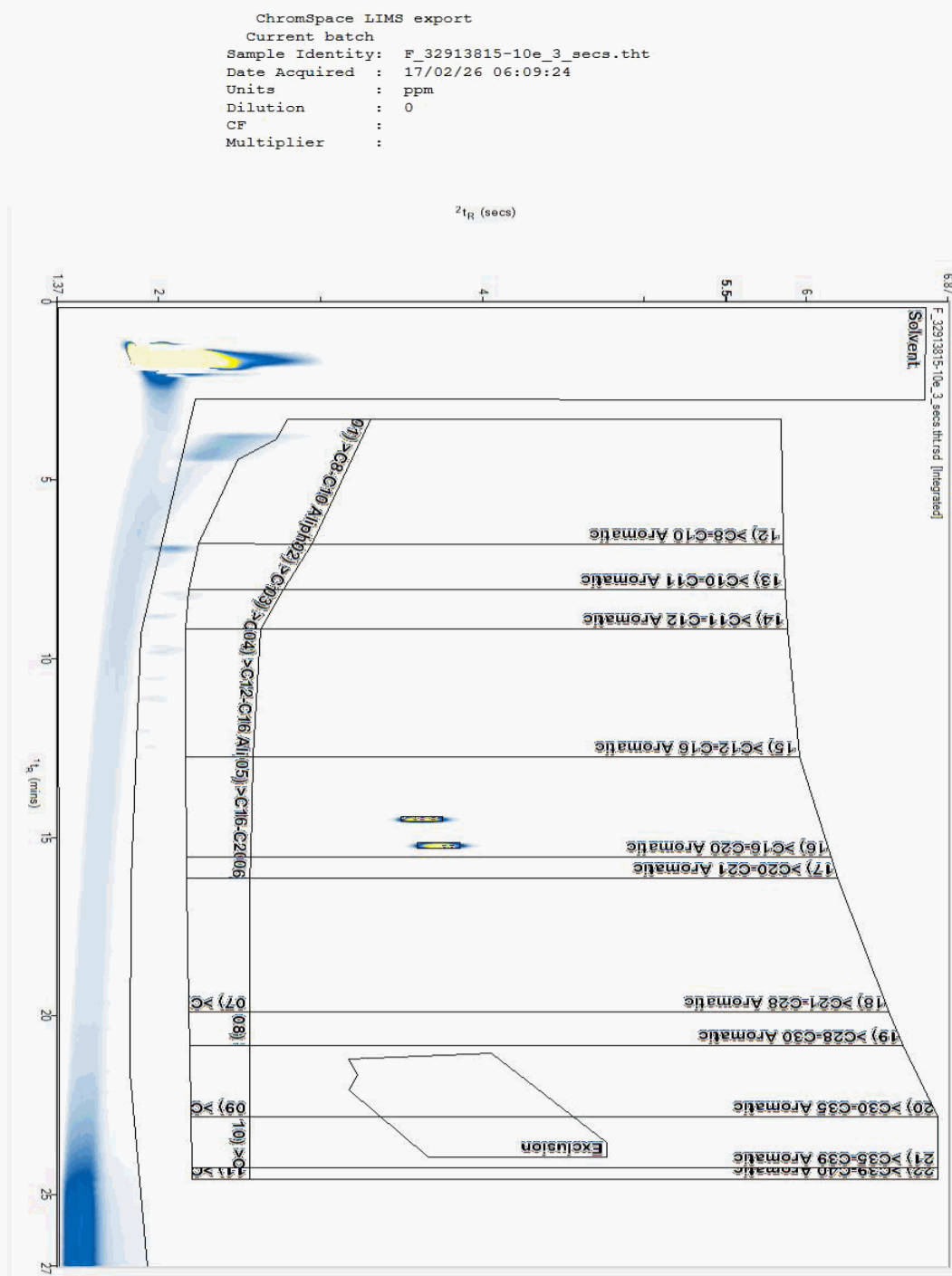
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32913815
Sample ID : BH203 (s)

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

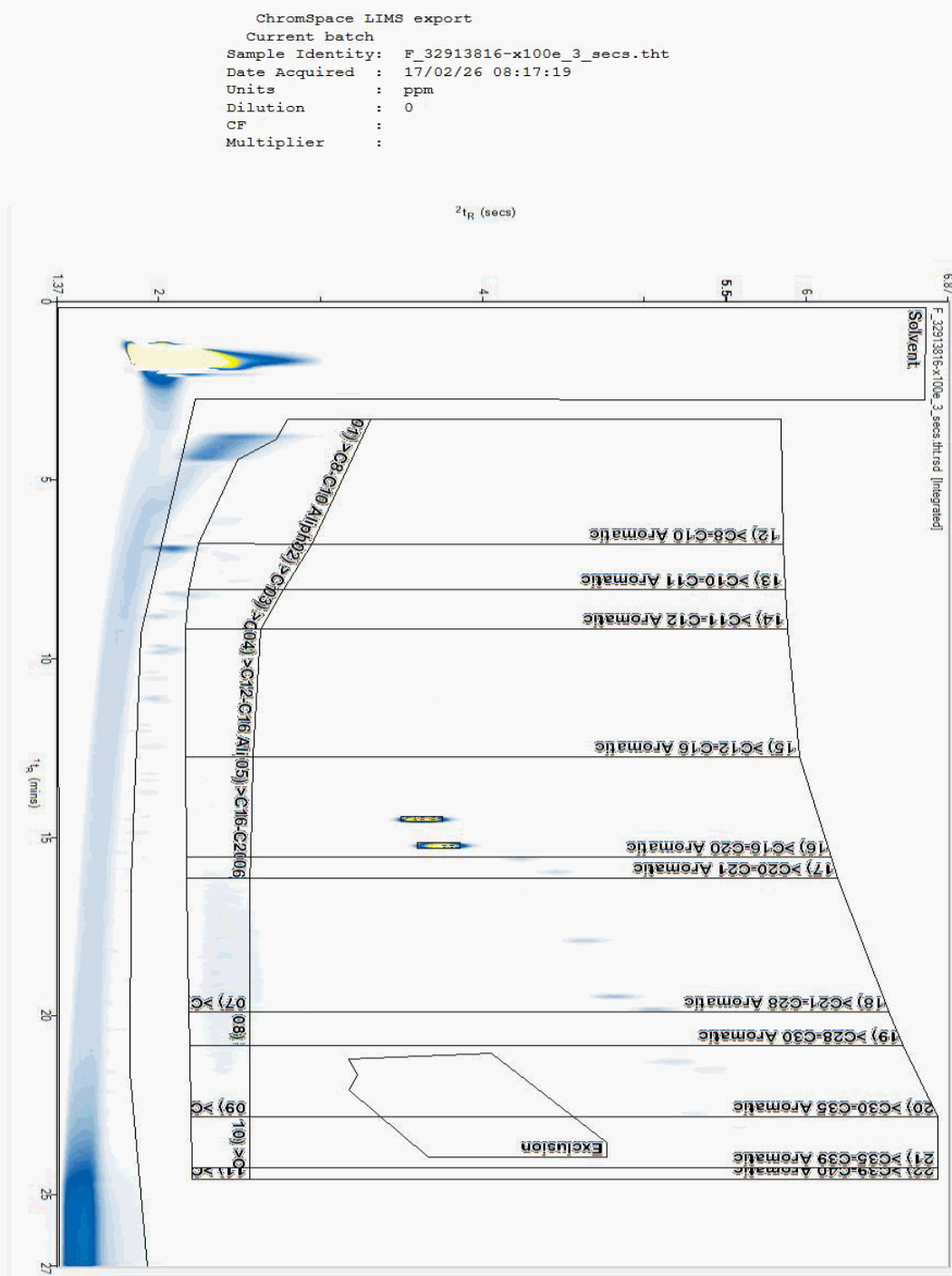
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32913816
Sample ID : BH2

