FE0012-TEL-XX-XX-T-G-0002 P02

GROUND INVESTIGATION REPORT HOPWOOD HALL COLLEGE, ROCHDALE

TE1880-TE-00-XX-RP-GE-002-V02

03 MARCH 2025

FINAL

Prepared for:

Wilmott Dixon Construction Ltd

Prepared by: Stefani Ellis

Tier Environmental Ltd

Chester	London	Manchester	Bromsgrove	Bridgwater	Sheffield
| **HQ Telephone** 01244 684900			| **Telephone** 01925 818388		
| **Website**: www.tieruk.com			| **Email**: environmental@tieruk.com		

Tier Environmental is a trading name of Tier Environmental Ltd. Registered in England and Wales no 05441804

DOCUMENT CONTROL

Report No. :	TE1880-TE-00-XX-RP-GE-002-V02
Report Status:	FINAL
Project Engineer:	Stefani Ellis
Date of Issue:	03/03/2025

This report has been prepared by Tier with all reasonable skill, care and diligence, within the best practice and guidance current at the time of issue within the scope of works which have been agreed with the client. This report is confidential to the client and Tier accepts no responsibility whatsoever to third parties to whom this report, or any part thereof is made presented, unless this is formally agreed in writing by a Director of Tier Environmental Ltd before any reliance is made. Any such party relies upon the report at their own risk. Tier disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
1	FIRST DRAFT – to be updated with final ground gas and groundwater monitoring results in due course	05/02/2025	Stefani Ellis	Adrian Read	Adrian Read
2	Final	03/03/2025	Adrian Read	Sean Lee	Sean Lee

CONTENTS

1. INTRODUCTION 1
1.1. Proposed Development 1
1.2. Previous Reports 1
1.3. Objectives 2
1.4. Assumptions 2
2. SITE DETAILS AND DESCRIPTION 3
3. GROUND GAS CONCEPTUAL SITE MODEL CONSIDERATION 5
4. PRELIMINARY CONCEPTUAL SITE MODEL 6
4.1. Uncertainties 6
5. FIELDWORK 11
5.1. Scope of Ground Investigation 11
5.2. Geoenvironmental Testing 13
5.3. Geotechnical Testing 14
6. GROUND CONDITIONS 17
6.1. Strata Profile 17
6.2. Obstructions 21
6.3. Visual and Olfactory Evidence of Contamination 23
6.4. Groundwater Observations During Fieldwork 23
6.5. Groundwater Monitoring 24
7. PRELIMINARY GEOTECHNICAL ASSESSMENT 26
7.1. Mining and Quarrying 26
7.2. Determination of pH and Water-Soluble Sulphate 26
7.3. Geotechnical Parameters 31
7.4. Piling Risk Assessment 34
7.5. Floors 34
7.6. Earthworks 35
7.7. Retaining Structures 35
7.8. Groundworks, Excavation Stability and Groundwater Dewatering 35
7.9. Pavements and Highways 36
7.10. Infiltration Testing 36
8. HUMAN HEALTH RISK ASSESSMENT 37
8.1. Data Interpretation Approach 37
8.2. Selection of Generic Assessment Criteria (GAC) 37

8.3. Human Health Risk Assessment....38
8.4. Utilities....45
8.5. Construction and Maintenance Workers....45
9. CONTROLLED WATERS RISK ASSESSMENT....46
9.1. Introduction....46
9.2. Controlled Waters Environment Conceptual Site Model Summary....46
9.3. Soil Leachate Testing....46
9.4. Groundwater Testing....47
10. GROUND GAS RISK ASSESSMENT....50
10.1. Introduction....50
10.2. Groundwater Conditions....50
10.3. Gas Monitoring Data Quality....51
10.4. Ground Gas Monitoring Results....51
10.5. Ground Gas Risk Assessment....53
11. REVISED CONCEPTUAL SITE MODEL AND GENERIC QUANTITATIVE RISK ASSESSMENT OF POLLUTANT LINKAGES....64
12. PRELIMINARY WASTE MATERIALS CLASSIFICATION AND WASTE DISPOSAL ROUTE DETERMINATION....67
12.1. Introduction....67
12.2. Preliminary Waste Materials Classification and Waste Disposal Route Determination....68
12.3. Materials Re-Use....72
13. CONCLUSIONS AND RECOMMENDATIONS....73
13.1. Conclusions....73
13.2. Recommendations....74
14. REGULATORY APPROVALS....76
15. REFERENCES....77
16. GLOSSARY OF TERMS....80

TABLES

Table 2.1 Current Site Overview....3
Table 4.1 Preliminary Assessment of Potential Pollutant Linkages (Continued on Next Page)....7
Table 5.1 Scope of Ground Investigation and Rationale....11
Table 5.2 Scope of Monitoring Installations....12
Table 5.3 Schedule of Chemical Testing for Human Health Risk Assessment and Preliminary Waste Soils Assessment....13

Table 5.4 Schedule of Chemical Testing for Controlled Waters Risk Assessment.....14
Table 5.5 Geotechnical Laboratory Testing Schedule. 14
Table 6.1 Recorded Coal.....21
Table 6.2 Obstructions Summary Table 22
Table 6.3 Visual and/or Olfactory Evidence of Contamination and/or Pertinent Anthropogenics Summary 23
Table 6.4 Field Observations of Groundwater.....23
Table 6.5 Groundwater Monitoring Results Summary.....24
Table 7.1 Assessment for Potential Sulphide Bearing (e.g. Pyritic) Ground 29
Table 7.2 Oxidisable Sulphides Calculations.....29
Table 7.3 Results of Soil pH Testing and Water-Soluble Sulphate Determination.....30
Table 7.4 Summary of Natural Moisture Content and Atterberg Limits 32
Table 7.5 Summary of point load Is50 test results.....33
Table 7.6 Summary of UCS test results 33
Table 8.1 Measured Concentrations of Potential Contaminants of Concern Reported in Excess of the Respective GACs 39
Table 8.2 Measured Concentrations of Potential Contaminants of Concern Reported in Excess of the Laboratory Method Detection Limit 41
Table 8.3 Summary of Asbestos Assessment.....44
Table 9.1 Summary of Measured Concentrations of Soil Leachate Potential Contaminants of Concern in Excess of WQS Values 46
Table 9.2 Summary of Measured Concentrations of Dissolved Phase Groundwater and Surface Water Potential Contaminants of Concern in Excess of WQS Values.....48
Table 10.1 Ground Gas Monitoring Results Summary –6 No. Visits of Proposed Monitoring Programme of 6 No. Visits.....52
Table 10.2 Worst-Case GSV Check Calculation.....57
Table 10.3 Groundwater Depth Summary (after and Anticipated Depth to Possible Mine Workings.....60
Table 11.1 Revised Assessment of Potential Pollutant Linkages (Continued on Next Page). 65
Table 12.1 Preliminary Materials Waste Classification and Waste Disposal Route Determination.....69
Table 12.2 Preliminary Asphalt Materials Waste Classification.....71

FIGURES

Figure 2.1 Recent Aerial Photograph from Groundsure.....4
Figure 7.1 Site Location Plotted on Principal Sulphate and Sulphide Bearing Strata in England and Wales (Extracted from BRE SD1).....27
Figure 7.2 Site Location Plotted Relative to Coal Mining Areas of Great Britain (Extracted from BRE SD1) 28

Figure 10.1 Ternary Plots for Ground Gases.....61

APPENDICES

Appendix A - Drawings

Appendix B - Exploratory Hole Logs

Appendix C - Geoenvironmental Soil Laboratory Results

Appendix D - Geoenvironmental Groundwater Laboratory Results

Appendix E - Geotechnical In Situ Fieldwork and Laboratory Results

Appendix F - Groundwater and Gas Monitoring Results & Gas Analyser Calibration Certificate

Appendix G - Photographs

Appendix H – Infiltration Test Results

Appendix I - Definitions of Terms Used in Qualitative and Quantitative Risk Assessments

