GroundSolve Ltd
Consulting Geotechnical Engineers

# VERIFICATION REPORT – PLOTS 11, 12 AND 14, HERITAGE COURT, ACREFAIR

**GSL3059R15**

**VERSION 2**

**19 FEBRUARY 2026**

**FINAL**

Prepared for:

GOWER HOMES

Prepared by: **Eve Rowland**

GroundSolve Ltd

# DOCUMENT CONTROL

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|---|---|
| **Report No. :** | GSL3059R15 |
| **Report Status:** | FINAL |
| **Version No.:** | 2 |
| **Project Engineer:** | Eve Rowland |
| **Date of Issue:** | 19/02/2026 |

This report has been prepared by GroundSolve Ltd with all reasonable care and diligence, within the best practice and guidance current at the time of issue within the proposed redline boundary and proposed Site end use as presented by the Client.

This report is confidential to the Client and GroundSolve Ltd accepts no responsibility whatsoever to third parties to whom this report is presented.

| Version No. | Description of Issue / Revision | Date of Issue | Author | Reviewed By | Approved By |
|---|---|---|---|---|---|
| 1 | Revision A | 19/02/2026 | Eve Rowland<br>MESci (Hons) FGS | James Thorburn<br>BSc (Hons) FGS | Sam Fishburne<br>BEng MSc FGS<br>CGeol RoGEP |

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# 1 INTRODUCTION

GroundSolve Ltd was commissioned by Gower Homes to undertake a verification report for Plots 11, 12 and 14, which is part of a wider development off Llangollen Road, Acrefair in North Wales referred to as Heritage Court (the "Site").

This report has been devised to generally comply with the relevant principles and requirements of a range of guidance including:

- Welsh Local Government Assoc- Development of Land Affected By Contamination Guide for Developers 2017
- Part IIA of the Environment Protection Act, 1990
- BS5930:2015: "Code of practice for site investigations"
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites - Code of Practice"
- The Building Regulations 2010. Part C (HM Government 2013)
- Environment Agency: Land Contamination Risk Management (LCRM), Version 3, October 2020
- Environment Agency (2017) "The Environment Agency's Approach to Groundwater Protection" November 2018 Version 1.2.

## 1.1 Proposed Development

The proposed development comprises the construction of 22 No. three and four-bedroom residential properties with associated gardens, roads and services. This verification report relates to plots 11, 12 and 14 only.

It is understood that the Principal Contractor for the development is Gower Homes Ltd.

Planning Application number P/2021/0793 – Condition 4 outlines:

*Each part of the site subject to the remediation under the scheme approved as part of condition 3 shall not be occupied/used until a validation report has been completed in respect of that part of the site.*




**Figure 1: Extract from proposed development plan (see Appendix A)**

The findings and conclusions of the risk assessments have been set out and recommendations given for the proposed residential end use.

## 1.2 Objectives

The report provides verification of site material, compares site conditions and soil chemical parameters to the specification for verification as agreed with Wrexham County Borough Council in the Remediation Strategy outlined in GroundSolve Ltd report GSL3059R01-1 Issued, 26th February 2024.

## 1.3 Previous Investigations

The following reports have already been undertaken and will be summarised in Section 3:

- Phase II Assessment, South Site (Former Engineering Works), Acrefair, Wrexham – carried out by WSP (Reference 9460(2), dated July 2011. which encompassed the current site of interest within a larger parcel of land.
- Coal Mining Risk Assessment Report undertaken by Earth Environmental & Geotechnical Ltd (Reference: A3341/17, August 2017).
- Phase 1 Preliminary Risk Assessment undertaken by Earth Environmental & Geotechnical Ltd (Ref. A3341/19, dated 17th December 2019).
- Phase 2 Ground Investigation undertaken by Earth Environmental & Geotechnical Ltd (Ref: A3341/20/SI/V2, dated 9th September 2020).
- A Soil Contamination Delineation Letter Report undertaken by Earth Environmental & Geotechnical Ltd (Ref: A3341/21, dated 24th June 2020).
- Remediation Strategy - GroundSolve Ltd, report reference: GSL3059R01-1 dated 26th February 2024.
- Factual Ground Investigation Report – GroundSolve Ltd, report reference: GSL3059R02 dated 18th March 2025.
- Recycled Aggregate Assessment – GroundSolve Ltd, report reference: GSL3059LR03-1 dated 20th March 2024.
- Stockpile Waste Assessment – GroundSolve Ltd, report reference: 3059LR04-1, dated 27th March 2024.
- Clean Cover Verification Reports – GroundSolve Ltd, report references: GSL3059, GSL3059R02-1, GSL3059R07 to R012.
- Gas Membrane Verification reports: GSL3116LR01 – GSL3116LR06 issued between June 2024 and September 2025.

The previous site investigation reports are discussed and summarised in **Section 3** of this report.

## 1.4 Limitations

This report has been prepared for the sole use of Gower Homes Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of GroundSolve Ltd. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk.

# 2 SITE DETAILS AND DESCRIPTION

**Table 2.1 Current Site Overview.**

| | |
|---|---|
| **Site name** | Heritage Court, Llangollen Rd, Acrefair |
| **Site address** | Llangollen Rd, Acrefair, closest postcode LL14 3HW |
| **National Grid Reference (NGR)** | 328138, 343231 |
| **Approximate Site area** | The area of the site is 1.12 ha. |
| **Site shape** | The site is irregular in shape with maximum dimensions of approximately 150m north-south and 155m east-west. |
| **Current land use on the Site** | The site is currently part of the new residential development. |
| **Surrounding land uses** | To the northwest of the site is Llangollen Road (A539) with residential properties and vacant land beyond, to the northeast is a bowling green, to the east is a steep slope with residential properties beyond and to the south is a vacant plot of land |
| **General topography and ground levels** | No up-to-date topographical survey has been provided to GSL since groundwork changes and development on the site, however the previous topographical survey suggests site slopes from generally from north to south varying between 53mOD on the northern boundary to 48.5m OD on the southern boundary. There is a steep overgrown slope along the eastern boundary ranging from 50m OD to 61m OD. |

# 3 PREVIOUS INVESTIGATIONS

Previous reports have already been undertaken, and the findings are summarised:

- Phase II Assessment, South Site (Former Engineering Works), Acrefair, Wrexham – carried out by WSP (Reference 9460(2), dated July 2011. which encompassed the current site of interest within a larger parcel of land.
- Coal Mining Risk Assessment Report undertaken by Earth Environmental & Geotechnical Ltd (Reference: A3341/17, August 2017)
- Phase 1 Preliminary Risk Assessment undertaken by Earth Environmental & Geotechnical Ltd (Ref. A3341/19, dated 17th December 2019)
- Phase 2 Ground Investigation undertaken by Earth Environmental & Geotechnical Ltd (Ref: A3341/20/SI/V2, dated 9th September 2020)
- A Soil Contamination Delineation Letter Report undertaken by Earth Environmental & Geotechnical Ltd (Ref: A3341/21, dated 24th June 2020)
- Remediation Strategy - GroundSolve Ltd report GSL3059R01-1 Issued, 26th February 2024

In summary, from the site history, review of historical maps and site walkover survey, there was identified a low risk of potential sources of contaminants being present at the site. Any Made Ground was anticipated to be relatively thin.