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

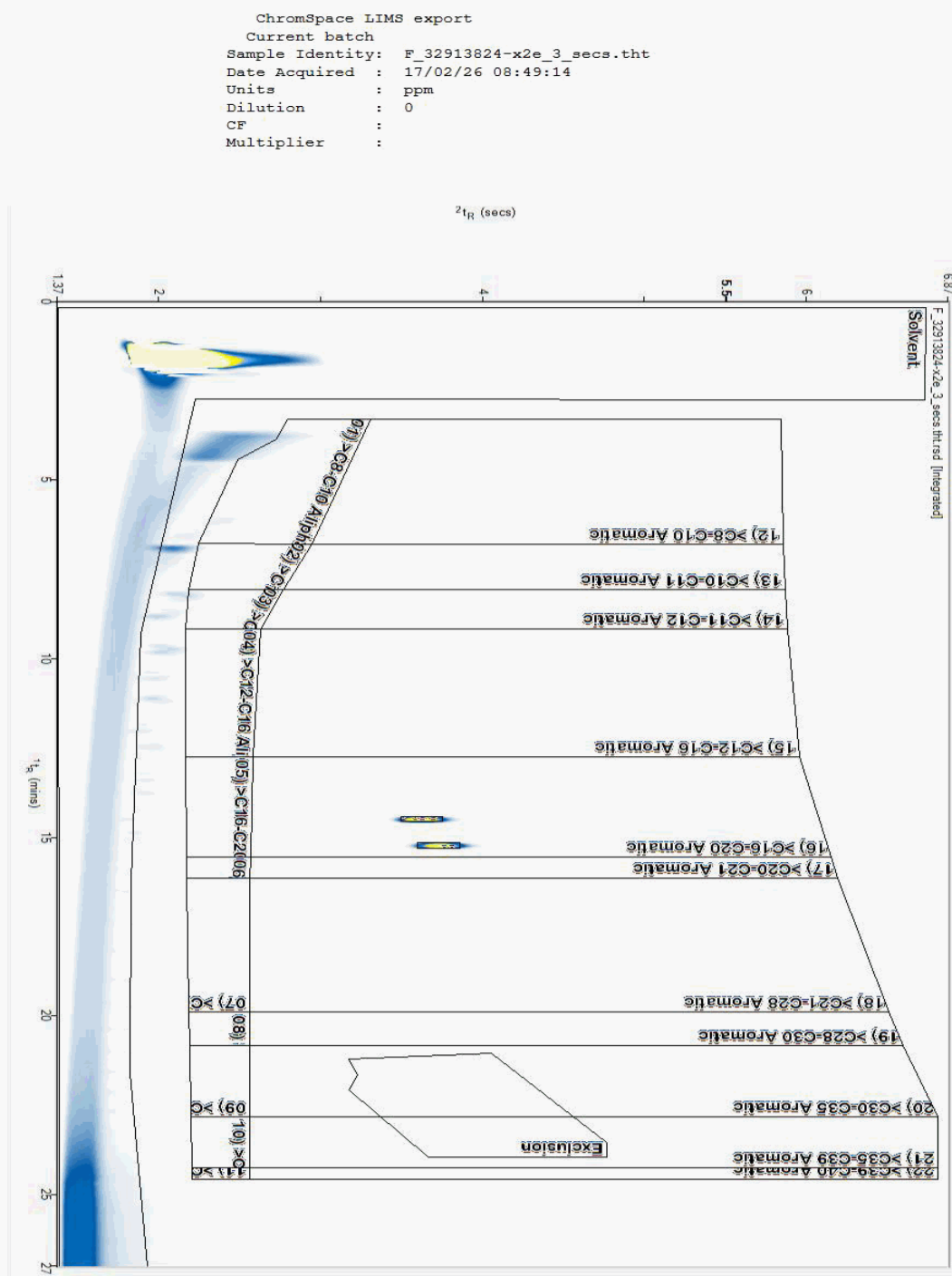
Superseded Report:

Chromatogram

Analysis: EPH and CWG by FID

Sample No : 32913824
Sample ID : BH201

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

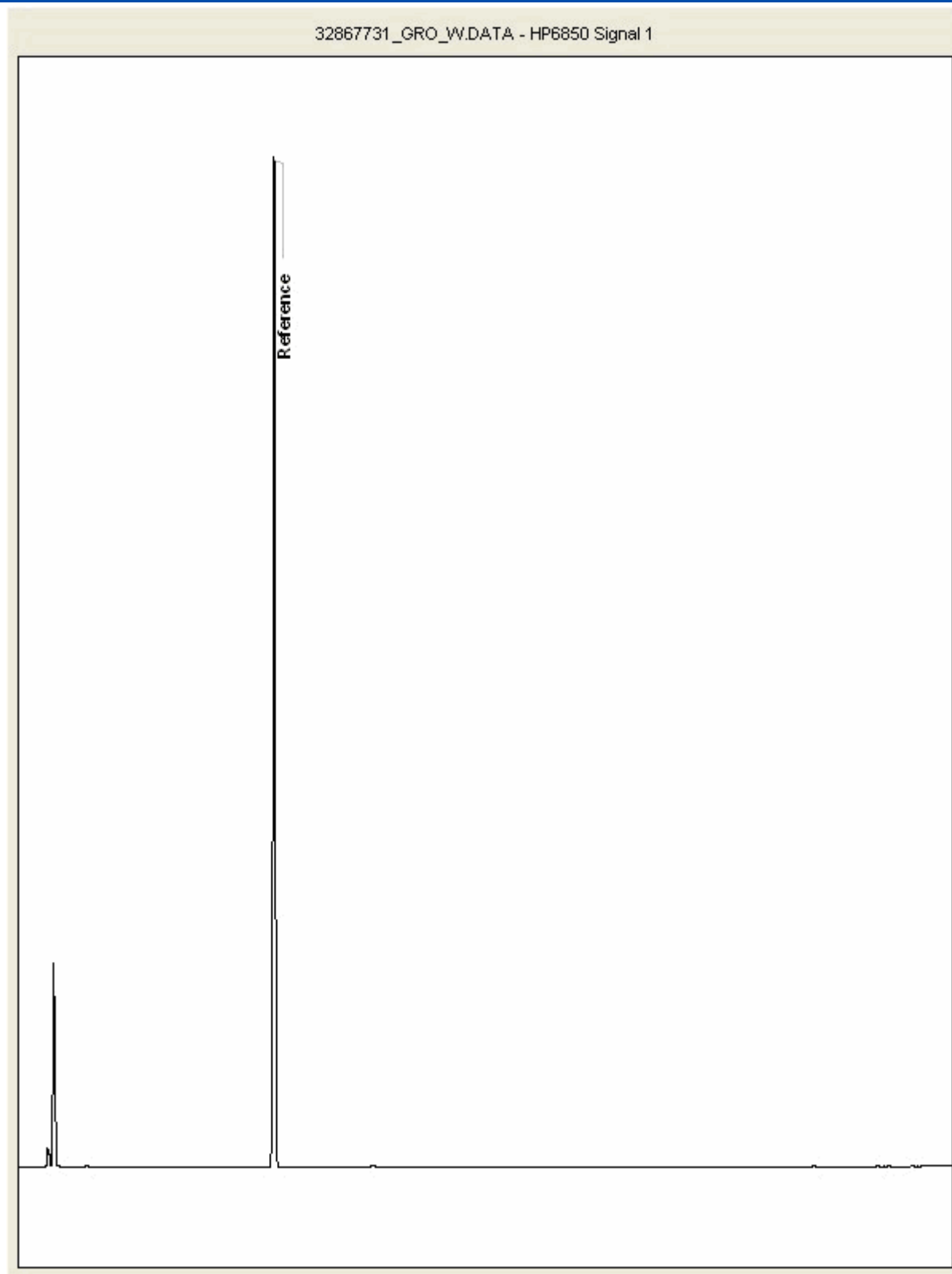
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867731
Sample ID : BH201