Appendix J - Human Health Assessment Criteria

Appendix K - Controlled Waters Risk Assessment

Appendix L - Assessment Criteria Applied for Ground Gas

Appendix M - Chemical and Geotechnical Test Sampling

Appendix N - Coal Tar Containing Asphalt Considerations

Appendix O - Complying With Control of Asbestos Regulations 2012

EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by Willmott Dixon to undertake a Ground Investigation of Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. The purpose of the investigation was to determine the nature and extent of soil, bedrock and groundwater beneath the site for the purposes of environmental and geotechnical assessment.
Access Constraints	Some areas of the site were not accessible due to pre-existing site activities, buildings or safe access. Nevertheless, it is considered that the ground investigation works have provided good coverage of the site so as to characterise the ground conditions in key areas which are due to be redeveloped.
Proposed land use	Under current proposals the development will comprise the partial demolition of the existing college buildings in the east of the site, with construction of the new proposed 4 No. storey college building in the north, a water tank and small ancillary building in the centre, and a substation in the northwest of the site. The remainder of the site will comprise car parking and soft landscaped areas.
Surrounding land uses	The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
Site history	The River Roch once ran through the site, with a weir near the centre-west and occasional stockpiling on its northwestern bank. A large mill (with pump) stood in the east; smaller mills and dyeworks (with tank) were in the west. Holland Street and possible residences (with basements) lay in the northeast. By the 1960s, Rochdale Technical College replaced the large mill, while some smaller mills/works remained in the northwest. During late 1960s/early 1970s, the river was diverted south, site levels were raised, and a large college complex was built, later demolished by 2012 and replaced by parking and landscaping. Nearby land was predominantly industrial/commercial (mills, dyeworks, cattle market), with some terraced housing. By the 1960s–1980s, most industries were demolished, replaced by an embankment and high-rise residential to the north and possible ground raising east. By 2000, the former cricket ground and industrial areas south of the river were redeveloped into a supermarket and petrol station.
Potential contaminative features	Potential Contaminative Features and Sources • Widespread Made Ground across the site, extending deeper along the former watercourse and containing asbestos (chrysotile and amosite). • Former Historical Uses including mills, dyeworks, unspecified works, a weir, and a former watercourse. • Current College Building in the east with two oil tanks, reportedly unused and partially emptied but not fully decommissioned, situated in a locked, bunded room with no visible leaks. • Car Park covering most of the site, with an interceptor in the northeast. • Electric Substation in the northeast. • Historical Landfill 204 m west, infilled before the Control of Pollution Act 1974, plus other infilled features within 250 m.
Mining and quarrying	Tier Environmental has prepared a separate Coal Mining Risk Assessment should be referred to for further details of the risk of coal mining to the site. Tier Environmental consider that due to the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site there is a risk of unacceptable differential settlements that could affect the development. Due to this the building footprint, drainage/attenuation and service corridors will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.
Previous investigations	A previous third party ground investigation has been undertaken for the site. However it is understood that reliance on these reports cannot be assumed, and therefore these reports have been referred to for information purposes only.
Fieldwork	Window Sample Boreholes (26 No.) to depths between 0.43 m to 5.45 m bgl. To confirm shallow ground conditions, perform in situ geotechnical tests, obtain soil samples for geotechnical/geoenvironmental analysis, and install shallow gas/groundwater monitoring wells. Falling head tests were carried out in selected locations. Cable Percussion Boreholes (5 No.) to depths between 4.20 m to 7.59 m bgl. To confirm deeper ground conditions, carry out in situ geotechnical tests, collect soil samples for geotechnical/geoenvironmental parameters, and install deep gas/groundwater monitoring wells. Rotary Boreholes (7 No.) to depths between 0.30 m to 40.00 m bgl. To investigate deeper ground conditions, conduct in situ geotechnical tests, undertake rock sampling, assess potential coal mine workings, and install deep gas/groundwater monitoring wells. Hand Dug Pits (4 No.) to depths between 0.86 m to 1.52 m bgl to determine the extent and condition of existing retaining wall foundations. Soakaway Pit (1 No.) to 1.98 m bgl To perform targeted infiltration testing.

Laboratory testing	Samples of soil, soil leachate and groundwater were submitted for analysis of a range of metal, other inorganic and organic components including asbestos. Geotechnical testing was scheduled on selected samples. All testing was undertaken at accredited laboratories.
Ground conditions	**Hardstanding** Hardstanding comprising asphalt was encountered in the car park, access road, and footpaths across the site to depths between 0.05m and 0.35m bgl. A concrete slab was encountered across the footprint of the former building which occupied the present-day car park, comprising thicknesses between 0.21m and 0.47m. **Made Ground** Made Ground has been reported to a maximum depth of 6.50m bgl and was found to be thickest towards the southwest and central west of the site within the former infilled watercourse. Made Ground was found to comprise both granular and cohesive deposits, with a layer of suspected Pulverised Fuel Ash (PFA) identified across the site, thickest beneath the former building footprint within the present-day car park area. Other anthropogenic materials encountered within the Made Ground include brick, concrete, sandstone, limestone, clinker/slag, plastic, metal, glass, timber, and occasional rebar. **Superficial Deposits** The Made Ground was found to be underlain by superficial deposits in some instances, comprising Alluvium (clay) and Glaciofluvial Deposits (silty sand). **Bedrock** The Made Ground and superficial deposits were found to be underlain at depths between 3.30m and 6.50m bgl by bedrock of the Pennine Lower Coal Measures, found to comprise mudstone with interbedded sandstone and siltstone. **Coal** Coal was reported at depths between 6m and 40m bgl within rotary boreholes, with evidence of probable workings within the Arley Mine seam. Specific coal seams encountered include: • RH101: 30.30m to 30.80m bgl (0.50m thick, hard coal) • CP104/RH102: 34.20m to 34.40m bgl (0.20m thick, possible coal/shale) • RH103: 16.80m to 17.00m bgl (0.20m thick, coal flash), 29.00m to 29.30m bgl (0.20m thick, hard coal)
Groundwater	Shallow groundwater has been monitored across the site at depths between 0.10m and 4.14m bgl and a separate deeper confined, locally artesian, groundwater body has been reported within the deep sandstone bands at RH101 and RH103C (sandstone bands present from depths of 28.50m bgl and 32.00m bgl). The head of water reported during one groundwater monitoring visit at RH103C was reported as 0.04m.
Ground stability	Given the nature and depth of the Made Ground, excavations should be assumed to be unstable.
Foundations and floor slabs	It is understood that a CFA piled solution will be implemented at the site with preliminary consideration of socketing Circa 5m into the bedrock; however, the final design of the piles will be subject to a specialist piling contractor and due consideration will need to be made with respect to the probable shallow coal mining workings encountered. To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design. Ground bearing floor slabs may be suitable subject to a turnover, proof rolling and confirmatory testing of the Made Ground.
CBR tests	CBR values derived from DCPs have been presented for preliminary purposes only and should not be relied on for final design purposes. We would recommend that confirmatory CBRs derived from full Plate Bearing Tests are conducted once the final formation levels have been achieved. The results indicate a range of values reported between 0.52% to >25%. Of the 49 results, 41 No. CBR values were reported >5%, 1 No. was reported between 2.5 and 5% and 7 No. were reported <2.5%.
Sulphate class	It is considered that a Design Sulphate Class of DS-2 and ACEC Class AC-2 is appropriate for buried concrete at the site.
Contamination – human health	Justification has been provided for screening measured soil concentrations of potential contaminants of concern against commercial / industrial GACs. No measured concentrations of potential contaminants of concern have been reported in excess of these GACs. Sensitivity analysis via comparison against POS Park GACs has reported a single measured concentration of benzo(a)pyrene in Made Ground in the northeast of the site. Overall, it is not considered that the site presents a risk from potential *chemical* contaminants of concern for the proposed areas of hardstanding, buildings or peripheral soft landscaping; however, it is recommended that additional, post-demolition, soil sampling and risk assessment is conducted in the vicinity of the proposed contoured landscaped area in the east of the site. Asbestos has been reported in the Made Ground across the site (in 56% of those samples analysed) at concentrations between <0.001% and 0.03% w/w (amosite and chrysotile - fibre bundles, ACM debris and locally,