**Table 3.1 Summary of main findings from the Phase 1 Report.**

| Summary of main findings from the Phase 1 Report | |
|---|---|
| **Site History** | The earliest mapping (1873) shows the presence of railway tracks and sidings running though the centre of the site connecting works to the north and south. Along the southern section of the site there is a works, potentially connected to be New British Iron Works.<br>There are also associated buildings in the north and west. There is an embankment along the eastern boundary.<br><br>Offsite, there are three reservoirs / ponds relating to the works. There are other railway sidings along eastern boundary with a series of Coke Ovens further to the east.<br><br>The New British Iron Works were removed by 1899 along with the majority of associated railway lines and sidings. The previous buildings were removed within the north and southern parts of the site. By 1960s, new rectangular buildings were now present in the southern part of the site. The remaining parts of the site were used for vehicle parking.<br><br>The Acrefair engineering works and Air Products Engineering facility occupied to the south of the site. The former reservoirs / ponds were infilled by 1962.<br><br>The site generally has remained unchanged until recently when the previous buildings were demolished. |
| **Geological Setting** | Made ground – present on the site variable in thickness, deepest in southern part of site.<br>Superficial deposits – Till (Diamicton), Devensian.<br>Bedrock – Pennine Lower Coal Measures Formation comprising mudstone, coal seams, siltstone and sandstone), Carboniferous. Two coal seams outcrop through the site. |
| **Mining** | The site is located in a coal mining Development High Risk Area by the Coal Authority. There are 3no. associated coal seams and 1no. ironstone coal seam potentially underlying the site. There is a mine shaft present along the eastern boundary.<br>The site is not in an area affected by historic brine or salt extraction.<br>In an area where possible historical mining of bedded iron ore.<br>Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered |

| Summary of main findings from the Phase 1 Report | |
|---|---|
| **Radon** | The site is located in a Radon Affected Area as between 3 and 5% of properties are above the Action Level. Basic Radon protection measures will therefore be necessary. |
| **Hydrogeology** | Superficial deposits (Glacial Till) – Secondary Undifferentiated Aquifer.<br>Bedrock(Pennine Lower Coal Measure) – Secondary A Aquifer.<br>There are no Groundwater Abstraction Licence, Potable Abstractions or Surface Water Abstraction Licence points within 1000m of the site.<br>The site is not located within 500m of a Source Protection Zone or Source Protection Zone within a confined aquifer |
| **Hydrology** | There are no surface water features identified within 250m of the site. |
| **Waste** | There are no records for current Environment Agency landfill records within 1km of the site<br>There are 9no. records of historic Environment Agency landfill sites within 1.5km of the site. The closest record refers to a site located 17m to the northwest of the site (former infilled works reservoir. The site received inert, industrial waste between 1950 and 1960. |
| **Contamination Sources** | Made Ground from various phases of on-site development and railway land<br>Made Ground is present on site known to comprise ash/clinker/ coal. Thickness of Made Ground varies from 0.3m to 2.0m.<br>Asbestos containing materials (ACM) from former structures<br>Ground gas associated with deep made ground, and infilled features from railway land<br><br>Contaminants may therefore include heavy metals, polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH), BTEX compounds, Volatile Organic Compounds (VOC), Polychlorinated Biphenyls (PCB), asbestos and ground gases (Carbon dioxide and methane). |
| **Scope of Phase 2 Site Investigation** | The scope of ground investigation works carried out at the site by GroundSolve comprised:<br>• 6 No. Rotary boreholes (RH01-06) to a maximum depth of 30.0mbgl,<br>• 4No Gas monitoring wells installed<br>• 12 No. machine excavated Trial Pits to maximum depth of 3.15mbgl ,<br>• Sampling for chemical and geotechnical testing of soils,<br>• Chemical testing. |
| **Findings of the Phase 2 Ground Investigation** | The sequence of strata encountered beneath the site was as follows:<br>• Made Ground – Variable Made Ground was encountered in all the exploratory holes, comprising:<br>o Asphalt hardstanding.<br>o Gravels with varying sand and cobble content (containing brick, slag, glass, timber, clinker, concrete, metal, pottery fragments, carbonaceous fragments, sandstone and mudstone.<br>• Clay was encountered in all the exploratory holes. The clay is thought to be a completely weathered mudstone that becomes less weathered with depth. This lithology was recovered as:<br>o o Sandy gravelly clay (containing gravel of mudstone and carbonaceous fragments).<br>o o Clayey mudstone was encountered in the rotary boreholes.<br>• Mudstone was encountered in all of the rotary boreholes as:<br>o Mudstone with occasional siltstone and sandstone bands.<br>• Sandstone was also encountered in all of the rotary boreholes as:<br>o Sandstone with mudstone bands and strong sandstone bands.<br>• Coal was encountered in RH1 and RH3 and was found to be intact and separated by a thin layer of black shale. |
| **Phase 2 Conclusions – Geoenvironmental** | **Human Health:**<br>Elevated concentrations of contaminants of Lead, Mercury, TPH and PAH, with respect to the long-term protection of human health, have been identified across the site when compared to residential end use (with plant uptake) assessment criteria.<br>**Controlled Waters:**<br>No unacceptable risks.<br>**Ground Gases (Human Health / Property):**<br>Basic radon protective measures are indicated by the current guidance.<br>Characteristic Situation 2 gas protection measures. |
| **Remediation Strategy** | In order to break potential pollutant linkages to future residential end users, it is recommended that garden areas across the site should have a clean soil cover of 600mm thickness (450mm thick in front gardens).<br><br>Gas Protection measures to achieve CS2 and basic protection measures.<br>• Floor Slab: |

| Summary of main findings from the Phase 1 Report | |
|---|---|
| | ▪ Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement) – Score 0.5; or<br>• Passive sub floor dispersal layer<br>▪ Good performance– Score 1.5;<br>Media used to provide the dispersal layer are:<br>▪ No-fines gravel layer<br>• Gas resistant membrane – Score 2.0:<br>▪ Visqueen Gas Barrier – suitable for Co2 and Radon protection<br>▪ verified in accordance with CIRIA C735.<br><br>The Gas Membrane Verification reports above have already been carried out and have been submitted to the council for review. |

# 4 VERIFICATION OF TOPSOIL AND SUBSOIL

## 4.1 Introduction

The risk assessments have concluded that remediation measures are required to address risks to human health only, resulting from minor contamination in the existing Made Ground.