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

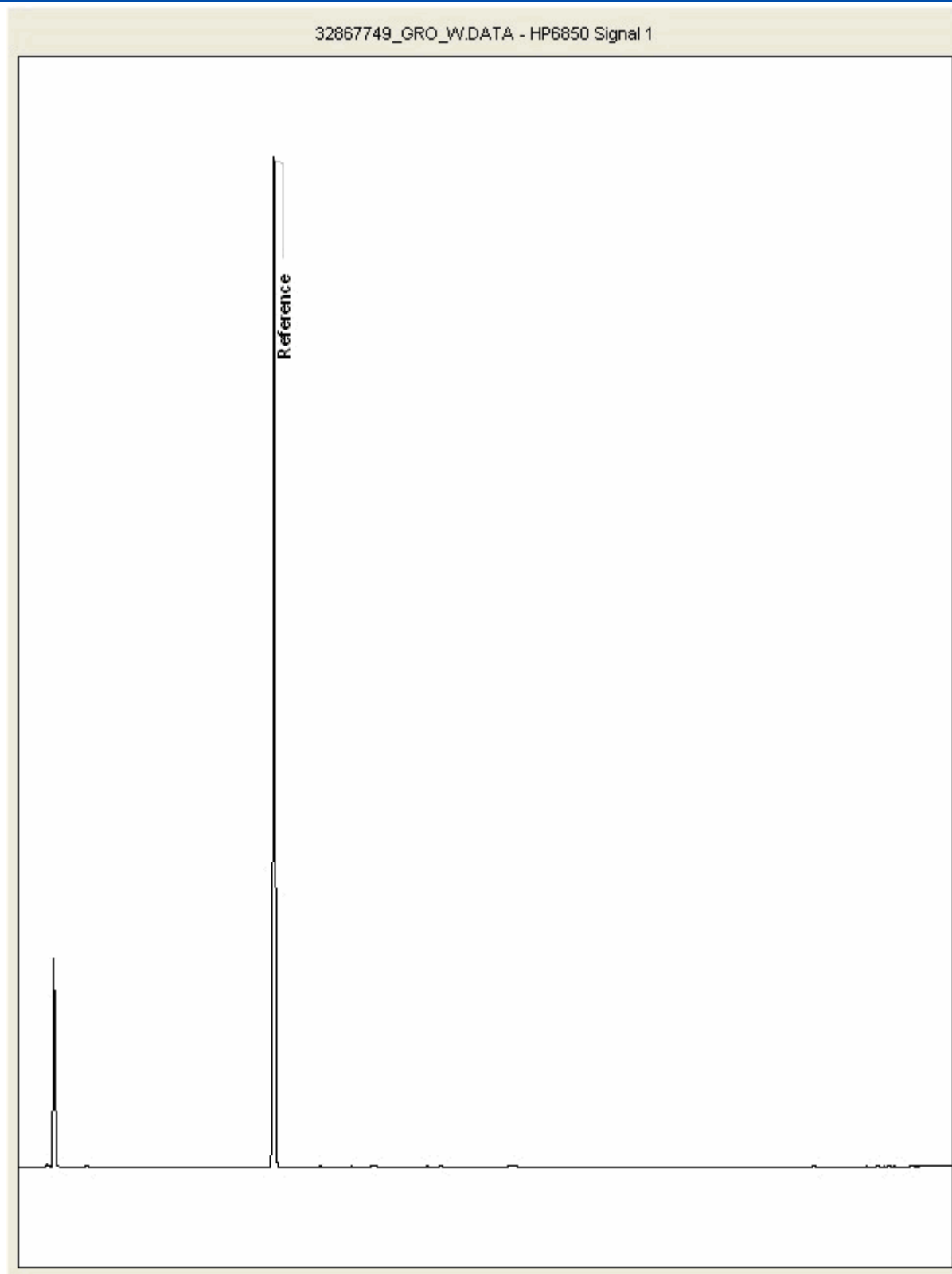
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867749
Sample ID : BH203 (s)