	bitumen products). Further detailed risk assessment is recommended for asbestos at the site in accordance with CIRIA C733.
Contamination – controlled waters	Results from controlled waters risk assessment has demonstrated that measured groundwater concentrations of cadmium, copper, nickel, zinc, fluoranthene, and ammonia reported in excess of relevant Water Quality Standards and localised measured concentrations of glycols do not present a significant risk to the controlled waters environment when factors including the hydraulic upgradient and downgradient concentrations, aquifer sensitivity, wider commercial and industrial use of the surrounding land and surface water sample results are taken into account.
Gas protection	Due consideration of the conceptual site model (including ground gas generation potential of possible sources) has been considered alongside the results from ground gas monitoring works conducted to date. Based on the information, it is considered that the site may be regarded as a Characteristic Situation 1 – Very Low Risk scenario for which **no** ground gas protection measures are required. In addition, separate consideration has been made for potential coal mine gas risk. Multiple lines of evidence have demonstrated a low risk for which no protection measures are required. these include: • Workings are shallow but permanently flooded; • Mine entries are >50m from the site boundary according to the Coal Authority information for the shaft; • Additional lines of evidence include o The significant age of the mine workings (pre 1808); o No reports of any historical ground related issues in nearby adjacent college building structures developed pre-1977 (at which time gas protection measures were not a standard practice in UK building practices); o The absence of any significant ground gases or flow rates monitored at the site and determination of the site based on available data as a Characteristic Situation 1 - Very Low Risk scenario; o The ternary plot produced for the steady gas concentrations (see below) does not indicate the presence of thermogenic methane (mine gas) in any wells monitored (either in saturated or unsaturated zone); o The shallow flooded mine workings are to be grouted as part of the development works thereby significantly reducing ground gas risks even further by sealing potential migration pathways, reducing void space, and mitigating the risk of any gas displacement. Tier Environmental reserves the right to update the risk assessment in the event that any unrecorded mine shafts , adits or associated features are identified during earthworks / construction works.
Radon requirements	Less than 1% of properties are recorded to be above the Action Level for Radon, therefore no radon protection measures are required.
Soakaways	The results of soakaway testing (failed test) and prevalence of deep Made Ground across the site indicates that soakaways are not suitable for the site.
Other issues	Tier Environmental considers that further discussions are held with the structural engineers regarding the interaction between the former floor slab and the river-side retaining wall. Tier Environmental has studied photographs taken during the former building demolition works and these suggest that the slab is not tied into the retaining wall. Tier Environmental also has noticed some evidence of resin repairs to the river-side retaining wall and so further discussion and consideration of this should be made by the structural engineer.
Waste soils classification	Basic waste characterisation has determined that Made Ground soils are non-hazardous with the following exceptions: • Made Ground at WS105 (0.60m bgl) due to elevated TPH; • Made Ground at WS117 (0.40m bgl) due to elevated TPH. The results of WAC testing demonstrate that the localised hazardous soils are suitable for disposal as **hazardous waste to a Stable Non-Reactive Hazardous Waste Cell in a Non-Hazardous Landfill**. For the non-hazardous Made Ground and Topsoil, WAC testing (and the presence of asbestos <0.1% w/w) has demonstrated that these materials are not suitable for disposal to an inert waste landfill and therefore should be disposed to a **non-hazardous landfill**. Natural soils (other than any organic rich materials with TOC >3%) are suitable for disposal to an inert waste landfill.
Asphalt Testing	the results from asphalt testing have indicated coal tar concentrations consistently >0.1% w/w/ indicating that these materials would be hazardous waste. However, further assessment has demonstrated that in some (**but not all**) cases that the concentration of benzo(a)pyrene is low such that the classification may be downgraded to non-hazardous. It is recommended that further detailed consideration of asphalt is conducted to determine potential re-use opportunities and further refine the waste classification. In the meantime, it is recommended that all asphalt is considered to be coal-tar containing until such additional works are carried out.

Materials re-use	Subject to volumetric cut and fill requirements, and the results of any future asbestos DQRA, the majority of Made Ground materials and natural soil materials and may be considered chemically suitable for potential re-use subject to careful management and placement of materials due to the presence of asbestos (CAR 2012 would need to be followed) and in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP). Suitability for re-use would also be subject to confirmation of the geotechnical suitability depending on whether the materials are to be re-used in load bearing areas. This would need to be detailed in a supporting document. Please note that any previously landfilled or mining waste materials may not be appropriately subject to consideration under DoWCoP and may not be re-used under DoWCoP unless sufficient lines of evidence and agreement with the local Environment Agency Waste Team can be sought beforehand. In addition, Section 12.3 of this report includes statements with respect to re-use of excavated and stockpiled clean naturally occurring soils within the site and re-use on other sites. These statements are designed to provide a clear intention to reuse any clean, naturally occurring soils derived from future excavations at this site (which may also include temporary future stockpiling these materials).
Further works	It is recommended that further works are conducted to confirm that the former concrete slab associated with the building is not tied into the river-side retaining wall. It is recommended that further soil sampling and human health risk assessment is conducted post-demolition in the vicinity of the proposed contoured landscaped area in the east of the site. It is recommended that an asbestos Detailed Quantitative Risk Assessment is carried out for the asbestos concentrations reported at the site. If this is not carried out or if a potential risk is identified following any future risk assessment, then a remediation strategy will be required for a clean cover system at the site. It is recommended that an Asbestos Management Plan is prepared for the site. Tier consider that due to the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site there is a risk of unacceptable differential settlements that could affect the development. Due to this the **building footprint, drainage/attenuation and service corridors** will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course. It is recommended that further detailed consideration of asphalt is conducted to determine potential re-use opportunities and further refine the waste classification. An earthworks specification is recommended that taken into consideration any proposed re-use / earthworks of the PFA materials which may degrade in inclement weather.
Outline remediation strategy	No ground gas protection measures are considered necessary for the site (subject to identification during earthworks of any unrecorded mine shaft, adit or associated coal mining features that may present preferential pathways). An asbestos DQRA is recommended in accordance with CIRIA C733; however, in the event that an unacceptable risk is identified then a clean cover system will likely be required for the soft landscaped areas. If the results of the risk assessment demonstrate a minimal risk from asbestos , then a clean cover system will not be required. Treatment / grouting works will be required associated with probable shallow coal mine workings identified beneath the site. Please see the separate Coal Mining Risk Assessment report for more details. A grouting specification will therefore be required.

1. INTRODUCTION

Tier Environmental was commissioned by Wilmott Dixon Construction Ltd to undertake a Land Contamination Risk Management (LCRM) Ground Investigation for an area of land referred to as Hopwood Hall College, located at Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY (the "site").

The title of this report is in accordance with that described in the Land Contamination Risk Management guidance (available at https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm) which has superseded CLR 11:

Stage 1:

- LCRM Tier 1 Preliminary Risk Assessment Report
- LCRM Tier 2 Generic Quantitative Risk Assessment Report
- LCRM Tier 3 Detailed Quantitative Risk Assessment Report (not included within this document)

1.1. Proposed Development

Under current proposals the development will comprise the partial demolition of the existing college buildings in the east of the site, with construction of the new proposed 4 No. storey college building in the north, a water tank and small ancillary building in the centre, and a substation in the northwest of the site. The remainder of the site will comprise car parking and soft landscaped areas, as presented in Appendix A. As such, in accordance with the *'Updated technical background to the CLEA model'* (Environment Agency, 2009) and *'Suitable 4 Use Levels'* (LQM / CIEH 2015) the proposed generic land use for this development is commercial, which is deemed to be the most appropriate due to the activities that are likely to be undertaken on site (educational) and the limited frequency and duration of time end users are likely to spend on site.

1.2. Previous Reports

Tier Environmental have been provided with the previous third party reports for the site:

- Geotechnics Ltd – 'Geoenvironmental and Geotechnical Desk Study Report' (Report reference: PC218240, dated 30th July 2021);
- Geotechnics Ltd – 'Preliminary Ground Investigation Report with Interpretative Chapter' (Report reference PN214280, dated November 2021);
- Tier Environmental – 'Preliminary Risk Assessment Report for Hopwood Hall College, Rochdale' (Report reference TE1880-TE-00-XX-RP-GE-001-V01, dated 30th January 2025);
- Tier Environmental – 'Coal Mining Risk Assessment Report for Hopwood Hall College, Rochdale' (Report reference TE1880-TE-00-XX-RP-GE-003-V01, dated 30 January 2025); dated February 2025).

It is understood that Wilmott Dixon do not have reliance on the previous Geotechnics reports. Information from the previous Geotechnics reports has been included within this report for information purposes only.

1.3. Objectives

Taking into account the proposed development of the site, the objectives of this appraisal were:

- To summarise the Preliminary Conceptual Site Model determined during the Preliminary Risk Assessment (inclusive of a summary of historical and current land use and the environmental setting of the site).
- To evaluate whether past mining or other extractive industries could have an influence on the site.
- To determine current ground and groundwater conditions.
- To determine the potential risks to human health and the wider environment.
- To provide a preliminary waste soils classification.
- To determine potential risks posed to the site from hazardous ground gases and / or vapours.
- Provide preliminary outline further works and /or remedial measures to manage any identified risks.
- To provide preliminary geotechnical parameters to inform floor slab and foundation recommendations.
- To conduct a preliminary assessment of suitability of materials for re-use.
- To assess suitability of the site for infiltration testing for SuDS (including soakaways) design.

