

Date: 2nd December 2025

Reference: 15-707-L4

LAND AT MANCHESTER ROAD, SOUTH HEYWOOD, ROCHDALE

REMEDIATION VERIFICATION REPORT

Site Address:	Manchester Road, Heywood OL10 2QD
Planning Reference:	25/01037/DOC
Client:	Bellway Homes (Manchester) Ltd
Development Name:	Hopwood Meadows (Phase 1)

1. INTRODUCTION

This Remediation Verification Report has been prepared by E3P Limited in support of the discharge of Condition 15 attached to planning permission ref. 16/01399/HYBR.

The report provides formal validation against outstanding requirements of the approved Remediation and Enabling Works Strategy (Ref. 15-707-R1), specifically Items RE1 and RE3 to RE12 as identified within Rochdale Metropolitan Borough Council's refusal notice dated 27 November 2025.

This submission should be read in conjunction with:

-  Surface Water Management Plan (Ref. 15-707-R3)
-  Earthworks Validation Report, Hopwood Meadows Phase 1 (Ref. 15-707-R2)
-  Hotspot Validation Letter (Ref. 15-707-L1)

2. SCOPE AND STATUS OF REMEDIATION

E3P attended site intermittently in the role of supervising geoenvironmental consultant.

No evidence was encountered during the works of:

-  Previously unidentified Made Ground
-  Buried structures or foundations
-  Infilled watercourses or former ponds
-  Waste materials
-  Free product, hydrocarbon staining or odour





-  Asbestos containing materials
-  Japanese knotweed or other invasive species

The ground conditions were consistent with those defined in the approved conceptual site model.

Apart from a single localised polycyclic aromatic hydrocarbon hotspot (validated under Ref. 15-707-L1), no remediation was required.

3. STRATEGY COMPLIANCE NARRATIVE

RE1 – REGULATORY COMPLIANCE PRIOR TO WORKS

All phase-specific remediation submissions were approved by Rochdale Metropolitan Borough Council prior to commencement of works under application 21/01183/DOC.

No environmental permits were required from the Environment Agency.

No soil or groundwater treatment was undertaken.

RE3 – PROTECTION OF INFRASTRUCTURE AND CONTROLLED WATERS

A Surface Water Management Plan (Ref. 15-707-R3) was prepared and implemented to ensure risks to controlled waters were managed.

Control measures included engineered bunding to the western boundary, settlement controls, stockpile stand-off zones, drainage isolation controls and inspection regimes.

Water quality monitoring was undertaken during the works.

No exceedances were recorded. No discharges, silt migration, hydrocarbon sheen or watercourse impacts were observed. No Environment Agency notifications were required.

The Surface Water Management Plan remained effective throughout the works and no risk to controlled waters remains.

RE4 – INVASIVE SPECIES

No invasive species were identified and no treatment was required.

RE5 – TOPSOIL RECOVERY AND REUSE

The site investigation confirmed that topsoil was suitable for reuse, subject to removal of the identified hotspot. Following the removal and validation of the hotspot, the topsoil was stripped in a controlled manner and stockpiled.

Material was stored in managed stockpiles. The recovered material was reused in residential gardens and landscaped areas. This strategy ensured sustainable reuse and compliance with the remediation framework.



RE6 – POLYCYCLIC AROMATIC HYDROCARBON (PAH) HOTSPOTS

Remediated and validated under separate submission 15-707-L1. No further action required.

RE7 – STRUCTURES AND OBSTRUCTIONS

No structures, foundations or obstructions were encountered.

RE8 – INFILLED FEATURES

No infilled ponds or historical features were identified.

RE9 – DELETERIOUS MATERIALS

No unsuitable materials were encountered and no disposal was required.

4. ENGINEERING EARTHWORKS AND VALIDATION

RE10 – CUT AND FILL AND ENGINEERING OF SOILS

All development platforms were created using site-derived materials as part of balanced cut and fill operations.

Soils were engineered to achieve:

-  Platform stability
-  Structural performance compliance
-  Foundation load support
-  Highway subgrade standards

Material generated from cut was placed and compacted in fill areas. No material was discarded.

Because the materials were not discarded, disposed of, or transferred off-site, they do not constitute waste under the Waste Framework Directive.

RE11 – TEMPORARY WORKING PLATFORMS

Temporary piling platforms were constructed under a separate specification for geotechnical construction purposes only.

They form part of construction methodology and not remediation.

They are therefore outside the remit of Condition 15.



RE12 – ENGINEERING AND COMPACTION TESTING

Engineering performance testing was undertaken throughout the works as documented within the Earthworks Validation Report (Ref. 15-707-R2).