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

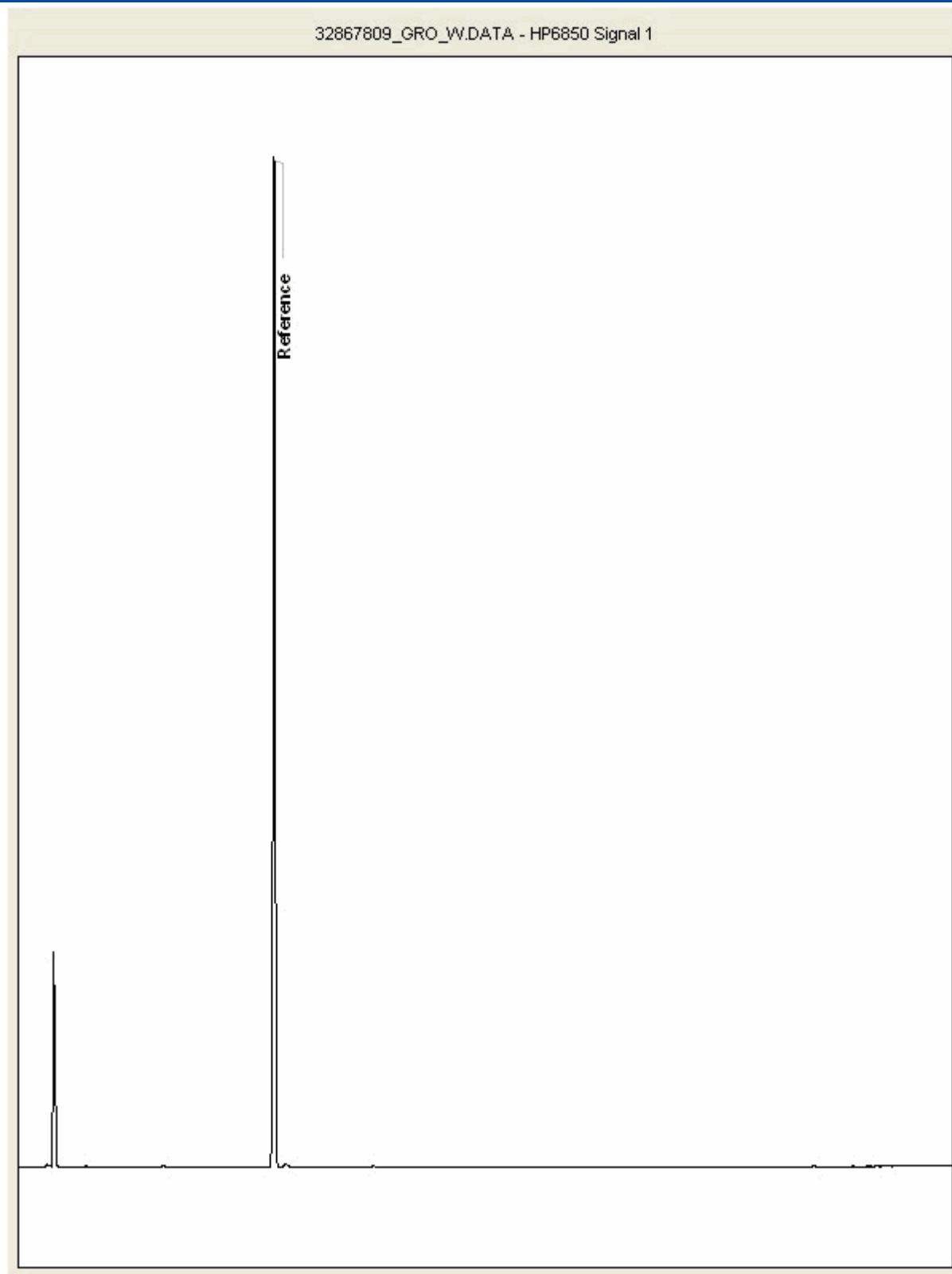
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867809
Sample ID : BH1

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

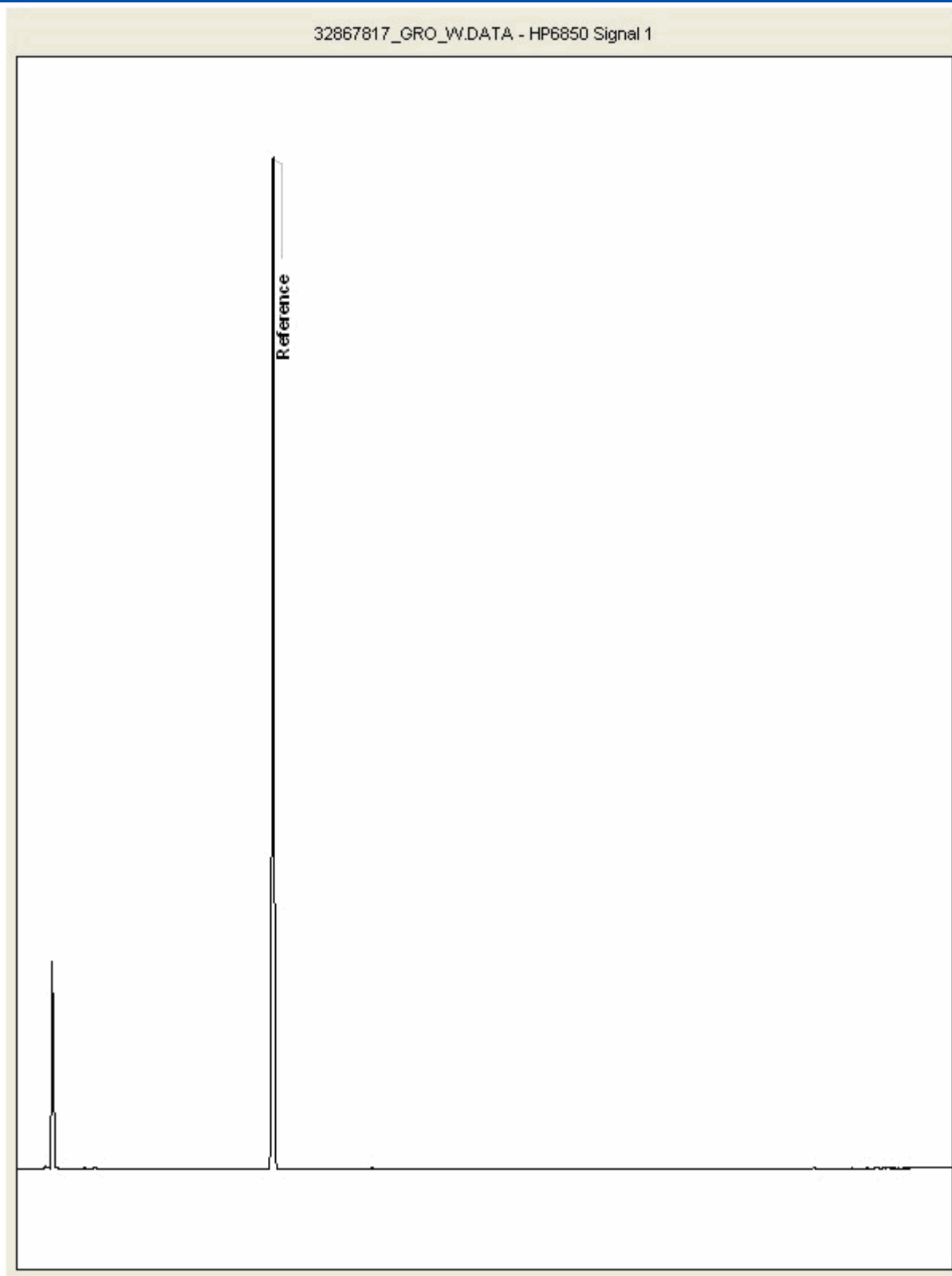
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867817
Sample ID : BH202