1.4. Assumptions

The following assumptions are made in this report:

- It is assumed that ground levels will not change significantly from those described in this report or a shown on proposed development drawings. If this is not the case, then amendments to the recommendations made in this report may be required.
- The ground investigation has been designed with due consideration of known or suspected constraints (including underground services and access constraints).
- Any references to observations of suspected asbestos-containing materials are for information only and should be verified by a suitably qualified asbestos specialist and/or confirmed by laboratory analysis.
- The use of the term 'Topsoil' within this report is based on a visual identification only and that these materials have not been classified in accordance with BS3882:2015.
- The use of the terms ‘shallow’ and ‘deep’ within this report (from a geotechnical perspective) assume *typically* between ground level to circa 3.00m below ground level (bgl) for ‘shallow’ and greater than 3.00m bgl regarded as ‘deep’;
- The comments and opinions presented in this report are based on the findings of the desk study, review of third party information, and ground conditions encountered during intrusive investigation works performed by Tier Environmental and the results of tests carried out within one or more laboratories. There may be other conditions prevailing on the site which have not been revealed by this investigation and which have not been taken into account by this report.
- Responsibility cannot be accepted for any conditions not revealed by this investigation. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of intermediate ground conditions should be undertaken if deemed necessary.
- Recommendations with respect to ground gas risks / coal mine gas risks are subject to being updated upon discovery of any presently unrecorded coal mine shafts, adits or associated features.

This report has been prepared for the sole use of Wilmott Dixon Construction Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of Tier Environmental. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

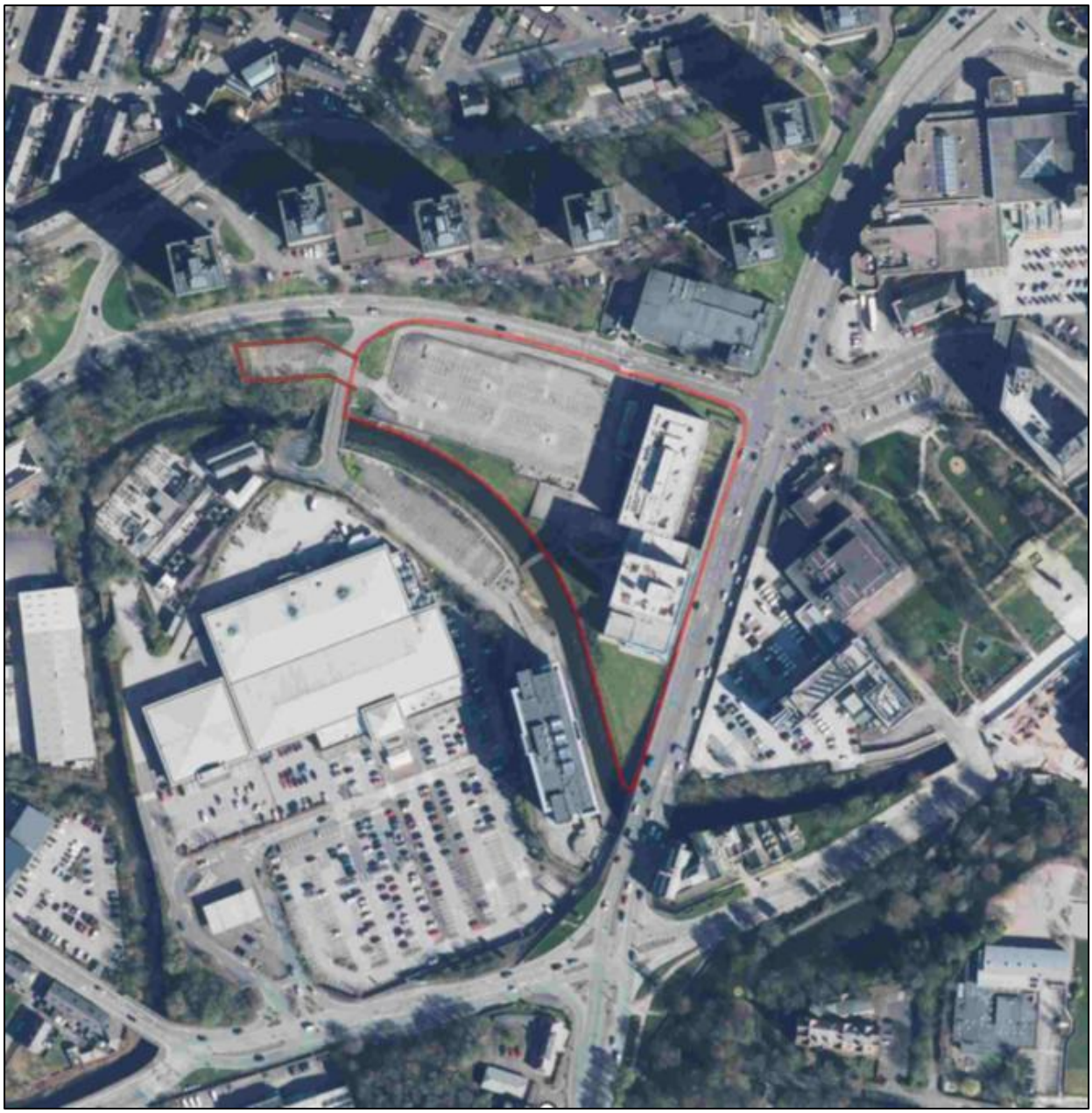
2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Hopwood Hall College
Site address	Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. A site location plan is included as Drawing No. TE1880-TE-00-XX-DR-GE-001-V01 within Appendix A.
National Grid Reference (NGR)	389299 413363
Approximate site area	1.75 ha
Site shape	The site is approximately triangular in shape
Current land use on the site	The site currently comprises a college with a building of several storeys (including a basement/under croft) present in the east of the site, and an asphalt surfaced car park across the majority of the remainder of the site and a drop off lane present along the northern and western boundaries. it is understood that an interceptor is present in the northeastern corner of the car park/drop off lane. Metal fencing around 2m height is present at the northern and western extent of the car park, with a brick retaining wall of between approx. 1.00m and 2.00m height present at the northern boundary of the drop off lane, marking the site boundary with College Road. A second brick retaining wall is present at the south of the car park, separating the car park from the river embankment which lies approx. 1.00m to 2.00m below the car park. No cracks or visible signs of stress were visible on either of the retaining walls. Limited soft landscaped areas are present, including a small sloped grass verge in the northwest of the site, a grassed embankment between the car park/college buildings and the river in the south of the site, and as a grassed terraced area to the north east of the building, which steps down to the basement floor level. The basement/ under croft area is accessible from the car park and is understood to comprise storage, waste disposal areas (bins/skips) and a plant room. The plant room contains the heating infrastructure for the building, including 2 no. oil tanks, both of which are understood to no longer be used with one understood to have been emptied via tanker (but not decommissioned) in the past couple of years. These oil tanks are present within a separate concrete bunded room, only accessible via locked ladder access. From the limited viewpoint accessible during the walkover, no spills or leakages were observed. An electric substation is present in the northeast of the site, to the northwest of the existing college building. Underground services are known to be present beneath the site, including electricity, gas, water and drainage. There is limited surface water drainage around the car park area, observed only to be present at the car park boundaries. Vehicular access for deliveries and disabled parking is present from College Road close to the centre north of the site, leading to the drop off lane, a small parking area and the basement/under croft access. An access road for the main car park is present in the northwest of the site, with a smaller car park present to the west of this access road. This smaller car park is understood to be let out and was not accessible during the ground investigation. During college opening hours, pedestrian access is freely available. A hedge of approximately 1m height is present surrounding the northeastern soft landscaped area, with limited shrubs present elsewhere around site. mature trees are present in the far northwest of the site, surrounding the smaller car park (it is understood to development is to be undertaken in this area). It should be noted that the car park in the northwest of the site and the terraced soft landscaping in the east of the site were not accessible during the walkover, and are unlikely to be accessible for any ground investigation.
Surrounding land uses	The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
General topography and ground levels	The main car park area of the site is generally level at around 119m AOD. However, College Road to the north of the site lies between approx. the same level as the site in the northeast (120m AOD) rising to around 1.0m higher than the site in the northwest (120m AOD), separated from the site by a brick retaining wall. Similarly, in the south of the site the highest level of the grassed banks of the River Roch lies between 0.5m to 1.00m below the car park level at around 118m AOD, separated by a brick retaining wall. Site levels between the existing building and St. Mary's Gate also vary, with grassed terraces leading from road level (120m AOD) in the northeast to 116m AOD in the centre east and back up to 120m AOD in the southeast. Again, a brick and concrete retaining wall was present at the site boundary (this area was not accessible during the walkover).