Testing included:

- ✳ In situ Non-Nuclear Density Gauge testing
- ✳ Moisture content testing
- ✳ California Bearing Ratio testing
- ✳ Plate bearing testing
- ✳ Particle size distribution
- ✳ Laboratory compaction testing

More than 250 in situ density tests were completed. Failed tests were reworked and retested until compliance was achieved.

The final development platforms satisfy design requirements for:

- ✳ Depth of fill
- ✳ Compaction performance
- ✳ Foundation interface
- ✳ Ground improvement compatibility

5. GEOCHEMICAL VALIDATION OF SOILS

A programme of laboratory chemical testing was undertaken to confirm the suitability of soils for retention and reuse across the site following remediation works. Representative samples were collected from both topsoil and engineered fill and assessed against relevant evaluation criteria including Generic Assessment Criteria for residential development with gardens, site-specific remediation targets derived through quantitative risk assessment, and Environment Agency guidance values where applicable.

The analytical results confirmed that no contaminant concentrations remain which would present an unacceptable risk to human health or the environment. No pollutant linkages were identified and the results demonstrate that the site does not pose a risk to future users, controlled waters or adjacent land.

On this basis, all soils used within the development are considered geochemically suitable and compliant with current UK guidance for residential end use.

To date, 6 samples of site won topsoil have been submitted for chemical analysis following the removal and validation of the identified hotspot. Laboratory certificate 23-10478 is attached which contains the results for the topsoil analysis.



6. CONCLUSION

This Remediation Verification Report has been prepared to demonstrate full compliance with Condition 15 attached to planning permission reference 16/01399/HYBR and to confirm that the remediation works required by the approved Remediation and Enabling Works Strategy (Reference 15-707-R1) have been fully implemented across the Phase 1 development area at Manchester Road, South Heywood.

E3P Limited attended the site intermittently in the role of supervising geoenvironmental consultant and oversaw the implementation of remediation and earthworks in accordance with the approved strategy. Ground conditions encountered during the works were consistent with those anticipated within the approved Conceptual Site Model. No previously unidentified contamination, structures, waste materials or infilled features were discovered.

The only contamination identified that required targeted remediation was a discrete area of polycyclic aromatic hydrocarbon contamination, which was addressed and validated through a separate submission. No further contaminant linkages were identified and no unacceptable sources, pathways or receptors remain.

Surface water protection measures implemented in accordance with the approved Surface Water Management Plan were effective throughout the contract period. No pollution incidents occurred, no uncontrolled discharges were observed and monitoring confirmed that there was no deterioration in water quality in the receiving watercourse. There is no evidence that the works have resulted in any impacts to controlled waters or drainage infrastructure.

Earthworks and remedial earthworks were carried out using site-derived materials through controlled cut and fill operations. Materials were not discarded or removed from the site and were therefore not classified as waste under the Waste Framework Directive. All soils were engineered in accordance with the design requirements and verified through a programme of compaction testing and inspection.

Chemical testing confirmed that soils used across the site are suitable for their intended residential end use and do not pose a risk to human health or the wider environment. Testing demonstrated compliance with agreed assessment criteria following the removal of the identified hotspot.

In summary, E3P confirms:

-  The approved remediation strategy has been fully implemented
-  No unacceptable contamination remains
-  No risks to controlled waters have arisen
-  All engineered soils are suitable for their intended use
-  The development platform meets design requirements

On the basis of the above, it is concluded that the site is suitable for the proposed residential development and all requirements of Condition 15 associated with Phase 1 of the development have now been satisfied.

It is therefore recommended that Rochdale Metropolitan Borough Council formally confirms the discharge of the outstanding remediation condition.



Martin Dyer

Director

BSc (Hons), CGeol, CEnv, FGS, FIEEnvSci.



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Acoustics



Remediation &
Enabling Earth
works Design



Geotechnical



Geo-
environmental



Ecology



Compliance &
Due Diligence



Arboriculture



Vibration

Attachments:

-  Chemical Analysis Report (i2 Ref: 23-10478)

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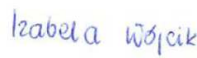
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Analytical Report Number : 23-10478

Project / Site name:	South Heywood Phase 1	Samples received on:	05/01/2023
Your job number:	15-707	Samples instructed on/ Analysis started on:	05/01/2023
Your order number:	003807	Analysis completed by:	12/01/2023
Report Issue Number:	1	Report issued on:	12/01/2023
Samples Analysed:	6 soil samples		


Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-10478
 Project / Site name: South Heywood Phase 1
 Your Order No: 003807