It should be noted that the site strip has been carried out and the majority of the Made Ground had been removed from site.

The remedial actions required are:

- Made Ground can be left in-situ below building floor slabs and future permanent hard standing (e.g., parking areas, roads, footpaths), excluding service runs and areas where future excavation might be anticipated (assuming all geotechnical requirements are met).
- Remediation is only required for below areas of gardens/soft landscaping to enable provision of uncontaminated cover soils in areas of garden/soft landscaping (minimum of 600 mm);
- Provision of a clean cover system in areas of gardens and soft landscaping. A 600 mm thick cover of 'clean and inert' capping is proposed (comprising 450 mm subsoil and 150 mm topsoil).

Imported topsoil and subsoil will be required to be analysed for a suitable suite of contaminants in relation to human health (in addition to topsoil being compliant with BS3882:2015).

The proposed development will be carried out in phases, with this verification report relating to Plots 11, 12 and 14 only.

## 4.2 Unexpected Contamination

No unexpected contamination has been encountered within the garden areas of Plots 11, 12 and 14.

## 4.3 Source of Topsoil / Subsoil

The source of the topsoil and subsoil was from another residential development names Willow Cottage, Ruabon. The Phase 2 Geoenvironmental Report GSL2400 – issued October 2020 and has been provided previously.

## 4.4 Site works

GroundSolve were present at the site on 5th February 2026 to describe and take samples of the topsoil and subsoil for chemical analysis and verify the thickness of the topsoil and subsoil. Photos are provided in Appendix B (topsoil and subsoil in garden areas).

## 4.5 Description of Topsoil and Thickness

Topsoil and subsoil has been placed in both the front and rear gardens.

One trial pit was excavated in the rear garden of Plots 11, 12 and 14.

**Table 4.1 – Depth of Topsoil, Subsoil**

| Date | Exploratory Hole | Depth of Topsoil (m) | Depth of Subsoil (m) |
|---|---|---|---|
| 05/02/2026 | Plot 11 rear | 0.40 | 0.60 |
| 05/02/2026 | Plot 12 rear | 0.30 | 0.60 |
| 05/02/2026 | Plot 14 rear | 0.40 | 0.70 |

Topsoil – Dark brown silty gravelly sandy CLAY with frequent rootlets and rare cobbles. Gravel is fine-coarse sub-rounded

Subsoil – Brown slightly gravelly to gravelly sandy CLAY. Gravel is fine to coarse, angular to sub-rounded

Verification photographs of gardens areas are presented in **Appendix B**.

The soft landscaped areas of Plots 11, 12 and 14 show a thickness of topsoil which is a minimum of 300mm depth and a depth of subsoil which is a minimum of 600mm bgl. All areas comply with the requirements detailed in remediation strategy.

## 4.6 Verification of Topsoil and Subsoil – Sampling and Testing

A total of 6 No. samples of topsoil / subsoil were analysed from the garden areas within Plots 11, 12 and 14. From visual observation, the materials constituted topsoil comprising of "Dark brown silty gravelly sandy Clay".

The soil samples were sent to ChemTech. The laboratory is UKAS accredited in accordance with ISO17025 and is also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory analysis results are presented in Appendix C.

**Table 4.2** – Acceptance Criteria for imported material (Topsoil and Subsoil)

| Analyte | Soil Re-Use and Importation Criteria | | Analyte | Soil Re-Use and Importation Criteria | |
|---|---|---|---|---|---|
| | mg/kg | Reference | | mg/kg | Reference |
| **Metals** | | | **BTEX** | | |
| Arsenic (total) | 37 | S4UL | Benzene | 0.087 | S4UL |
| Cadmium (total) | 11 | S4UL | Toluene | 130 | S4UL |
| Chromium (total) | 520 | HWT | Ethyl Benzene | 47 | S4UL |
| Chromium (hexavalent) | 6 | S4UL | Xylene – 0 | 60 | S4UL |
| Copper (total) | 200 | BS3882 | Xylene – M or P | 56 | S4UL |
| Lead (total) | 200 | C4SL | | | |
| Mercury (total inorganic) | 40 | S4UL | **Petroleum Hydrocarbons$** | | |
| Nickel (total) | 130 | S4UL | Aliphatic > EC5 - EC6 | 42 | S4UL |
| Selenium | 250 | S4UL | Aliphatic >EC6 - EC8 | 100 | S4UL |
| Vanadium | 410 | S4UL | Aliphatic >EC8 - EC10 | 27 | S4UL |
| Zinc (total) | 2,009** | HWT | Aliphatic >EC10 - EC12 | 130 | S4UL |
| | | | Aliphatic >EC12 - EC16 | 1000** | HWT |
| **Inorganic** | | | Aliphatic >EC16 - EC21 | 1000** | HWT |
| Sulphate | 2400*** | - | Aliphatic >EC21 - EC35 | 1000** | HWT |
| Phenol | 120 | S4UL | | | |
| | | | Aromatic >EC5 - EC7 | 70 | S4UL |
| **PAH&** | | | Aromatic >EC7 - EC8 | 130 | S4UL |
| Naphthalene | 2.3 | S4UL | Aromatic >EC8 - EC10 | 34 | S4UL |
| Acenaphthylene | 170 | S4UL | Aromatic >EC10 - EC12 | 74 | S4UL |
| Acenaphthene | 210 | S4UL | Aromatic >EC12 - EC16 | 140 | S4UL |
| Fluorene | 170 | S4UL | Aromatic >EC16 - EC21 | 260 | S4UL |
| Phenanthrene | 95 | S4UL | Aromatic >EC21 - EC35 | 1000** | HWT |
| Anthracene | 2400 | S4UL | Aromatic>EC35-44 | 1000** | HWT |
| Fluoranthene | 280 | S4UL | Aromatic>EC44-EC77 | 1000** | HWT |
| Pyrene | 620 | S4UL | | | |
| Benz(a)anthracene | 7.2 | S4UL | Asbestos | Not detected (<0.001%) for topsoil and subsoil | Lab LoD |
| Chrysene | 15 | S4UL | | | |
| Benzo(b)fluoranthene | 2.6 | S4UL | | | |
| Benzo(k)fluoranthene | 77 | S4UL | | | |
| Benzo(a)pyrene | 2.2 | S4UL | | | |
| Indeno(123cd)pyrene | 27 | S4UL | | | |
| Benzo(ghi)perylene | 320 | S4UL | | | |
| Dibenzo(ah)anthracene | 0.28 | S4UL | | | |

The results of the samples collected were screened against Generic Assessment Criteria (GAC) for Human Health Risk Assessment (LQM/CIEH 2015) for a residential with gardens end-use, sandy soil with 6% SOM and pH 7.0 (presented in Table 4.1 and Appendix D).