An aerial photograph (from the Groundsure report) of the site and site boundary is shown below. Relevant site photographs are presented in Appendix G.

Figure 2.1 Recent Aerial Photograph from Groundsure



3. GROUND GAS CONCEPTUAL SITE MODEL CONSIDERATION

Detailed consideration of conceptual site model considerations with respect to ground gases can be found in Section 6 of the Preliminary Risk Assessment and reference to this should be made, accordingly.

4. PRELIMINARY CONCEPTUAL SITE MODEL

Based on the information provided in the previous sections of this report a combined preliminary conceptual site model and conceptual exposure model has been developed for the proposed future land use. This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors. In assessing the likely contaminants of concern present at the site, reference has also been made to Defra and Environment Agency supporting documentation. A preliminary qualitative risk assessment has also been made of the likelihood of the linkage operating and its potential significance in accordance with CIRIA C552.

The potential pollutant linkages identified and the qualitative risk assessment for these are presented in Table 4.1 below. The terms used in the preliminary qualitative risk assessment are defined in Appendix I.

4.1. Uncertainties

The following uncertainties exist in the preliminary conceptual model:

- The presence of any features unrecorded by the historic maps.
- Any unrecorded geological features.
- Any unrecorded pollution events during the site's history.

Table 4.1 Preliminary Assessment of Potential Pollutant Linkages (Continued on Next Page).

Justification / Comments
• The site currently comprises an asphalt surfaced car park for Hopwood Hall College, with a drop off lane located in the north of the site and limited soft landscaped areas (grassed) present in the northwest, northeast, east (terraced levels) and southeast of the site. Hopwood Hall College is located in the east of the site, split over varying levels and with an under croft maintenance/service area, within which oil tanks were noted to be present (one of which has been emptied but not decommissioned, the other of which is filled with heating oil but not used). An electric substation is present in the east of the site (to the west of the college building). A second smaller car park is located in the northwest of the site, although this area was not accessible during the ground investigation. The main car park is relatively level at 119m AOD, although a brick retaining wall of approx. 1.0m to 1.5m height separates the car park from the higher level of College Road at the northern site boundary, and a similar retaining wall separates the car park from the grassed banks of the River Roch in the south. • Historically the River Roch meandered through the centre of the site, with a weir present close to the centre west of the site. Excavation/building up/stockpiling of materials is shown on its northwestern bank at several points in history. The remainder of the site has historically been occupied by a large mill (including a pump) in the east of the site, and several smaller mills and dyeworks (including a tank) in the west of the site at extending offsite beyond the site boundaries. Holland Street and presumed residential properties (which may have contained basements) were mapped in the northeastern corner of the site. By the 1960s the mill in the east of the site had been replaced with Rochdale Technical College, although some of the smaller mills/works were still shown in the northwest of the site at this time, alongside allotment gardens. By the late 1960s/early 1970s the River Roch had been diverted along the southern boundary of the site, with the former watercourse on site infilled. Embankments are shown along the watercourse at the southern site boundary, suggesting site levels may have been raised. Allotments and buildings in the northwest of the site were demolished during this time, with a large building labelled as Rochdale College now present across the majority of the west and centre of the site, and additional college buildings shown in the southeast of the site and an access road and car park created in the northwestern corner of the site. Holland Street was rerouted to the north of the site and renamed as Bury Street and later College Road, with the buildings alongside it demolished. The large college building in the west and centre of the site is last shown in 2008, by 2012 this and the smaller buildings in the southeast of the site have been demolished. The west/centre of the site was resurfaced for car parking (it is understood the concrete floor slab was left in situ beneath the asphalt) and the southeastern area was soft landscaped. • The immediate surrounding area predominantly comprised industrial/commercial land uses including mills and dyeworks, a cattle market, warehouses, unnamed works, with some terraced residential properties. The majority of the surrounding industry was demolished by the 1960s to 1980s, with an embankment and high rise residential constructed from 10m to the north of the site (potentially on built up land) and possible raising of levels shown in the former cattle market area approx. 20m east of the site during the 1970s. By 2000, the former cricket ground and industry to the south of the river was replaced with a supermarket and associated petrol station. • The previous third party investigation recorded the Made Ground deposits in CP02 at 5.30m bgl (northeast of the site) were stained black with a strong hydrocarbon odour. Asbestos (chrysotile fibres, amosite loose fibrous debris) was recorded in numerous locations within the Made Ground across the site, at concentrations of up to 0.003% w/w. No other contaminants were recorded in excess of public open space (park) assessment criteria. • An electric substation is recorded 94m W and a petrol station is recorded 106m SW of the site. Both are located hydraulically downgradient of the site and therefore are not likely to impact the site. • There are 2 no. licensed industrial processes located 176m E of the site, at Newhey Bleach works. These are for the pre-treating/dying fibres/ textiles and for coating/printing textiles. Both are recorded as superseded in 2024, and it is unclear whether these industrial processes are still occurring. There is also a recent industrial land use involving paints, varnishes and lacquers located 164m north. • Made Ground has been recorded to depths of between 0.95m and 6.80m bgl (the deeper Made Ground being recorded within the former infilled watercourse) within a previous third party ground investigation. Superficial Deposits comprising Alluvium (Secondary A aquifer) are recorded in the north of the site, with Glaciofluvial deposits (Secondary A aquifer) recorded across the remainder of the site. The solid geology is recorded as the Pennine Lower Coal Measures (Secondary A aquifer). • There are no Source Protection Zones, potable, non-potable or surface water abstractions recorded within 250m of the site. The nearest surface water feature is the River Roch located beyond the southern site boundary, with the River Spodden also located 209m southwest of the site. No further surface water features are located within 250m of the site. Groundwater flow is anticipated to be towards the southwest based on surrounding topography and the presence of the River Roch. There is understood to be limited surface water drainage in the form of ACO drains at the main car park perimeters, with an interceptor located in the northeast of the car park.

- A historical landfill is located 204m W, with no information on the waste accepted or any dates of operation given, although the Environment Agency have stated that it was infilled before 'controls imposed under the Control of Pollution Act 1974'.
- As well as a general presence of shallow Made Ground, a significant depth of infilled ground is present on site within the route of the former watercourse, recorded to a depth of 6.80m bgl in the previous third party investigation. Infilled Made Ground is likely to include organic rich materials. It is also likely that the site has been raised following the rerouting of the watercourse. Possible unrecorded shallow workings may also be present beneath the site. Land in the immediate surrounding vicinity has also possibly been infilled/built up in recent history.
- Less than 1% of properties are recorded to be above the Action Level for Radon, therefore no radon protection measures are required.
- A storm overflow sewage discharge consent to the River Roch is present on site (revoked 2020), and a pollution incident involving crude sewage released to the River Roch (Category 3 minor impact) has been recorded in July 2023. Neither is expected to have a lasting impact on the site.
- Whilst the Fire Service have recorded 3 no. fires to have occurred on the site, they have confirmed that PFAS containing firefighting foam was not used in any of the incidents.
- The site is not located within an ecologically sensitive area.