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

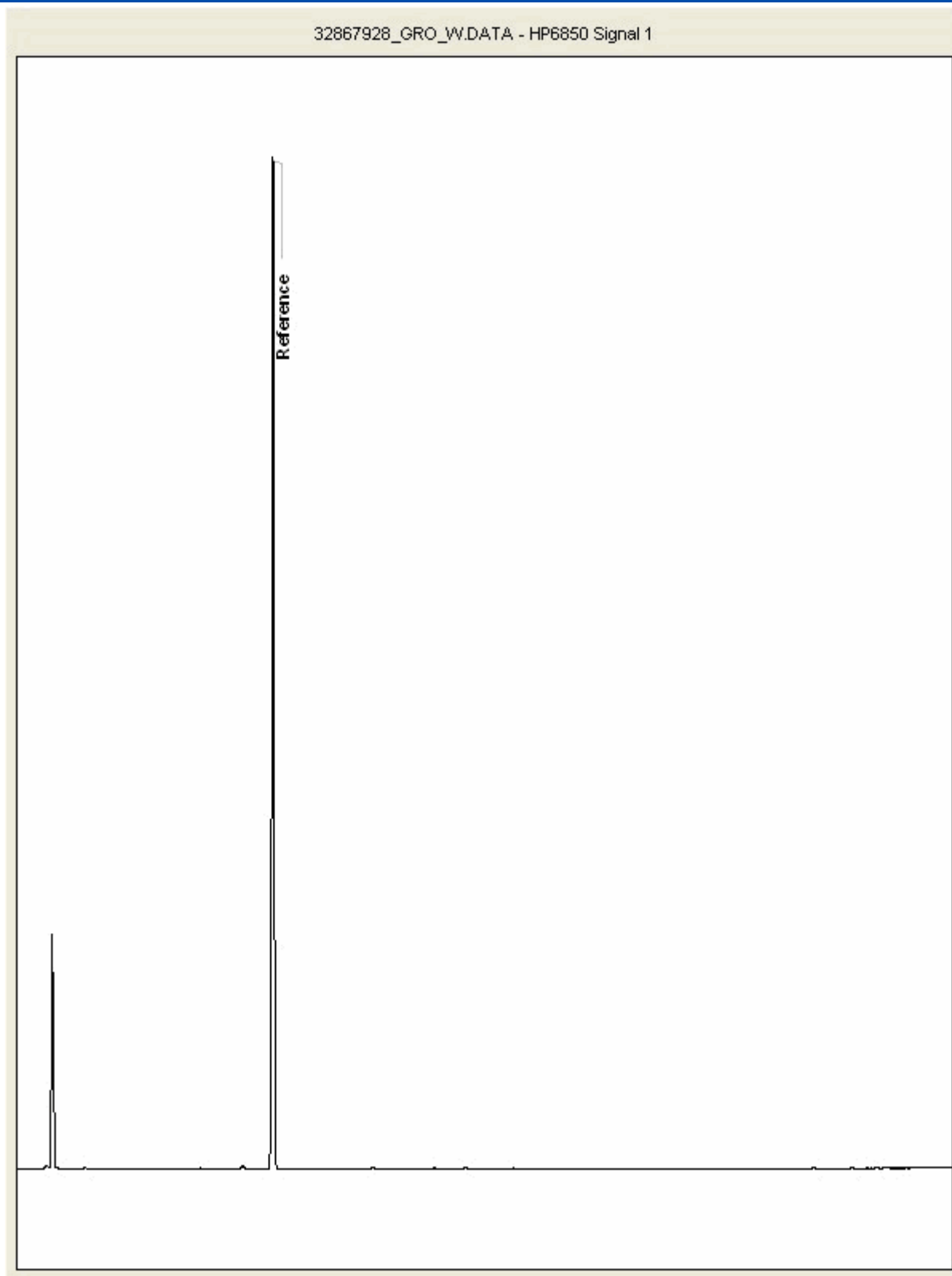
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867928
Sample ID : BH2

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

Validated

SDG: 260206-67
Client Ref.: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

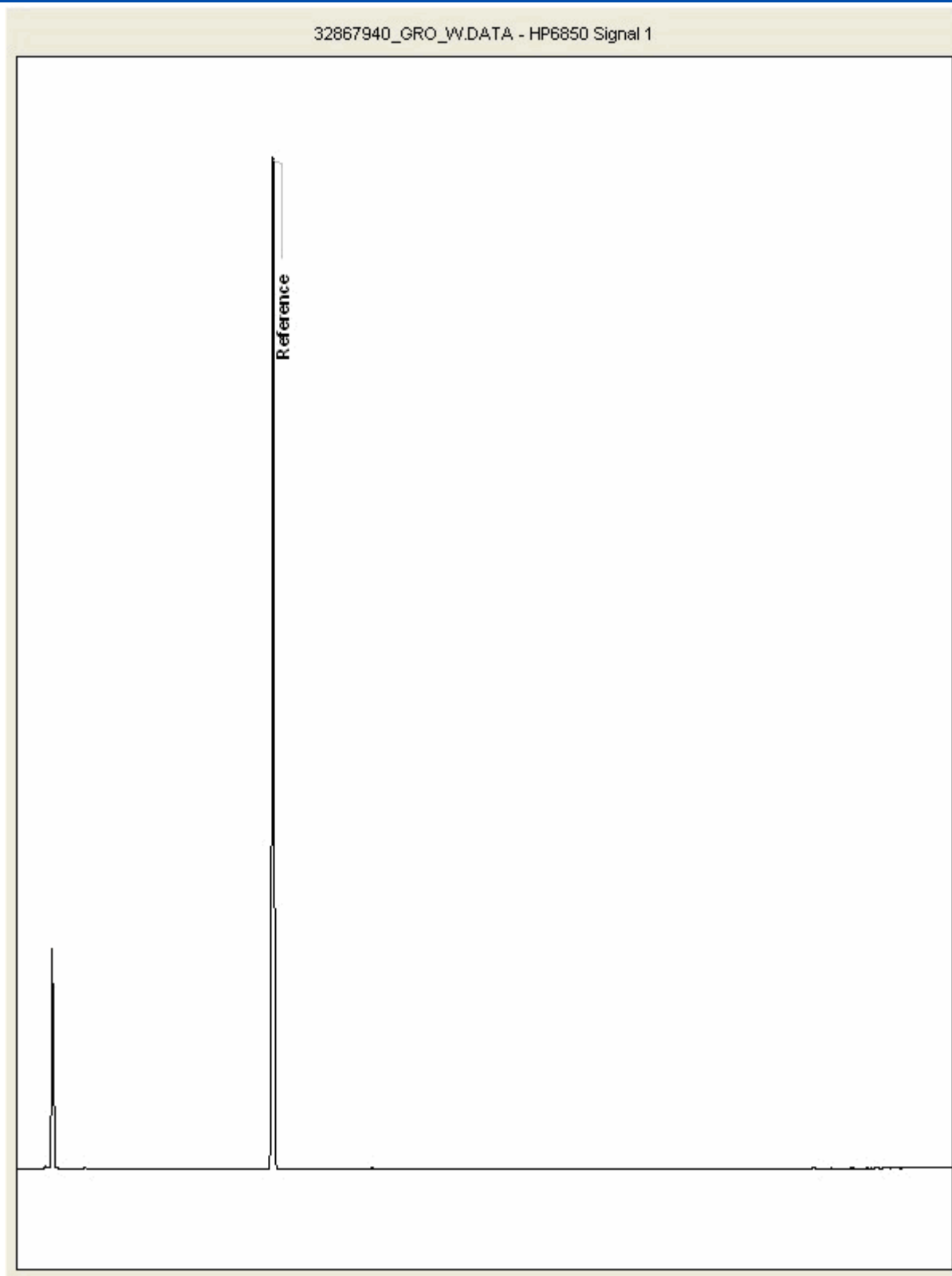
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 32867940
Sample ID : BH203 (d)

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

SDG: 260206-67
Client Ref: GWPR6817

Report Number: 792230
Location: 220 Elgar Road South, Reading RG2 0BW

Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur - e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

If during the search of the two 'pinch' samples by PLM only 1 or 2 fibres or fibre bundles are seen and identified as asbestos, the term 'trace asbestos identified' is reported.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Potentially respirable fibres are identified by using a Phase Contrast Microscope.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

21. 6:2 FTAB

Recovery of 6:2 FTAB in the quality control samples has been observed to be <50% of the target value. Please note the 6:2 FTAB result is supplied as indicative only.