**Topsoil / Subsoil**

6 No. samples were selected from the topsoil and subsoil material. All the topsoil and subsoil results pass the relevant screening criteria for residential land use with plant uptake, therefore are suitable for use within the garden areas. The results are summarised in Appendix D.

# 5 CONCLUSIONS

## 5.1 Clean Cover Depth

The remediation strategy details the requirement details the requirement for a minimum 600mm clean cover comprising a minimum of 300 mm topsoil across garden areas (front and rear).

Visual inspection visits were performed by GroundSolve. Photographs showing the verification of depth across selected plots were found to comprise a sufficient clean cover system in accordance with the agreed remedial strategy and Welsh Local Government Association Guidance.

## 5.2 Topsoil and subsoil Material

Laboratory chemical analysis results from both the recovered sub-soil and topsoil material show the samples do not exceed the relevant GACs.

Laboratory analysis results of recovered samples show topsoil and subsoil are generally in compliance with BS3883:2015 and BS8601:2013.

## 5.3 Conclusions

The report indicates that the site inspections and chemical tests results from Plots 11, 12 and 14 have met all the requirements of the remediation as outlined in the remediation strategy agreed with the Welsh Local Government Association Guidance.

No unexpected contamination has been encountered within Plots 11, 12 and 14.

# 6 REFERENCES

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# 7 DEFINITIONS

| | |
|---|---|
| AOD | Above Ordnance Datum |
| bgl | Below ground level |
| BGS | British Geological Survey |
| BRE | Building Research Establishment |
| CBR | California Bearing Ratio (test) |
| COMAH | Control of Major Accident Hazards (regulations) |
| DQRA | Detailed Quantitative Risk Assessment |
| DWS | Drinking Water Standard |
| EQS | Environmental Quality Standard |
| GAC | Generic Assessment Criterion |
| GQA | General Quality Assessment (Environment Agency) |
| GQRA | Generic Quantitative Risk Assessment |
| GSV | Gas Screening Value |
| HCV | Health Criteria Value |
| IPPC | Integrated Pollution Prevention and Control (regulations) |
| NGR | National Grid Reference |
| NIHHS | Notification of Installations Handling Hazardous Substances (regulations) |
| OS | Ordnance Survey |
| Ppm | Parts per million |
| Ppmv | Parts per million by volume |
| SAC | Special Area of Conservation |
| SPZ | Source Protection Zone |
| SSAC | Site-Specific Assessment Criterion |
| SSSI | Site of Special Scientific Interest |

# APPENDIX A - DRAWINGS




EDGE ARCHITECTS

RIBA Chartered Practice

EDGE Architects NW Ltd.
Studio 55:20
North Wales Business Park, Abergele
Conwy, LL22 8LJ

**CLIENT:**
Gower Homes Ltd

**ADDRESS:**
Former Air Products site, Llangollen Road, Acrefair LL14 3HW

**PROJECT:**
Proposed residential development

**DRAWING No:** 21-DES-001-02 D

**DATE:** MARCH 2022
**SCALE:** 1:500 @ A3

# APPENDIX B – SITE PHOTOGRAPHS (Plots 11, 12 and 14)




Plot 11 Garden Area after installation of 600mm cover system






Plot 12 Garden Area after installation of 600mm cover system






Plot 14 Garden Area after installation of 700mm cover system



# APPENDIX C – CHEMICAL TEST RESULTS

# ANALYTICAL TEST REPORT

| | |
|---|---|
| **Report Number** | 26-01466, issue number 1 |
| **Contract name:** | Heritage Court, Acrefair |
| **Client reference:** | 3059 |
| **Clients name:** | GroundSolve Ltd |
| **Clients address:** | GroundSolve Ltd<br>Unit 1<br>85 Station Road<br>Queensferry<br>Flintshire CH5 2TB |
| **Samples received:** | 09/02/2026 |
| **Analysis started:** | 10/02/2026 |
| **Analysis completed:** | 16/02/2026 |
| **Report issued:** | 16/02/2026 |

**Key**

U UKAS accredited test
M MCERTS & UKAS accredited test
(B) Analysis performed at Southampton Site
I/S Insufficient sample to carry out test
U/S Sample not suitable for testing
NAD No Asbestos Detected
Full key available on Information page

[redacted]

**Approved by:**

Abbie Neasham-Bourn
Senior Reporting Administrator

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB

Telephone: (01207) 528578, Email supportsquad@chemtech-env.co.uk

## SAMPLE INFORMATION

**MCERTS (Soils):**

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
% Moisture reported as MCERTS drying at 30°C

| Lab ref | Sample ID | Depth (m) | Sample description | Material removed | % Removed | % Moisture |
|---|---|---|---|---|---|---|
| 88321 | Plot 11 | 0.20 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 11.4 |
| 88322 | Plot 11 | 0.55 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 14.5 |
| 88323 | Plot 12 | 0.20 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 10.9 |
| 88324 | Plot 12 | 0.50 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 13.9 |
| 88325 | Plot 14 | 0.20 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 22.0 |
| 88326 | Plot 14 | 0.50 | Brown Sandy Clay with Gravel and Vegetation. | - | - | 24.1 |