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
Anticipated widespread Made Ground; Infilled former watercourse located through the centre of the site and possible raising of site levels; Residential properties in the northeast of the site that may have had basements infilled during demolition; Former cotton mills, dyeworks, mills, unspecified works, college, tanks and works located on site and in immediate vicinity Demolished college buildings in the centre west and southeast of the site;	Metals PAHs pH Hexavalent chromium Acids Alkalis	Direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Likely	Moderate Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Likely	Moderate Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Alluvium	Medium	Likely	Moderate Risk
			Aquifer 2 - Secondary A Aquifer associated with Glaciofluvial Deposits	Medium	Likely	Moderate Risk
			Aquifer 3 - Secondary A Aquifer associated with Pennine Lower Coal Measures	Medium	Likely	Moderate Risk
			River Roch located beyond southwestern boundary	Medium	High Likelihood	High Risk
	Naphthalene (a semi-volatile PAH) TPH / BTEX / MTBE VOCs / SVOCs Phenols PolyChlorinated Biphenyls (PCBs) Cyanides Glycols Free phase product	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Likely	Moderate Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Alluvium	Medium	Likely	Moderate Risk
			Aquifer 2 - Secondary A Aquifer associated with Glaciofluvial Deposits	Medium	Likely	Moderate Risk
			Aquifer 3 - Secondary A Aquifer associated with Pennine Lower Coal Measures	Medium	Likely	Moderate Risk
			River Roch located beyond southwestern boundary	Medium	High Likelihood	High Risk
	Asbestos	(Dust migration and) dust inhalation	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
Current use of the majority of the site as a car park Below ground storage tanks in the southeastern part of the existing college building Interceptor located in the northeast of the car park area Black stained material with hydrocarbon odour recorded in the northeast of the site within the previous third party ground investigation	Naphthalene (a semi-volatile PAH) TPH / BTEX / MTBE Glycols Free phase product	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Likely	Moderate Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Alluvium	Medium	Likely	Moderate Risk
			Aquifer 2 - Secondary A Aquifer associated with Glaciofluvial Deposits	Medium	Likely	Moderate Risk
			Aquifer 3 - Secondary A Aquifer associated with Pennine Lower Coal Measures	Medium	Likely	Moderate Risk
			River Roch located beyond southwestern boundary	Medium	High Likelihood	High Risk
Asphalt surfacing (if crushed and re-used)	Coal tar	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Likely	Moderate Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Alluvium	Medium	Likely	Moderate Risk
			Aquifer 2 - Secondary A Aquifer associated with Glaciofluvial Deposits	Medium	Likely	Moderate Risk

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
			Aquifer 3 - Secondary A Aquifer associated with Pennine Lower Coal Measures	Medium	Likely	Moderate Risk
			River Roch located beyond southwestern boundary	Medium	High Likelihood	High Risk
Electricity substation present in the east of the site and 94m W	PolyChlorinated Biphenyls (PCBs)	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	High Likelihood	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Likely	Moderate Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Alluvium	Medium	Likely	Moderate Risk
			Aquifer 2 - Secondary A Aquifer associated with Glaciofluvial Deposits	Medium	Likely	Moderate Risk
			Aquifer 3 - Secondary A Aquifer associated with Pennine Lower Coal Measures	Medium	Likely	Moderate Risk
			River Roch located beyond southwestern boundary	Medium	High Likelihood	High Risk
Previously recorded widespread asbestos within Made Ground (chrysotile fibres, amosite loose fibrous debris, at concentrations of up to 0.003% w/w)	Asbestos	(Dust migration and) dust inhalation	Future site users (commercial)	Severe	High Likelihood	Very High Risk
			Adjacent site users (residential and commercial)	Severe	High Likelihood	Very High Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	High Likelihood	Very High Risk
Made Ground located beneath the site, including to a significant depth within the route of the former watercourse and possible infilled basements of residential properties in the northeast. Possible organic rich deposits associated with former watercourse. Alluvium beneath the site. Coal measures located beneath the site, including possible unrecorded shallow workings. Numerous possible infilled features and raising of levels in the close surrounding area. Historical landfill 204m W of the site.	Hazardous ground gasses (methane, carbon dioxide, hydrogen sulphide, carbon monoxide and depleted oxygen)	Inhalation (indoor and outdoor)	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (residential and commercial)	Severe	Likely	High Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
		Migration of hazardous ground gases from beneath the site to adjacent sites along services or other preferential conduits	Adjacent site users (residential and commercial)	Severe	Likely	High Risk
		Migration of ground gas / explosion	Buildings and services	Severe	Likely	High Risk

For definition of the terms used in the qualitative risk assessment, please see Appendix I.

5. FIELDWORK

The information contained in this report is limited to areas of land accessible during the ground investigation within the site boundary, as indicated on the site plan, presented in Appendix A as Drawing No. TE1880-TE-00-XX-DR-GE-008-V05.

Tier Environmental scoped the intrusive ground investigation using guidance presented in:

- BS 10175:2011+A2:2017;
- Land Contamination Risk Management (LCRM) - https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm;
- BS 5930:2015+A1:2020;
- BS EN 1997:2004 and 2007.

Tier Environmental's standard strata description criteria are compliant with the above guidance.

5.1. Scope of Ground Investigation

The ground investigation was conducted between 18th November and 4th December 2024 and was supervised by a suitably qualified Tier Environmental engineer. Table 5.1 below provides a summary of the exploratory holes completed and rationale. Exploratory hole locations are presented on Drawing No. TE1880-TE-00-XX-DR-GE-008-V05.

Table 5.1 Scope of Ground Investigation and Rationale

Exploratory Hole Type	Exploratory Hole Reference	Exploratory Hole Depths (m bgl)	Rationale
Window sample boreholes	WS102 WS102A, WS103, WS103A, WS103B, WS104 to WS113, WS113B, WS114, WS115, WS115B, WS116 to WS118, WS118A, WS118B	0.43m to 5.45m bgl	To confirm the shallow ground conditions across the site, conduct *in situ* geotechnical tests, facilitate soil sampling for geotechnical and/or geoenvironmental parameters and installation of gas/groundwater monitoring wells. Falling head tests were undertaken within WS112 and WS116.
Cable percussion boreholes	CP101 to CP105	4.20m to 7.59m bgl	To confirm the deep ground conditions across the site, conduct *in situ* geotechnical tests, facilitate soil sampling for geotechnical and/or geoenvironmental parameters and installation of deep gas/groundwater monitoring wells.
Rotary boreholes	RH101, RH101A, RH102, RH103, RH103A, RH103B, RH103C	0.30m to 40.00m bgl	To confirm the deep ground conditions across the site, conduct *in situ* geotechnical tests, facilitate rock sampling for geotechnical parameters, investigate potential coal mine workings and installation of deep gas/groundwater monitoring wells.
Hand dug pits	HD101, HD102, HD104, HD105	0.86m to 1.52m bgl	To understand extent and condition of existing retaining wall foundations
Soakaway pits	SA01	1.98m bgl	To undertake infiltration testing

The following constraints were identified during the ground investigation works:

- WS101 was located within the smaller western car park which could not be accessed during the ground investigation;

- HP103 was located along the southwestern extent of the retaining wall within the main car park. However due to the presence of a safety railing set back from the wall edge, a hand dug pit to expose the foundations could not be excavated here;
- The soft landscaped area to the east of the existing college building could not be accessed due to safety concerns due to rotten wooden steps providing access between terraces;
- Existing buildings and ongoing use of the car parking areas (and general use of the site as an active college) meant that some areas of the site could not be investigated;
- Investigation was limited within the disabled parking area immediately west of the existing building due to ongoing college usage requirements;
- A phased approach had to be undertaken when fencing off areas of investigation within the main college car park, to keep as many spaces available for use as possible;
- The drop off lane to the north of the site could only be accessed for investigation between the hours of 10.30am and 3.00pm due to required use within rush hour;
- An existing sewer (with easement) is present within the deliveries access road within he east of the site. other services including gas and electric are present within the main car park area;
- All works within Made Ground had to be undertaken in accordance with CAR:2012 due to the presence of asbestos (up to 0.003%w/w) recorded within the previous third party ground investigation.

Table 5.2 Scope of Monitoring Installations

Exploratory Hole Location	Strata Targeted	Slotted Response Zone (m bgl)	Rationale
WS104	Made Ground	0.50 to 1.00	Targeting shallow ground gas Made Ground source.
WS107	Made Ground	0.50 to 1.00	Targeting shallow ground gas Made Ground source.
WS108	Made Ground	0.50 to 0.70	Targeting shallow ground gas Made Ground source.
WS109	Made Ground	0.50 to 0.60	Targeting shallow ground gas Made Ground source.
WS111	Made Ground	0.50 to 0.70	Targeting shallow ground gas Made Ground source.
WS112	Made Ground and Alluvium	1.00 to 4.00	Targeting shallow ground gas Made Ground and underlying Alluvium sources.
WS116	Made Ground and Alluvium	1.00 to 2.50	Targeting shallow ground gas Made Ground source.
WS117	Made Ground	1.00 to 1.60	Targeting shallow ground gas Made Ground source.
CP101	Made Ground, Alluvium and Pennine Lower Coal Measures	2.00 to 4.50	Targeting groundwater monitoring body and above probable flooded shallow coal mine workings.
CP102	Made Ground and Pennine Lower Coal Measures	2.00 to 6.00	Targeting groundwater and probable flooded shallow coal mine workings.
CP103	Made Ground	2.00 to 6.00	Targeting shallow ground gas Made Ground source and perched groundwater body within former infilled watercourse.
CP104/RH102	Made Ground	2.00 to 3.50	Targeting shallow ground gas Made Ground source and perched groundwater body.