Lab Sample Number				2546641	2546642	2546643	2546644	2546645
Sample Reference				TS101	TS102	TS103	TS104	TS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				04/01/2022	04/01/2022	04/01/2022	04/01/2022	04/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	15	16	15	14
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	WEM	WEM	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7	6.9	6.5	6.5	6.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	870	670	840	870	430
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.034	0.018	0.0024	0.0026	0.002
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	68	36	4.8	5.1	3.9
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	34.2	18	2.4	2.6	2
Sulphide	mg/kg	1	MCERTS	3.1	1.7	1.7	2.1	1.2
Total Sulphur	mg/kg	50	MCERTS	840	430	470	480	360
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	7.1	5.1	6.7	-	5.1
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	-	7.2	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.33	0.08	0.07
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.19	< 0.05	0.56	0.23	0.22
Fluorene	mg/kg	0.05	MCERTS	0.13	< 0.05	0.39	0.18	0.12
Phenanthrene	mg/kg	0.05	MCERTS	1.1	0.49	3.3	1.9	1.3
Anthracene	mg/kg	0.05	MCERTS	0.25	0.12	0.66	0.47	0.32
Fluoranthene	mg/kg	0.05	MCERTS	1.5	0.9	3.9	2.9	1.6
Pyrene	mg/kg	0.05	MCERTS	1.3	0.83	3.5	2.7	1.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.82	0.49	1.9	1.3	0.77
Chrysene	mg/kg	0.05	MCERTS	0.68	0.52	1.8	1.4	0.72
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.77	0.62	2	1.6	0.85
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.36	0.27	0.96	0.65	0.33
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.68	0.48	1.7	1.3	0.69
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	0.26	0.86	0.68	0.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	0.22	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.44	0.31	0.98	0.77	0.45

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	8.55	5.29	23	16.4	9.31
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Analytical Report Number: 23-10478
Project / Site name: South Heywood Phase 1
Your Order No: 003807

Lab Sample Number	2546641	2546642	2546643	2546644	2546645
Sample Reference	TS101	TS102	TS103	TS104	TS105
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	04/01/2022	04/01/2022	04/01/2022	04/01/2022	04/01/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	15	18	20	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S*	U/S*	U/S*	U/S*	1.9
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	12	11	12	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	51	47	46	58	41
Lead (aqua regia extractable)	mg/kg	1	MCERTS	80	68	76	89	55
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	14	12	13	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	66	59	52	66	46

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	26	< 8.0	< 8.0	8.5	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_ID_AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	43	< 10	19	18	< 10
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_ID_AR	mg/kg	10	NONE	15	< 10	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	100	19	33	35	16

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*U/S - Unsuitable for analysis due to high colour intensity.

Analytical Report Number: 23-10478

Project / Site name: South Heywood Phase 1

Your Order No: 003807

Lab Sample Number				2546646
Sample Reference				TS106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				04/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	720
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.003
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	6
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	3
Sulphide	mg/kg	1	MCERTS	2.6
Total Sulphur	mg/kg	50	MCERTS	390
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	5.9
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.41
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.71
Fluorene	mg/kg	0.05	MCERTS	0.48
Phenanthrene	mg/kg	0.05	MCERTS	3.6
Anthracene	mg/kg	0.05	MCERTS	0.84
Fluoranthene	mg/kg	0.05	MCERTS	3.5
Pyrene	mg/kg	0.05	MCERTS	3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.5
Chrysene	mg/kg	0.05	MCERTS	1.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.71
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.69
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.19
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.83

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	20.9
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Analytical Report Number: 23-10478
 Project / Site name: South Heywood Phase 1
 Your Order No: 003807

Lab Sample Number				2546646
Sample Reference				TS106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				04/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	53
Lead (aqua regia extractable)	mg/kg	1	MCERTS	81
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_ID_AL	mg/kg	10	NONE	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	15
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_ID_AR	mg/kg	10	NONE	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	22

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*U/S - Unsuitable for analysis due to high colour intensity.

Analytical Report Number : 23-10478

Project / Site name: South Heywood Phase 1

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2546641	TS101	None Supplied	None Supplied	Brown loam and sand with vegetation.
2546642	TS102	None Supplied	None Supplied	Brown loam and sand with vegetation.
2546643	TS103	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2546644	TS104	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2546645	TS105	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2546646	TS106	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 23-10478