# SOILS

| Lab Number | | | | | 88321 | 88322 | 88323 | 88324 | 88325 |
|---|---|---|---|---|---|---|---|---|---|
| **Client Reference** | | | | | 1 | 1 | 1 | 1 | 1 |
| **Sample ID** | | | | | Plot 11 | Plot 11 | Plot 12 | Plot 12 | Plot 14 |
| **Depth (m)** | | | | | 0.20 | 0.55 | 0.20 | 0.50 | 0.20 |
| **Sampling Date** | | | | | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | | | | | |
| **Asbestos** | | | | | | | | | |
| Asbestos Identification | SUBCON | SU | 0 | - | NAD | NAD | NAD | NAD | NAD |
| **Soil sample preparation parameters** | | | | | | | | | |
| Stones Content | CE001 | N | 0.1 | % | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| **Metals** | | | | | | | | | |
| Water Soluble Sulphate | CE061 | M | 0.01 | g/l | 0.087 | 0.063 | 0.091 | 0.054 | 0.028 |
| Acid Soluble Sulphate (SO4) | CE062 | M | 0.01 | % | 0.40 | 0.03 | 0.04 | 0.03 | 0.04 |
| Arsenic | CE264 | U | 1.8 | mg/kg | 8.5 | 9.6 | 9.2 | 10.1 | 8.5 |
| Cadmium | CE264 | M | 1.6 | mg/kg | 3.9 | < 1.6 | < 1.6 | < 1.6 | < 1.6 |
| Chromium | CE264 | U | 2 | mg/kg | 12.6 | 8.0 | 6.4 | 7.8 | 14.4 |
| Copper | CE264 | U | 1.6 | mg/kg | 7.3 | 8.0 | 9.0 | 7.7 | 18.7 |
| Lead | CE264 | U | 2.3 | mg/kg | 37.7 | 31.9 | 24.4 | 23.4 | 51.7 |
| Mercury | CE264 | U | 0.7 | mg/kg | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 |
| Nickel | CE264 | M | 2.1 | mg/kg | 31.4 | 20.1 | 15.4 | 16.3 | 18.8 |
| Selenium | CE264 | U | 3 | mg/kg | 3.8 | < 3.0 | < 3.0 | 3.2 | < 3.0 |
| Zinc | CE264 | M | 4 | mg/kg | 68.6 | 53.2 | 46.2 | 56.6 | 76.3 |
| **Colourimetric** | | | | | | | | | |
| Total Monohydric Phenols | CE078 | N | 0.5 | mg/kg | < 0.50 | < 0.50 | < 0.50 | < 0.50 | 1.04 |
| Total Cyanide | CE077 | N | 1 | mg/kg | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| **Combustion** | | | | | | | | | |
| Moisture Content | CE001 | N | 0.1 | % | 11.4 | 14.5 | 10.9 | 13.9 | 22.0 |
| Total Organic Carbon | CE197 | M | 0.1 | % | 1.00 | 0.96 | 0.93 | 0.92 | 2.78 |
| Soil Organic Matter | CE192 | N | 0.1 | % | 1.72 | 1.66 | 1.60 | 1.59 | 4.79 |
| **Polyaromatic hydrocarbons** | | | | | | | | | |
| Naphthalene | CE087 | M | 0.016 | mg/kg | < 0.016 | < 0.016 | < 0.016 | < 0.016 | < 0.016 |
| Acenaphthylene | CE087 | M | 0.015 | mg/kg | < 0.015 | < 0.015 | < 0.015 | < 0.015 | < 0.015 |
| Acenaphthene | CE087 | M | 0.013 | mg/kg | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 |
| Fluorene | CE087 | U | 0.013 | mg/kg | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 |
| Phenanthrene | CE087 | M | 0.014 | mg/kg | 0.057 | 0.063 | 0.118 | 0.130 | 0.021 |
| Anthracene | CE087 | U | 0.017 | mg/kg | 0.025 | 0.025 | 0.051 | 0.055 | < 0.017 |
| Fluoranthene | CE087 | M | 0.017 | mg/kg | 0.151 | 0.148 | 0.300 | 0.282 | 0.039 |

# SOILS

| Lab Number | | | | | 88321 | 88322 | 88323 | 88324 | 88325 |
|---|---|---|---|---|---|---|---|---|---|
| **Client Reference** | | | | | 1 | 1 | 1 | 1 | 1 |
| **Sample ID** | | | | | Plot 11 | Plot 11 | Plot 12 | Plot 12 | Plot 14 |
| **Depth (m)** | | | | | 0.20 | 0.55 | 0.20 | 0.50 | 0.20 |
| **Sampling Date** | | | | | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | | | | | |
| Pyrene | CE087 | M | 0.016 | mg/kg | 0.145 | 0.143 | 0.276 | 0.256 | 0.035 |
| Benzo(a)anthracene | CE087 | U | 0.012 | mg/kg | 0.111 | 0.103 | 0.191 | 0.187 | 0.021 |
| Chrysene | CE087 | M | 0.028 | mg/kg | 0.089 | 0.080 | 0.153 | 0.154 | < 0.028 |
| Benzo(b)fluoranthene | CE087 | M | 0.02 | mg/kg | 0.170 | 0.153 | 0.279 | 0.266 | 0.026 |
| Benzo(k)fluoranthene | CE087 | M | 0.025 | mg/kg | 0.064 | 0.058 | 0.095 | 0.101 | < 0.025 |
| Benzo(a)pyrene | CE087 | U | 0.019 | mg/kg | 0.148 | 0.136 | 0.247 | 0.233 | 0.022 |
| Indeno(1,2,3-cd)pyrene | CE087 | M | 0.019 | mg/kg | 0.139 | 0.120 | 0.213 | 0.195 | 0.021 |
| Dibenzo(a,h)anthracene | CE087 | M | 0.017 | mg/kg | 0.023 | 0.020 | 0.037 | 0.033 | < 0.017 |
| Benzo(g,h,i)perylene | CE087 | M | 0.019 | mg/kg | 0.097 | 0.082 | 0.146 | 0.147 | < 0.019 |
| Coronene | CE087 | N | 0.02 | mg/kg | 0.023 | 0.023 | 0.030 | 0.033 | < 0.020 |
| Total PAH(17) | CE087 | N | 0.3 | mg/kg | 1.24 | 1.16 | 2.14 | 2.07 | < 0.300 |
| **BTEX** | | | | | | | | | |
| Benzene | CE267 | U | 0.001 | mg/kg | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Toluene | CE267 | U | 0.001 | mg/kg | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Ethylbenzene | CE267 | U | 0.001 | mg/kg | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| MTBE | CE267 | N | 0.002 | mg/kg | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Total BTEX | CE267 | N | 0.007 | mg/kg | < 0.007 | < 0.007 | < 0.007 | < 0.007 | < 0.007 |
| m,p-Xylene | CE267 | U | 0.002 | mg/kg | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| oXylenes | CE267 | U | 0.002 | mg/kg | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| **Total Petroleum Hydrocarbons** | | | | | | | | | |
| >C5-C6 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| >C6-C8 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| >C8-C10 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| >C10-C12 Aliphatic (EH_2D_AL) | CE250 | N | 1 | mg/kg | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| >C12-C16 Aliphatic (EH_2D_AL) | CE250 | N | 0.5 | mg/kg | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| >C16-C21 Aliphatic (EH_2D_AL) | CE250 | N | 0.7 | mg/kg | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 |
| >C21-C35 Aliphatic (EH_2D_AL) | CE250 | N | 4 | mg/kg | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 |
| >C35-C40 Aliphatic (EH_2D_AL) | CE250 | N | 0.5 | mg/kg | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| >C5-C7 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| >C7-C8 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| >C8-C10 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