APPENDIX D: Groundwater Assessment Criteria

Ground and Water Limited

Waters Guideline Values and Generic Assessment Criteria

Land contamination can harm a number of receptors, most notably: human health; drinking water; groundwater; surface water; soils; ecosystems; and buildings/structures. The UK Government's stated objectives of LCRM are to enhance the health and wellbeing of all, whilst adding the economic, ecological and amenity value of the area through dealing with land contamination.

The risk assessment is an iterative process. At preliminary risk assessment stage, risks are evaluated qualitatively. As the site investigation progresses to a generic or detailed quantitative risk assessment, data is collected and assessment criteria are utilised to evaluate whether the contaminants represent an unacceptable risk to the identified receptors.

Based on the identified receptor, there are numerous assessment criteria that can be used, which have been outlined in the subsequent sections.

1. Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015

1.1. Background

Within England and Wales, an appropriate agency must classify the ecological and chemical status of a body of surface water. The agency must also classify the chemical and quantitative status of a body of groundwater. The appropriate agency must review and update the classifications at least every 6 years as and when new data is collected through monitoring programmes. In addition to the classification and as part of the WFD, pollution of surface waters must be controlled by limiting the discharge of priority substances and other substances into surface water.

1.2. Surface Water

In order to aid with the classification, a series of environmental quality standards (EQS) for specific pollutants have been generated. The EQS refer to the dissolved fraction of metals within a water sample, therefore the sample collected must pass through a 0.45µm filter at the time of sampling. A number of metals have a bioavailable threshold and therefore a site specific meta bioavailability assessment should be undertaken.

Where the calculated mean value of a measurement is less than the limit of quantification and the limit of quantification is above the EQS, the result must not be used for determining a failed classification.

For the majority of substances, two values will be included for review; AA and MAC. The Annual Average (AA) is the arithmetic mean of the concentrations measured at different times during the year for each representative point within the water body. When using the Max Allowable Concentration (MAC) values, a statistical analysis may be undertaken to ensure an acceptable level of confidence for determining compliance with the MAC.

1.3. Groundwater

The appropriate agency must apply the threshold values for groundwater (in Table 1, Schedule 5) and, if any value is exceeded, undertake an appropriate investigation to determine whether or not the

applicable conditions for good groundwater chemical status are met. The criteria outlined are designed to be averaged across an aquifer rather than a site specific investigations.

2. The Water Supply (Water Quality) Regulations 2016

The water supply regulations apply in relation to the supply of water to premises for domestic purposes (including for cooking, drinking, food preparation and washing) or for food production purposes, both of which include the intended use for human consumption.

The point of compliance for the water supply is principally the consumers' taps, however, where stated the compliance point is the reservoir or treatment works.

3. World Health Organisation, Petroleum Products in Drinking Water, 2008

The World Health Organisation produced a background document for the development of WHO Guidelines for Drinking-water Quality, specifically relating to petroleum products (WHO/SDE/WSH/05.08/123). Petroleum products are used widely in a range of industrial applications, with the largest quantities used for gasoline, diesel and heating oil.

The difference in chemical and physical properties of each hydrocarbon means that they will behave differently within the environment, where their persistence is dictated by their volatilisation, biodegradation and dissolution within water. As a result of these, the heavier hydrocarbons typically have more persistence. Exposure to human health from petroleum hydrocarbons within drinking water can occur from a short to long-term, however the incident that leads to high concentrations within the drinking water will typically occur in the short term.

Petroleum products are a complicated mix of hundreds of compounds and therefore assessment can be difficult. The TPH-CWG method, developed in the USA, groups the TPH into a series of fractions based on the number of carbon atoms, coupled with the overall structure of the compound. This process enables the TPHs to be split into two distinct groups, aliphatics and aromatics.

4. SoBRA GAC_{gwvap}

Prior to the development of the SoBRA GAC_{gwvap}, there were no formally published UK GAC for the assessment of vapour risk arising from volatile contaminants in groundwater in the UK. The SoBRA groundwater vapour GAC (GAC_{gwvap}) is intended as a conservative screening tool that assessors may choose to use to help assess the long-term (chronic) risks to human health from inhalation of vapours arising from groundwater. They are intended for comparison with measured groundwater concentrations and represent the estimated concentration in groundwater below which the long-term risks to human health from vapour migration and inhalation can be considered low/tolerable, i.e. unlikely to be of concern (for the land use scenarios considered). When used as part of a Generic Quantitative Risk Assessment (GQRA) (which includes consideration of uncertainties) comparison of the GAC_{gwvap} with measured concentrations in groundwater can be used to screen out contaminants as being unlikely to represent an unacceptable risk to humans living or working above the groundwater plume.

The GAC have been derived for two land use scenarios for which the vapour intrusion pathway is likely to require assessment: residential and commercial. Generic assumptions have been made for each land use. These include assumptions about the depth to groundwater, soil type in the unsaturated zone, building dimension and foundation type, and receptor behaviour. The parameter values have been chosen to ensure that the GAC are precautionary for the vast majority of commercial and

residential properties in the UK. However, there may be particular situations where the GAC are not protective, for example where non aqueous phase liquid (NAPL) is present or preferential pathways exist.

5. Detailed Quantitative Risk Assessments (DQRA)

Where the adoption of a GAC is not appropriate, for instance when the intended land-use is at variance the CLEA standard land-uses, then a DQRA may be undertaken to develop site specific values for relevant groundwater contaminants. As part of the EA Remedial Targets Methodology (RTM), a level 3 risk assessment will consider the effect of attenuation between the site and a downgradient receptor or compliance point. For a level 4 risk assessment the appropriateness of assessing dilution in a receiving watercourse or a pumping abstraction borehole will need to be considered.

The RTM also recommends that sensitivity/uncertainty analysis is incorporated into each stage of the assessment.

6. Ground and Water Limited Waters Assessment Criteria

The Waters Assessment Criteria used in the preparation of the Generic Quantitative Risk Assessment are tabulated in the following pages, where the source of each has been outlined in the previous sections.