Exploratory Hole Location	Strata Targeted	Slotted Response Zone (m bgl)	Rationale
CP105	Made Ground and Pennine Lower Coal Measures	1.00 to 4.00	Targeting shallow ground gas Made Ground source and perched groundwater body.
RH101	Pennine Lower Coal Measures (coal)	28.00 to 33.00	Targeting deep coal gas source.
RH103C	Pennine Lower Coal Measures (coal)	28.00 to 32.00	Targeting deep coal gas source.

Depths and accurate descriptions of strata and groundwater observations made during investigation works, together with details of the samples recovered, are presented on the Engineer's exploratory hole records in Appendix B.

5.2. Geoenvironmental Testing

Sampling and QA/QC protocols are presented in Appendix M. Tier Environmental's schedule of chemical laboratory testing is presented in Table 5.3.and Table 5.4. The testing was carried out by Element Materials Technology, a UKAS and MCerts (where appropriate for soils analysis) accredited laboratory.

Human Health and Preliminary Waste Classification Laboratory Testing

Based upon the conclusions of the preliminary risk assessment, Tier Environmental scheduled chemical laboratory testing on selected soil samples. The purpose of the testing was to:

- Determine the concentration and spatial distribution of potential contaminants of concern in the Made Ground;
- Determine the chemical composition and properties of the shallow natural soils;
- Undertake a *preliminary* soils waste classification and waste disposal route determination.

Table 5.3 Schedule of Chemical Testing for Human Health Risk Assessment and Preliminary Waste Soils Assessment.

Laboratory analysis	Asphalt Surfacing	Made Ground 1 Topsoil	Made Ground 2 Gravel	Made Ground 3 Silt	Made Ground 4 Clay	Made Ground 5 Sand and Gravel	Natural Soils Alluvium	Groundwater
Tier Environmental soil suite*	-	2	7	5	1	3	2	NA
Asbestos screen	-	2	7	5	1	3	-	NA
Speciated TPH / BTEX / MTBE	-	-	3	4	1	2	-	6
VOCs / SVOCs	-	-	4	3	1	2	-	6
PCBs	-	1	2	4	-	-	-	-
Total, free and complex cyanides	-	2	7	6	1	3	-	6
Glycols	-	-	1	2	-	-	-	6
Tier Environmental groundwater suite*	NA	NA	NA	NA	NA	NA	NA	6
Waste Acceptance Criteria (WAC)	-	1	1	3	-	-	-	NA

Laboratory analysis	Asphalt Surfacing	Made Ground 1 Topsoil	Made Ground 2 Gravel	Made Ground 3 Silt	Made Ground 4 Clay	Made Ground 5 Sand and Gravel	Natural Soils Alluvium	Groundwater
Coal tar suite	5	-	-	-	-	-	-	NA

*For definition of Tier Environmental analytical suites, please see Appendix M. NA - not applicable.

Controlled Waters Laboratory Testing

Based upon the conclusions of the preliminary risk assessment, Tier Environmental scheduled chemical laboratory testing on selected soil leachate and groundwater samples. The purpose of the testing was to:

- Determine the concentration and spatial distribution of potential leachable contaminants of concern in the Made Ground;
- Determine the dissolved phase concentrations of potential contaminants of concern within groundwater beneath the site;

Table 5.4 Schedule of Chemical Testing for Controlled Waters Risk Assessment.

Laboratory analysis	Made Ground 1 Topsoil	Made Ground 2 Gravel	Made Ground 3 Silt	Made Ground 4 Clay	Made Ground 5 Sand and Gravel	Natural Soils Alluvium	Groundwater	Surface Water
Tier Environmental water suite*	-	-	-	-	-	-	6	3
Tier Environmental leachate suite*	1	2	5	1	-	-	-	-
Speciated TPH / BTEX / MTBE	-	-	-	-	-	-	6	3
VOCs / SVOCs	-	-	-	-	-	-	6	3
Total, free and complex cyanides	-	-	-	-	-	-	6	3
Glycols	-	-	-	-	-	-	6	3

*For definition of Tier Environmental analytical suites, please see Appendix M. NA - not applicable.

5.3. Geotechnical Testing

Geotechnical laboratory testing was scheduled by Tier Environmental on selected samples as presented in Table 5.5. The testing was performed by Murray Rix Ltd, who are UKAS accredited. Test certificates including details of appropriate testing standards are presented in Appendix E and discussed in Section 7, below.

Table 5.5 Geotechnical Laboratory Testing Schedule.

Test	Stratum type	Number of tests	Rationale
1. General			
Moisture content	MG2 (clayey gravel)	1	a) Assist with the determination of consistency of soil with depth. b) Assess desiccation of soils. c) Suitability of materials for reuse within earthworks.
	MG3 (Silt)	2	
	Natural clay	1	
	Mudstone	2	

Test	Stratum type	Number of tests	Rationale
2. Classification			
Atterberg limit	MG2 (clayey gravel)	1	a) Volume change potential. b) Plasticity assessment (comply with Eurocode 7 description) c) Consistency Index. d) Determine soil type (e.g., clay/silt). e) Use as an empirical guide to soil shear strength
	MG3 (Silt)	2	
	Natural clay	1	
	Mudstone	2	
Particle size distribution (wet/dry sieve)	MG2 (gravel)	2	a) Classify soils for earthworks purposes. b) Establish type of soil (comply with Eurocode 7 description).
	MG3 (Silt)	2	
	Natural clay	1	
3. Chemical tests			
pH (soil and groundwater)	MG2 (gravel)	12	Determine correct class of concrete for both natural and made ground with specific tests for sites potentially containing sulphides (e.g., pyrites) or at low ph.
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
	Sandstone	1	
Water-soluble sulphate (soil and groundwater)	MG2 (gravel)	12	
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
	Sandstone	1	
Acid-soluble sulphate (soil only)	MG2 (gravel)	12	
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
	Sandstone	1	
Total sulphur (total potential sulphur; soil only)	MG2 (gravel)	12	
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
	Sandstone	1	
Chloride and nitrate (soil and groundwater)	MG2 (gravel)	12	
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
	Sandstone	1	

Test	Stratum type	Number of tests	Rationale
Magnesium (soil and groundwater)	MG2 (gravel)	12	
	MG3 (Silt)	6	
	MG4 (clay)	2	
	Natural clay	1	
	Natural sand	2	
	Mudstone	4	
8. Rock Testing			
Point Load Test	Mudstone/sandstone bedrock	37	Quantitative or index means of determining rock strength for: a) use in bearing capacity calculations; b) pile design c) Suitability of pile types during boring through rock
Unconfined Compressive Strength Testing	Mudstone/sandstone bedrock	5	

6. GROUND CONDITIONS

The following section provides a summary of the ground conditions encountered during the ground investigation including strata profile, obstructions and visual / olfactory evidence of contamination. Exploratory hole logs are provided in Appendix B.

Photographs of ground investigation works are provided in Appendix G.

6.1. Strata Profile

The ground conditions beneath the site have been summarised within the following drawings included within Appendix A:

- TE1880-TE-00-XX-DR-GE-017-V01 - Depth of Made Ground
- TE1880-TE-00-XX-DR-GE-018-V01 - Bedrock Elevation
- TE1880-TE-00-XX-DR-GE-019-V01 - Groundwater Contours - Monitoring Visit 1 - 17 12 24
- TE1880-TE-00-XX-DR-GE-020-V01 - Groundwater Contours - Monitoring Visit 2 - 07.01.2025
- TE1880-TE-00-XX-DR-GE-021-V01 - Groundwater Contours - Monitoring Visit 3 - 15.01.2025
- TE1880-TE-00-XX-DR-GE-022-V01 - Groundwater Contours - Monitoring Visit 4 - 24.01.2025
- TE1880-TE-00-XX-DR-GE-023-V01 - Thickness of PFA

The above drawings should be referenced in conjunction with the below information.