Project / Site name: South Heywood Phase 1

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-10478

Project / Site name: South Heywood Phase 1

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 23-10478

Project / Site name: South Heywood Phase 1

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TS101	None Supplied	S	2546641	c	Hexavalent chromium in soil	L080-PL	c
TS101	None Supplied	S	2546641	c	Monohydric phenols in soil	L080-PL	c
TS101	None Supplied	S	2546641	c	Organic matter (Automated) in soil	L009-PL	c
TS101	None Supplied	S	2546641	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS101	None Supplied	S	2546641	c	Sulphide in soil	L010-PL	c
TS101	None Supplied	S	2546641	c	TPH in (Soil)	L076-PL	c
TS101	None Supplied	S	2546641	c	TPHCWG (Soil)	L088/76-PL	c
TS101	None Supplied	S	2546641	c	Total cyanide in soil	L080-PL	c
TS101	None Supplied	S	2546641	c	Total organic carbon (Automated) in soil	L009-PL	c
TS101	None Supplied	S	2546641	c	pH in soil (automated)	L099-PL	c
TS102	None Supplied	S	2546642	c	Hexavalent chromium in soil	L080-PL	c
TS102	None Supplied	S	2546642	c	Monohydric phenols in soil	L080-PL	c
TS102	None Supplied	S	2546642	c	Organic matter (Automated) in soil	L009-PL	c
TS102	None Supplied	S	2546642	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS102	None Supplied	S	2546642	c	Sulphide in soil	L010-PL	c
TS102	None Supplied	S	2546642	c	TPH in (Soil)	L076-PL	c
TS102	None Supplied	S	2546642	c	TPHCWG (Soil)	L088/76-PL	c
TS102	None Supplied	S	2546642	c	Total cyanide in soil	L080-PL	c
TS102	None Supplied	S	2546642	c	Total organic carbon (Automated) in soil	L009-PL	c
TS102	None Supplied	S	2546642	c	pH in soil (automated)	L099-PL	c
TS103	None Supplied	S	2546643	c	Hexavalent chromium in soil	L080-PL	c
TS103	None Supplied	S	2546643	c	Monohydric phenols in soil	L080-PL	c
TS103	None Supplied	S	2546643	c	Organic matter (Automated) in soil	L009-PL	c
TS103	None Supplied	S	2546643	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS103	None Supplied	S	2546643	c	Sulphide in soil	L010-PL	c
TS103	None Supplied	S	2546643	c	TPH in (Soil)	L076-PL	c
TS103	None Supplied	S	2546643	c	TPHCWG (Soil)	L088/76-PL	c
TS103	None Supplied	S	2546643	c	Total cyanide in soil	L080-PL	c
TS103	None Supplied	S	2546643	c	Total organic carbon (Automated) in soil	L009-PL	c
TS103	None Supplied	S	2546643	c	pH in soil (automated)	L099-PL	c
TS104	None Supplied	S	2546644	c	Hexavalent chromium in soil	L080-PL	c
TS104	None Supplied	S	2546644	c	Monohydric phenols in soil	L080-PL	c
TS104	None Supplied	S	2546644	c	Organic matter in soil	L023-PL	c
TS104	None Supplied	S	2546644	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS104	None Supplied	S	2546644	c	Sulphide in soil	L010-PL	c
TS104	None Supplied	S	2546644	c	TPH in (Soil)	L076-PL	c
TS104	None Supplied	S	2546644	c	TPHCWG (Soil)	L088/76-PL	c
TS104	None Supplied	S	2546644	c	Total cyanide in soil	L080-PL	c
TS104	None Supplied	S	2546644	c	Total organic carbon in soil	L023-PL	c
TS104	None Supplied	S	2546644	c	pH in soil (automated)	L099-PL	c
TS105	None Supplied	S	2546645	c	Hexavalent chromium in soil	L080-PL	c
TS105	None Supplied	S	2546645	c	Monohydric phenols in soil	L080-PL	c
TS105	None Supplied	S	2546645	c	Organic matter (Automated) in soil	L009-PL	c
TS105	None Supplied	S	2546645	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS105	None Supplied	S	2546645	c	Sulphide in soil	L010-PL	c
TS105	None Supplied	S	2546645	c	TPH in (Soil)	L076-PL	c
TS105	None Supplied	S	2546645	c	TPHCWG (Soil)	L088/76-PL	c
TS105	None Supplied	S	2546645	c	Total cyanide in soil	L080-PL	c
TS105	None Supplied	S	2546645	c	Total organic carbon (Automated) in soil	L009-PL	c
TS105	None Supplied	S	2546645	c	pH in soil (automated)	L099-PL	c
TS106	None Supplied	S	2546646	c	Hexavalent chromium in soil	L080-PL	c
TS106	None Supplied	S	2546646	c	Monohydric phenols in soil	L080-PL	c
TS106	None Supplied	S	2546646	c	Organic matter (Automated) in soil	L009-PL	c
TS106	None Supplied	S	2546646	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TS106	None Supplied	S	2546646	c	Sulphide in soil	L010-PL	c
TS106	None Supplied	S	2546646	c	TPH in (Soil)	L076-PL	c
TS106	None Supplied	S	2546646	c	TPHCWG (Soil)	L088/76-PL	c
TS106	None Supplied	S	2546646	c	Total cyanide in soil	L080-PL	c
TS106	None Supplied	S	2546646	c	Total organic carbon (Automated) in soil	L009-PL	c

Sample Deviation Report



Analytical Report Number : 23-10478

Project / Site name: South Heywood Phase 1

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TS106	None Supplied	S	2546646	c	pH in soil (automated)	L099-PL	c