# SOILS

| Lab Number | | | | | 88321 | 88322 | 88323 | 88324 | 88325 |
|---|---|---|---|---|---|---|---|---|---|
| **Client Reference** | | | | | 1 | 1 | 1 | 1 | 1 |
| **Sample ID** | | | | | Plot 11 | Plot 11 | Plot 12 | Plot 12 | Plot 14 |
| **Depth (m)** | | | | | 0.20 | 0.55 | 0.20 | 0.50 | 0.20 |
| **Sampling Date** | | | | | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | | | | | |
| >C10-C12 Aromatic (EH_2D_AR) | CE250 | N | 0.6 | mg/kg | < 0.6 | < 0.6 | < 0.6 | < 0.6 | < 0.6 |
| >C12-C16 Aromatic (EH_2D_AR) | CE250 | N | 1 | mg/kg | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| >C16-C21 Aromatic (EH_2D_AR) | CE250 | N | 2 | mg/kg | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| >C21-C35 Aromatic (EH_2D_AR) | CE250 | N | 4.5 | mg/kg | < 4.5 | < 4.5 | < 4.5 | < 4.5 | < 4.5 |
| >C35-C40 Aromatic (EH_2D_AR) | CE250 | N | 1.5 | mg/kg | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| >C10-C40 Soil (EH_1D_Total) | CE033 | M | 19 | mg/kg | 201 | < 19.0 | 19.8 | < 19.0 | < 19.0 |
| Diesel Range Organics (>C10-C25) (EH_1D_Total) | CE033 | M | 12 | mg/kg | 50 | < 12 | < 12 | < 12 | < 12 |
| Mineral Oil (>C10-C40 Total) (EH_CU_1D_Total) | CE162 | N | 19 | mg/kg | 137 | < 19 | < 19 | < 19 | < 19 |
| **Wet Chem** | | | | | | | | | |
| pH | CE004 | M | 0.1 | pH units | 8.1 | 8.1 | 8.3 | 8.1 | 7.4 |

# SOILS

| Lab Number | | | | | 88326 |
|---|---|---|---|---|---|
| **Client Reference** | | | | | 1 |
| **Sample ID** | | | | | Plot 14 |
| **Depth (m)** | | | | | 0.50 |
| **Sampling Date** | | | | | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | |
| **Asbestos** | | | | | |
| Asbestos Identification | SUBCON | SU | 0 | - | NAD |
| **Soil sample preparation parameters** | | | | | |
| Stones Content | CE001 | N | 0.1 | % | < 0.1 |
| **Metals** | | | | | |
| Water Soluble Sulphate | CE061 | M | 0.01 | g/l | 0.018 |
| Acid Soluble Sulphate (SO4) | CE062 | M | 0.01 | % | 0.04 |
| Arsenic | CE264 | U | 1.8 | mg/kg | 12.1 |
| Cadmium | CE264 | M | 1.6 | mg/kg | < 1.6 |
| Chromium | CE264 | U | 2 | mg/kg | 8.4 |
| Copper | CE264 | U | 1.6 | mg/kg | 15.2 |
| Lead | CE264 | U | 2.3 | mg/kg | 66.3 |
| Mercury | CE264 | U | 0.7 | mg/kg | < 0.7 |
| Nickel | CE264 | M | 2.1 | mg/kg | 13.6 |
| Selenium | CE264 | U | 3 | mg/kg | < 3.0 |
| Zinc | CE264 | M | 4 | mg/kg | 94.1 |
| **Colourimetric** | | | | | |
| Total Monohydric Phenols | CE078 | N | 0.5 | mg/kg | 0.59 |
| Total Cyanide | CE077 | N | 1 | mg/kg | < 1.0 |
| **Combustion** | | | | | |
| Moisture Content | CE001 | N | 0.1 | % | 24.1 |
| Total Organic Carbon | CE197 | M | 0.1 | % | 3.08 |
| Soil Organic Matter | CE192 | N | 0.1 | % | 5.31 |
| **Polyaromatic hydrocarbons** | | | | | |
| Naphthalene | CE087 | M | 0.016 | mg/kg | < 0.016 |
| Acenaphthylene | CE087 | M | 0.015 | mg/kg | < 0.015 |
| Acenaphthene | CE087 | M | 0.013 | mg/kg | < 0.013 |
| Fluorene | CE087 | U | 0.013 | mg/kg | < 0.013 |
| Phenanthrene | CE087 | M | 0.014 | mg/kg | 0.016 |
| Anthracene | CE087 | U | 0.017 | mg/kg | < 0.017 |
| Fluoranthene | CE087 | M | 0.017 | mg/kg | 0.040 |

# SOILS

| Lab Number | | | | | 88326 |
|---|---|---|---|---|---|
| **Client Reference** | | | | | 1 |
| **Sample ID** | | | | | Plot 14 |
| **Depth (m)** | | | | | 0.50 |
| **Sampling Date** | | | | | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | |
| Pyrene | CE087 | M | 0.016 | mg/kg | 0.041 |
| Benzo(a)anthracene | CE087 | U | 0.012 | mg/kg | 0.027 |
| Chrysene | CE087 | M | 0.028 | mg/kg | < 0.028 |
| Benzo(b)fluoranthene | CE087 | M | 0.02 | mg/kg | 0.040 |
| Benzo(k)fluoranthene | CE087 | M | 0.025 | mg/kg | < 0.025 |
| Benzo(a)pyrene | CE087 | U | 0.019 | mg/kg | 0.037 |
| Indeno(1,2,3-cd)pyrene | CE087 | M | 0.019 | mg/kg | 0.034 |
| Dibenzo(a,h)anthracene | CE087 | M | 0.017 | mg/kg | < 0.017 |
| Benzo(g,h,i)perylene | CE087 | M | 0.019 | mg/kg | 0.030 |
| Coronene | CE087 | N | 0.02 | mg/kg | < 0.020 |
| Total PAH(17) | CE087 | N | 0.3 | mg/kg | < 0.300 |
| **BTEX** | | | | | |
| Benzene | CE267 | U | 0.001 | mg/kg | < 0.001 |
| Toluene | CE267 | U | 0.001 | mg/kg | < 0.001 |
| Ethylbenzene | CE267 | U | 0.001 | mg/kg | < 0.001 |
| MTBE | CE267 | N | 0.002 | mg/kg | < 0.002 |
| Total BTEX | CE267 | N | 0.007 | mg/kg | < 0.007 |
| m,p-Xylene | CE267 | U | 0.002 | mg/kg | < 0.002 |
| oXylenes | CE267 | U | 0.002 | mg/kg | < 0.002 |
| **Total Petroleum Hydrocarbons** | | | | | |
| >C5-C6 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 |
| >C6-C8 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 |
| >C8-C10 Aliphatic (HS_1D_AL) | CE267 | N | 0.1 | mg/kg | < 0.10 |
| >C10-C12 Aliphatic (EH_2D_AL) | CE250 | N | 1 | mg/kg | < 1.0 |
| >C12-C16 Aliphatic (EH_2D_AL) | CE250 | N | 0.5 | mg/kg | < 0.5 |
| >C16-C21 Aliphatic (EH_2D_AL) | CE250 | N | 0.7 | mg/kg | < 0.7 |
| >C21-C35 Aliphatic (EH_2D_AL) | CE250 | N | 4 | mg/kg | < 4.0 |
| >C35-C40 Aliphatic (EH_2D_AL) | CE250 | N | 0.5 | mg/kg | < 0.5 |
| >C5-C7 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 |
| >C7-C8 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 |
| >C8-C10 Aromatic (HS_1D_AR) | CE267 | N | 0.01 | mg/kg | < 0.010 |