6.1. Inorganics

Specific Pollutants				
Determinand	Long Term Fresh water (µg/l)	Short Term Fresh water (µg/l)	Long Term Salt water (µg/l)	Short Term Salt water (µg/l)
Cyanide	1	5	1	5
Phenol	7.7	46	7.7	46

Drinking Water Standards	
Determinand	Maximum allowable Concentration at compliance point (µg/l)
Cyanide	50
pH	6.5 – 9.5

6.2. Metals

Specific Pollutants				
Determinand	Long Term Fresh water (µg/l)	Short Term Fresh water (µg/l)	Long Term Salt water (µg/l)	Short Term Salt water (µg/l)
Arsenic	50	-	25	-
Chromium (III)	4.7	32	-	-
Chromium (VI)	3.4	-	0.6	32
Copper	1*	-	3.76	34
Iron	1000	-	1000	-
Manganese	123*	-	-	-
Zinc	10.9*	-	6.8	-

*Site specific bioavailability calculation should be undertaken.

EQS for Priority Substances and other substances

Determinand		AA-EQS Inland surface water (µg/l)	MAC-EQS Inland surface water (µg/l)	AA-EQS Other Surface waters (µg/l)	MAC-EQS Other Surface waters (µg/l)
Cadmium	<40mg/l CaCO ₃	<0.08	<0.45	0.2	-
	40 – <50mg/l	0.08	0.45		
	50 – <100mg/l	0.09	0.6		
	100 – <200mg/l	0.15	0.9		
	>200mg/l	0.25	1.5		
Lead		1.2	14	1.3	14
Mercury		-	0.07	-	0.07
Nickel		4	34	8.6	34

Threshold Values for Groundwater			
Determinand	Groundwater Impact on Surface Water (µg/l)	Drinking water Protected Area (µg/l)	General Quality of Groundwater Body (µg/l)
Aluminum	-	150	150
Arsenic	25.8 – 106	7.5	7.5
Boron	-	750	-
Cadmium	0.054 – 0.53	3.75	-
Copper	0.516 – 2.12	1500	1500
Lead	0.619 – 2.54	7.5	7.5
Mercury	0.026 – 0.106	0.75	-
Nickel	2.06 – 8.48	15	15
Selenium	-	7.5	-
Zinc	5.62 – 23.1	-	-

Drinking Water Standards	
Determinand	Maximum allowable Concentration at compliance point (µg/l)
Arsenic	10
Cadmium	5
Chromium	50
Copper	2
Lead	10
Mercury	1
Nickel	20

6.3. Total Petroleum Hydrocarbons (TPHs)

6.3.1. BTEX Compounds

Specific Pollutants				
Determinand	Long Term Fresh water (µg/l)	Short Term Fresh water (µg/l)	Long Term Salt water (µg/l)	Short Term Salt water (µg/l)
Toluene	74	380	74	370

EQS for Priority Substances and other substances				
Determinand	AA-EQS Inland surface water (µg/l)	MAC-EQS Inland surface water (µg/l)	AA-EQS Other Surface waters (µg/l)	MAC-EQS Other Surface waters (µg/l)
Benzene	10	50	8	50

Threshold Values for Groundwater			
Determinand	Groundwater Impact on Surface Water (µg/l)	Drinking water Protected Area (µg/l)	General Quality of Groundwater Body (µg/l)
Benzene	5.16 – 21.2	0.75	0.75
Toluene	38.2 – 157	-	-
Xylene (o+p+m)	15.5 – 63.6	-	-

6.3.2. Total Petroleum Hydrocarbons – Aliphatic

World Health Organisation	
Determinand	Drinking Water Standard (µg/l)
>C5 – C6	15,000
>C6 – C8	
>C8 – C10	
>C10 – C12	300
>C12 – C16	
>C16 – C21	
>C21 – C35	Not Derived
	Not Derived

6.3.3. Total Petroleum Hydrocarbons – Aromatic

World Health Organisation	
Determinand	Drinking Water Standard (µg/l)
>EC5 – EC7	10
>EC7 – EC8	700
>EC8 – EC10	300
>EC10 – EC12	90
>EC12 – EC16	
>EC16 – EC21	
>EC21 – EC35	90

6.4. Polycyclic Aromatic Hydrocarbons (PAHs)

EQS for Priority Substances and other substances				
Determinand	AA-EQS Inland surface water (µg/l)	MAC-EQS Inland surface water (µg/l)	AA-EQS Other Surface waters (µg/l)	MAC-EQS Other Surface waters (µg/l)
Anthracene	0.1	0.1	0.1	0.1
Fluoranthene	0.0063	0.12	0.0063	0.12
Naphthalene	2	130	2	130
Benzo(a)pyrene	0.00017	0.27	0.00017	0.027
Benzo(b)fluoranthene	*	0.017	*	0.017
Benzo(k)fluoranthene	*	0.017	*	0.017
Benzo(ghi)perylene	*	0.0082	*	0.00082
Indeno(123-cd)pyrene	*	-	*	-

*For the group of priority substances of polyaromatic hydrocarbons, the AA-EQS in water refer to the concentration of benzo(a)pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene must be monitored for comparison with the corresponding AA-EQS.

Threshold Values for Groundwater			
Determinand	Groundwater Impact on Surface Water (µg/l)	Drinking water Protected Area (µg/l)	General Quality of Groundwater Body (µg/l)
Anthracene	0.052 – 0.193	-	-
Benzo(a)pyrene	0.000089 – 0.000328	0.0075	-
Benzo(b)fluoranthene	0.016 – 0.058	0.075	-
Fluoranthene	0.0033 – 0.0122	-	0.075
Naphthalene	1.03 – 4.24	-	0.075

Drinking Water Standards	
Determinand	Maximum allowable Concentration at compliance point (µg/l)
Benzo(a)pyrene	0.010
Benzo(b) fluoranthene	0.10
Benzo(k)fluoranthene	
Benzo(ghi)perylene	
Indeno(1,2,3-cd)pyrene	

6.5. Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

EQS for Priority Substances and other substances				
Determinand	AA-EQS Inland surface water (µg/l)	MAC-EQS Inland surface water (µg/l)	AA-EQS Other Surface waters (µg/l)	MAC-EQS Other Surface waters (µg/l)
Perfluorooctane sulfonic acid (PFOS)	0.00065	36	0.00013	7.2

6.6. Volatile and Semi-volatile Organic Compounds

SoBRA GAC _{gw vap} for Petroleum Hydrocarbons			
Determinand	GAC _{gw vap} (µg/l) ^{1,2}		Aqueous Solubility (µg/l)
	Residential	Commercial	
1,2,4-Trimethylbenzene	24	2,200	559,000
Benzene ³	210	20,000	1,780,000
Ethylbenzene ³	10,000	960,000 (sol)	180,000
Isopropylbenzene	850	86,000 (sol)	56,000
Propylbenzene	2,700	240,000 (sol)	54,100
Styrene	8,800	810,000 (sol)	290,000
Toluene ³	230,000	21,000,000 (sol)	590,000
TPH Aliphatic EC5-EC6 ³	1,900	190,000 (sol)	35,900
TPH Aliphatic >EC6-EC8 ³	1,500	150,000 (sol)	5,370
TPH Aliphatic >EC8-EC10 ³	57	5,700 (sol)	427
TPH Aliphatic >EC10-EC12 ³	37	3,600 (sol)	34
TPH Aromatic >EC5-EC7 ³	210,000	20,000,000 (sol)	1,780,000
TPH Aromatic >EC7-EC8 ³	220,000	21,000,000 (sol)	590,000
TPH Aromatic >EC8-EC10 ³	1,900	190,000 (sol)	64,600
TPH Aromatic >EC10-EC12 ³	6,800	660,000 (sol)	24,500
TPH Aromatic >EC12-EC16 ³	39,000	3,700,000 (sol)	5,750
m-Xylene ^{3,5}	9,500	940,000 (sol)	200,000
o-Xylene ^{3,5}	12,000	1,100,000 (sol)	173,000
p-Xylene ²	9,900	980,000 (sol)	200,000
Notes			

1. GAC in *italics* with (sol) exceed aqueous solubility.
2. GAC rounded to two significant figures.
3. The GAC for these petroleum hydrocarbon contaminants have been calculated using a sub-surface soil to indoor air correction factor of 10 in line with the physical-chemical data sources.
4. The GAC for TPH fractions do not account for genotoxic mutagenic effects. Concentrations of TPH Aromatic >EC5-EC7 should therefore also be compared with the GAC for benzene to ensure that such effects are also assessed.
5. The Health Criteria Value used for each xylene isomer was for total xylene. If site specific additivity assessments are not completed, as a conservative measure the sum of isomer concentrations should be compared to the lowest xylene GAC (as is the case for soil GAC).

SoBRA GAC _{gwvap} for Polycyclic Aromatic Hydrocarbons			
Determinand	GAC _{gwvap} (µg/l) ^{1,2}		Aqueous Solubility (µg/l)
	Residential	Commercial	
Acenaphthene	170,000 (sol)	15,000,000 (sol)	4,110
Acenaphthylene	220,000 (sol)	20,000,000 (sol)	7,950
Fluorene	210,000 (sol)	18,000,000 (sol)	1,860
Naphthalene	220	23,000 (sol)	19,000
Notes			
1. GAC in <i>italics</i> with (sol) exceed aqueous solubility.			
2. GAC rounded to two significant figures.			

SoBRA GAC _{gwvap} for Pesticides			
Determinand	GAC _{gwvap} (µg/l) ^{1,2}		Aqueous Solubility (µg/l)
	Residential	Commercial	
Aldrin	47 (sol)	3,700 (sol)	20
<i>alpha</i>-Endosulfan	7,400 (sol)	590,000 (sol)	530
<i>beta</i>-Endosulfan	7,500 (sol)	600,000 (sol)	280
Notes			
1. GAC in <i>italics</i> with (sol) exceed aqueous solubility.			
2. GAC rounded to two significant figures.			

SoBRA GAC _{gwvap} for Halogenated Organics			
Determinand	GAC _{gwvap} (µg/l) ^{1,2}		Aqueous Solubility (µg/l)
	Residential	Commercial	
1,1,1,2-Tetrachloroethane	240	22,000	1,110,000
1,1,1-Trichloroethane	3,000	290,000	1,300,000
1,1,2,2-Tetrachloroethane	1,600	150,000	2,930,000
1,1,2-Trichloroethane	520	49,000	4,491,000
1,1-Dichloroethane	2,700	260,000	3,666,000
1,1-Dichloroethene	160	16,000	3,100,000
1,2,3,4-Tetrachlorobenzene	240	31,000 (sol)	7,800
1,2,3,5-Tetrachlorobenzene	7.0	600	3,500
1,2,3-Trichlorobenzene	35	3,100	21,000
1,2,4,5-Tetrachlorobenzene	8.1	700 (sol)	600
1,2,4-Trichlorobenzene	68	7,200	41,400
1,2-Dichlorobenzene	2,000	220,000 (sol)	133,000
1,2-Dichloroethane	8.9	850	8,680,000
1,2-Dichloropropane	22	2,600	2,050,000

1,3,5-Trichlorobenzene	7.4	660	6,000
1,3-Dichlorobenzene	31	2,800	103,000
1,4-Dichlorobenzene	5,000	<i>460,000 (sol)</i>	51,200
Bromobenzene	220	20,000	388,040
Bromodichloromethane	17	1,600	3,000,000
Bromoform (Tribromomethane)	3,100	400,000	3,000,000
Chlorobenzene	98	15,000	387,000
Chloroethane	10,000	1,000,000	5,742,000
Chloroethene (Vinyl Chloride)	0.62	63	2,760,000
Chloromethane	14	1,400	5,350,000
cis-1,2-Dichloroethene	130	13,000	7,550,000
Dichloromethane	3,300	370,000	20,080,000
Hexachlorobenzene	<i>16 (sol)</i>	<i>1,400 (sol)</i>	10
Hexachlorobutadiene	1.7	230	4,800
Hexachloroethane	8.5	740	49,900
Pentachlorobenzene	140	<i>12,000 (sol)</i>	500
Tetrachloroethene	34	4,600	225,000
Tetrachloromethane (Carbon Tetrachloride)	5.3	770	846,000
trans-1,2-Dichloroethene	160	16,000	5,250,000
Trichloroethene	5.7	530	1,370,000
Trichloromethane (Chloroform)	790	85,000	8,950,000
Notes 1. GAC in <i>italics</i> with (sol) exceed aqueous solubility. 2. GAC rounded to two significant figures.			

SoBRA GAC_{gwvap} for Others (organic and inorganic)			
Determinand	GAC_{gwvap} (µg/l) ^{1,2}		Aqueous Solubility (µg/l)
	Residential	Commercial	
2-Chloronaphthalene	160	<i>14,000 (sol)</i>	11,700
Biphenyl (Limonene)	<i>15,000 (sol)</i>	<i>1,300,000 (sol)</i>	4,060
Carbon disulphide	56	5,600	2,100,000
Mercury, elemental	1.1	<i>95 (sol)</i>	56
Methyl tertiary butyl ether (MTBE)	83,000	7,800,000	48,000,000
Notes 1. GAC in <i>italics</i> with (sol) exceed aqueous solubility. 2. GAC rounded to two significant figures.			

7. Climate Change

Review of the publication by SoBRA referenced: Guidance on Assessing Risk to Controlled Waters from UK Land Contamination Under Conditions of Future Climate Change, August 2022, addresses the consideration of climate change as part of groundwater risk assessments. Following the development of a preliminary Conceptual Site Model (CSM), climate change should be included by re-evaluating the potential Source-Pathway-Receptor (SPR) linkage assessment to account for the potential effects of climate change based on projections for the region of the site. It is recommended where practicable to use at least two contrasting future climate change scenarios, incorporating information for the periods of 2020s, 2050s and 2080s dependent on the relevant timeframe to the specific assessment. A qualitative assessment of the impact of climate change on the SPRs and resultant impacts on the contaminants linkages within the CSM. Quantitative data can be used to re-address the generic quantitative risk assessment for medium to long term climate change effects. For short-term extreme weather events the of “what if” scenarios should be considered. Consideration also needs to be given to the shortcomings of available simulation models in the UK where they are not equipped to model

temporal changes to parameter values and where mitigation measures may be appropriate to address this.