# SOILS

| | | | | | |
|---|---|---|---|---|---|
| **Lab Number** | | | | | 88326 |
| **Client Reference** | | | | | 1 |
| **Sample ID** | | | | | Plot 14 |
| **Depth (m)** | | | | | 0.50 |
| **Sampling Date** | | | | | 05/02/2026 |
| **Test** | **Method** | **Accred** | **LoD** | **Units** | |
| >C10-C12 Aromatic (EH_2D_AR) | CE250 | N | 0.6 | mg/kg | < 0.6 |
| >C12-C16 Aromatic (EH_2D_AR) | CE250 | N | 1 | mg/kg | < 1.0 |
| >C16-C21 Aromatic (EH_2D_AR) | CE250 | N | 2 | mg/kg | < 2.0 |
| >C21-C35 Aromatic (EH_2D_AR) | CE250 | N | 4.5 | mg/kg | < 4.5 |
| >C35-C40 Aromatic (EH_2D_AR) | CE250 | N | 1.5 | mg/kg | < 1.5 |
| >C10-C40 Soil (EH_1D_Total) | CE033 | M | 19 | mg/kg | < 19.0 |
| Diesel Range Organics (>C10-C25) (EH_1D_Total) | CE033 | M | 12 | mg/kg | < 12 |
| Mineral Oil (>C10-C40 Total) (EH_CU_1D_Total) | CE162 | N | 19 | mg/kg | < 19 |
| **Wet Chem** | | | | | |
| pH | CE004 | M | 0.1 | pH units | 8.4 |

# METHOD DETAILS

| METHOD | TESTNAME | METHOD SUMMARY | ANALYSIS BASIS |
|---|---|---|---|
| CE267 | VPH in Soil | HS-GCFID | As submitted sample |
| CE250 | GCXGC in Soil | DCM Extraction and GCxGC-FID | As submitted sample |
| SUBCON | Asbestos Soil | HSG248 | Air Dried Sample |
| CE061 | W. Sol Metals | ICPOES | Air dried sample |
| CE033 | EPH in Soil | Acetone:Hexane Extraction and GCFID | As submitted sample |
| CE062 | Acid Soluble Sulphate in Soils | HCl Extract and ICPOES | Air dried sample |
| CE264 | Metals by ICP in Soil | ICPOES | Air dried sample |
| CE267 | BTEX in Soils | Analysis by HSGCFID | As submitted sample |
| CE087 | PAH in Soil | DCM Extraction and GCMS | As submitted sample |
| CE078 | Phenols in Soil | Continuous Flow Analyser | As submitted sample |
| CE077 | Cyanides in Soils | Continuous Flow Analyser | As submitted sample |
| CE197 | TOC In Soil | PRIMACS Combustion Analyser | Air dried sample |
| CE162 | Mineral Oil in Soil | Acetone:Hexane extract, Floriil clean up and GCFID | As submitted sample |

# DEVIATING SAMPLE INFORMATION

**Comments**

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

**Key**

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

| Lab ref | Sample ID | Depth (m) | Deviating | Tests (Reason for deviation) |
|---|---|---|---|---|
| 88321 | Plot 11 | 0.20 | N | |
| 88322 | Plot 11 | 0.55 | N | |
| 88323 | Plot 12 | 0.20 | N | |
| 88324 | Plot 12 | 0.50 | N | |
| 88325 | Plot 14 | 0.20 | N | |
| 88326 | Plot 14 | 0.50 | N | |

# REPORT INFORMATION

**Report No.:26-01466, issue number 1**

**Key**

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

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

This report shall not be reproduced except in full, without prior written approval.

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis (at 30°C)

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

Where sampling was undertaken by Chemtech Environmental Limited it is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis (30°C). Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones and 'inert' material, where applicable.

'Client Reference', 'Sample ID', 'Sample Location', 'Sample Type', 'Depth', 'Sample Date' and 'Sample Time' information is provided by the customer

**Sample Retention and Disposal**

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

**TPH Classification - HWOL Acronym System**

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

Unless specifically identified (noted as "(B)" in analyte name) all internal analysis performed at Durham site

# APPENDIX D –SUMMARY OF CHEMICAL TEST

**Job No: 3059**
**Site Name: Heritage Court, Acrefair**
**Residential with gardens (1% SOM)**

GroundSolve Ltd

| Metals & Non-Metals | Plot 11 0.20 | Plot 11 0.55 | Plot 12 0.20 | Plot 12 0.50 | Plot 14 0.20 | Plot 14 0.50 | Min (mg/kg) | Max (mg/kg) | Average (mg/kg) | Count | Adopted Guideline (mg/kg) | Source | Exceedances |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 8.5 | 9.6 | 9.2 | 10.1 | 8.5 | 12.1 | 8.5 | 12.1 | 9.67 | 6 | 37 | C4SL | 0 |
| Cadmium | 3.9 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | 1.98 | 6 | 22 | C4SL | 0 |
| Chromium | 12.6 | 8 | 6.4 | 7.8 | 14.4 | 8.4 | 6.4 | 14.4 | 9.6 | 6 | 910 | S4UL | 0 |
| Copper | 7.3 | 8 | 9 | 7.7 | 18.7 | 15.2 | 7.3 | 18.7 | 10.98 | 6 | 2400 | S4UL | 0 |
| Lead | 37.7 | 31.9 | 24.4 | 23.4 | 51.7 | 66.3 | 23.4 | 66.3 | 39.23 | 6 | 200 | C4SL | 0 |
| Mercury | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | 0.7 | 6 | 40 | S4UL | 0 |
| Nickel | 31.4 | 20.1 | 15.4 | 16.3 | 18.8 | 13.6 | 13.6 | 31.4 | 19.27 | 6 | 130 | S4UL | 0 |
| Total Monohydric Phenols | < 0.50 | < 0.50 | < 0.50 | < 0.50 | 1.04 | 0.59 | 0.59 | 1.04 | 0.61 | 6 | 120 | S4UL | 0 |
| Selenium | 3.8 | < 3.0 | < 3.0 | 3.2 | < 3.0 | < 3.0 | < 3.0 | < 3.0 | 3.17 | 6 | 250 | S4UL | 0 |
| Zinc | 68.6 | 53.2 | 46.2 | 56.6 | 76.3 | 94.1 | 46.2 | 94.1 | 65.83 | 6 | 3700 | S4UL | 0 |

| Petroleum Hydrocarbons | Plot 11 0.20 | Plot 11 0.55 | Plot 12 0.20 | Plot 12 0.50 | Plot 14 0.20 | Plot 14 0.50 | Min (mg/kg) | Max (mg/kg) | Average (mg/kg) | Count | Adopted Guideline (mg/kg) | Source | Exceedances |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 6 | 0.87 | C4SL | 0 |
| Toluene | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 6 | 130 | S4UL | 0 |
| Ethylbenzene | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 6 | 47 | S4UL | 0 |
| m,p-Xylene | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0.002 | 6 | 56 | S4UL | 0 |
| >C5-C6 Aliphatic | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.10 | 6 | 42 | S4UL | 0 |
| >C6-C8 Aliphatic | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.10 | 6 | 100 | S4UL | 0 |
| >C8-C10 Aliphatic | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.10 | 6 | 27 | S4UL | 0 |
| >C10-C12 Aliphatic | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.00 | 6 | 130 | S4UL | 0 |
| >C12-C16 Aliphatic | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | 6 | 1100 | S4UL | 0 |
| >C16-C35 Aliphatic | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 | 4.0 | 6 | 65000 | S4UL | 0 |
| >C35-C40 Aliphatic | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | 6 | 65000 | S4UL | 0 |
| >C6-C7 Aromatic | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.01 | 6 | 70 | S4UL | 0 |
| >C7-C8 Aromatic | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.01 | 6 | 130 | S4UL | 0 |
| >C8-C10 Aromatic | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.01 | 6 | 34 | S4UL | 0 |
| >C10-C12 Aromatic | < 0.6 | < 0.6 | < 0.6 | < 0.6 | < 0.6 | < 0.6 | < 0.6 | < 0.6 | 0.6 | 6 | 74 | S4UL | 0 |
| >C12-C16 Aromatic | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.0 | 6 | 140 | S4UL | 0 |
| >C16-C21 Aromatic | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | 2.0 | 6 | 260 | S4UL | 0 |
| >C21-C35 Aromatic | < 4.5 | < 4.5 | < 4.5 | < 4.5 | < 4.5 | < 4.5 | < 4.5 | < 4.5 | 4.5 | 6 | 1100 | S4UL | 0 |
| >C35-C40 Aromatic | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | 1.5 | 6 | 1100 | S4UL | 0 |

| Polyaromatic Hydrocarbons (PAH) | Plot 11 0.20 | Plot 11 0.55 | Plot 12 0.20 | Plot 12 0.50 | Plot 14 0.20 | Plot 14 0.50 | Min (mg/kg) | Max (mg/kg) | Average (mg/kg) | Count | Adopted Guideline (mg/kg) | Source | Exceedances |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | 0.01 | 6 | 210 | S4UL | 0 |
| Acenaphthylene | < 0.015 | < 0.015 | < 0.015 | < 0.015 | < 0.015 | < 0.015 | < 0.015 | < 0.015 | 0.02 | 6 | 170 | S4UL | 0 |
| Anthracene | 0.025 | 0.025 | 0.051 | 0.055 | < 0.017 | < 0.017 | 0.025 | 0.055 | 0.03 | 6 | 2400 | S4UL | 0 |
| Benzo(a)anthracene | 0.111 | 0.103 | 0.191 | 0.187 | 0.021 | 0.027 | 0.021 | 0.191 | 0.11 | 6 | 7.2 | S4UL | 0 |
| Benzo(a)pyrene | 0.148 | 0.136 | 0.247 | 0.233 | 0.022 | 0.037 | 0.022 | 0.247 | 0.14 | 6 | 5 | C4SL | 0 |
| Benzo(b)fluoranthene | 0.17 | 0.153 | 0.279 | 0.266 | 0.026 | 0.04 | 0.026 | 0.279 | 0.16 | 6 | 2.6 | S4UL | 0 |
| Benzo(g,h,i)perylene | 0.097 | 0.082 | 0.146 | 0.147 | < 0.019 | 0.03 | 0.03 | 0.147 | 0.09 | 6 | 320 | S4UL | 0 |
| Benzo(k)fluoranthene | 0.064 | 0.058 | 0.095 | 0.101 | < 0.025 | < 0.025 | < 0.025 | 0.101 | 0.06 | 6 | 77 | S4UL | 0 |
| Chrysene | 0.089 | 0.08 | 0.153 | 0.154 | < 0.028 | < 0.028 | < 0.028 | 0.154 | 0.09 | 6 | 15 | S4UL | 0 |
| Dibenzo(a,h)anthracene | 0.023 | 0.02 | 0.037 | 0.033 | < 0.017 | < 0.017 | < 0.017 | 0.037 | 0.02 | 6 | 0.24 | S4UL | 0 |
| Fluoranthene | 0.151 | 0.148 | 0.3 | 0.282 | 0.039 | 0.04 | 0.039 | 0.3 | 0.16 | 6 | 280 | S4UL | 0 |
| Fluorene | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | < 0.013 | 0.01 | 6 | 170 | S4UL | 0 |
| Indeno(1,2,3-cd)pyrene | 0.139 | 0.12 | 0.213 | 0.195 | 0.021 | 0.034 | 0.021 | 0.213 | 0.12 | 6 | 27 | S4UL | 0 |
| Naphthalene | < 0.016 | < 0.016 | < 0.016 | < 0.016 | < 0.016 | < 0.016 | < 0.016 | < 0.016 | 0.02 | 6 | 2.3 | S4UL | 0 |
| Phenanthrene | 0.057 | 0.063 | 0.118 | 0.13 | 0.021 | 0.016 | 0.016 | 0.13 | 0.07 | 6 | 95 | S4UL | 0 |
| Pyrene | 0.145 | 0.143 | 0.276 | 0.256 | 0.035 | 0.041 | 0.035 | 0.276 | 0.15 | 6 | 620 | S4UL | 0 |

| Other Contaminants / Testing | Plot 11 0.20 | Plot 11 0.55 | Plot 12 0.20 | Plot 12 0.50 | Plot 14 0.20 | Plot 14 0.50 | Min (mg/kg) | Max (mg/kg) | Average (mg/kg) | Count | Adopted Guideline (mg/kg) | Source | Exceedances |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 1 | 0.96 | 0.93 | 0.92 | 2.78 | 3.08 | 0.92 | 3.08 | 1.61 | 6 | - | - | - |
| pH | 8.1 | 8.1 | 8.3 | 8.1 | 7.4 | 8.4 | 7.4 | 8.4 | 8.07 | 6 | - | - | - |
| Total Cyanide | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1 | 6 | - | - | - |
| Sulphate Aqueous Extract as SO4 | 0.087 | 0.063 | 0.091 | 0.054 | 0.028 | 0.018 | 0.018 | 0.091 | 0.06 | 6 | - | - | - |