Made Ground – Hardstanding

Asphalt **Black medium to high aggregate ASPHALT. Aggregate is medium to coarse angular to subangular of limestone. Geenrally present in one layer only.**	
Locations encountered	CP101 to CP104/RH02, CP105, HDP101, HDP102, HDP104, HDP105, RH101, RH101A, RH102, RH103, RH103A, RH103B, RH103C, WS104 to WS112, WS114, WS116
Depths encountered from top of stratum (range)	Ground level
Depths encountered to base of stratum (range)	0.05m to 0.35bgl (generally less than 0.20m bgl)
Thickness (range)	0.05m to 0.35bgl (generally less than 0.20m bgl)
Spatial location on site	Within the car park, access road and footpaths across the site
Concrete **Grey to dark grey, medium to high aggregate CONCRETE. Aggregate is medium to coarse, subangular of limestone. Low to medium air voids, occasioanl rebar approx >10mm in diameter.** **Underlain by a second layer of grey or bluish grey, medium to high aggregate CONCRETE. Aggregate is fine to medium, angular of limestone with low to medium air voids, occasional rebar approx >25mm in diameter.** **Often with plastic sheeting at base.**	
Locations encountered	CP101 to CP103, CP105, HDP104, HDP105, RH101, RH101A, RH103, RH103A, RH103B, RH103C, WS104, WS105, WS107 to WS112
Depths encountered from top of stratum (range)	0.05m to 0.67m bgl
Depths encountered to base of stratum (range)	0.21m to >1.07m bgl (base not encountered)
Thickness (range)	0.21m to 0.47m

Spatial location on site	Generally beneath car park area of the site (possible floor slab of former building)

Made Ground – MG1 (Made Ground Topsoil)

Locations encountered	WS102, WS102A, WS103, WS103A, WS103B, WS113, WS113B, WS115, WS115B, WS117 WS118, S118A, WS118B, SA01
Depths encountered from top of stratum (range)	Ground level
Depths encountered to base of stratum (range)	0.12m to 0.56m bgl
Thickness (range)	0.12m to 0.56m bgl
Spatial location on site	Within soft landscaped areas of the site
General description	Grass over, dark brown, slightly silty, sandy LOAM with occasional gravel of brick, sandstone and timber and occasional rootlets. Cobbles of sandstone and brick within WS115.

Made Ground – MG2 (Gravel)

Locations encountered	CP101 to CP103, CP04/RH102, CP105, HDP101, HDP102, HDP104, RH103, RH103A, RH103C, WS104 to WS108, WS110 to WS112, WS114, WS116, WS117
Depths encountered from top of stratum (range)	0.07m to 3.40m bgl
Depths encountered to base of stratum (range)	0.45m to 6.50m bgl
Thickness (range)	0.09m to 4.75m
Spatial location on site	Widespread across the site, thickest within the route of the former infilled watercourse
General description	Dark brown to greyish brown, slightly clayey, sandy GRAVEL of fine to coarse, angular to subangular of brick, concrete, sandstone, limestone, occasional clinker/slag, rare plastic and metal. Compacted/medium dense, reddish brown to dark brownish grey, slightly sandy to sandy, slightly clayey to clayey, slightly ashy to ashy, GRAVEL of fine to coarse, angular to subangular mixed lithologies including brick, concrete, limestone and occasional clinker. Reddish brown, fine to coarse, angular GRAVEL of crushed brick and rare concrete. Grey, fine to coarse, subangular to subrounded GRAVEL of concrete and limestone (generally recorded as subbase beneath concrete) Gravel often recorded to contain occasional cobbles of concrete, brick, sandstone

Made Ground – MG3 (Silt – Possible PFA)

Locations encountered	CP101 to CP103, CP104/RH102, CP105, RH101, RH101A, RH103, RH103A, RH103C, WS104 to WS107, WS109, WS111, WS114, WS115B, WS116, WS117
Depths encountered from top of stratum (range)	0.27m to 2.10m bgl
Depths encountered to base of stratum (range)	1.40m to >3.80m bgl (base not encountered)
Thickness (range)	0.40m to >2.00m (base not encountered)

Spatial location on site	Generally beneath car park area of the site (possible previous ground improvement layer)
General description	Medium dense to dense, grey slightly sandy SILT. Often causing refusal within window sample locations. Possible former PFA ground improvement layer. It is anticipated that the Made Ground Silt may represent a former PFA ground improvement layer for the former building within the car park area, which may have been cement stabilised to provide a suitable development platform following the infilling of the former watercourse.

Made Ground – MG4 (Clay)

Locations encountered	HDP101, HDP102, HDP105, RH101, RH103, SA01, WS13, WS113B, WS115, WS115B
Depths encountered from top of stratum (range)	0.12m to 3.00m bgl
Depths encountered to base of stratum (range)	0.55m to 4.00m bgl, (>1.98m bgl - base not encountered within HDP101, HDP102, HDP105, SA01)
Thickness (range)	0.30m to >1.66m bgl (base not proven)
Spatial location on site	North of site
General description	Soft to firm, dark brown, slightly sandy to sandy, slightly gravelly to gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick and occasional sandstone. Friable brownish grey, gravelly CLAY with frequent cobbles of brick and sandstone. Gravel is fine to coarse, angular to subangular of brick. POSSIBLE MADE GROUND: Firm to stiff, reddish brown, silty CLAY with occasional cobbles of sandstone.

Made Ground – MG5 (sand/sand and gravel)

Locations encountered	CP102, CP105, RH103, WS102, WS102A, WS103, WS103A, WS103B, WS112, WS116, WS117, WS118B
Depths encountered from top of stratum (range)	0.08m to 2.50m bgl
Depths encountered to base of stratum (range)	0.48m to 3.40m bgl
Thickness (range)	0.20m to 2.30m
Spatial location on site	Eastern half of site and localised within northwestern soft landscaped area
General description	Dark greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional glass and timber. Medium dense, brownish grey, clayey SAND and GRAVEL. Gravel is fine to medium, subangular to subrounded of sandstone, occasional mudstone and rare brick. Sand is fine to medium grained. POSSIBLE MADE GROUND: Very loose, grey, mottled dark grey, clayey, silty SAND.

Superficial Deposits – Cohesive

Alluvium – Clay	
Locations encountered	CP101, CP104/RH102, RH101, RH103
Depths encountered from top of stratum (range)	3.00m to 5.35m bgl
Depths encountered to base of stratum (range)	3.90m to 5.66m bgl
Thickness (range)	0.20m to 0.90m
Spatial location on site	No strong spatial correlation observed (only encountered in deep boreholes)
General description	Stiff, dark grey, gravelly CLAY. Gravel is fine to medium angular of mudstone. Stiff, reddish brown, silty CLAY.

Superficial Deposits – Granular

Glaciofluvial Deposits – Silty sand	
Locations encountered	WS112, WS116
Depths encountered from top of stratum (range)	3.30m to 3.40m bgl
Depths encountered to base of stratum (range)	>5.45m bgl (base not encountered)
Thickness (range)	>2.05m (base not encountered)
Spatial location on site	No strong spatial correlation observed (only encountered in localised boreholes)
General description	Very loose to loose, greyish brown, silty, fine grained SAND

Weathered Bedrock – Pennine Lower Coal Measures

Weathered Pennine Lower Coal Measures – generally recovered as mudstone or sandstone gravel.	
Locations encountered	CP101, CP104/RH102, CP105, RH101, RH103
Depths encountered from top of stratum (range)	3.40m to 6.00m bgl
Depths encountered to base of stratum (range)	4.80m to 6.25m bgl (base not proven in CP101 and CP105)
Thickness (range)	0.25m to >1.15m (base not proven in CP101 and CP105)
Spatial location on site	North of site
General description	Brownish grey, fine to coarse, angular GRAVEL of sandstone. Extremely weak, dark grey MUDSTONE, recovered as angular gravel and clayey gravel.

Bedrock – Pennine Lower Coal Measures

Pennine Lower Coal Measures – mudstone with interbedded sandstone and siltsone	
Locations encountered	RH101, RH102, RH103, RH103A

Depths encountered from top of stratum (range)	4.50m to 6.25m
Depths encountered to base of stratum (range)	Base not encountered
Thickness (range)	Unknown, base not encountered
Spatial location on site	Encountered within all deep exploratory holes
Description of dip	Bedrock was encountered at its shallowest in the north of the site, deepening towards the south. Bedrock elevation has been modelled and presented within Drawing ref TE1880-TE-00-XX-DR-GE-014-V01 included within Appendix A.
Voids / recovery	Frequent loss of flush or partial flush due to highly fractured bedrock but generally good recovery. Loss of flush and core barrel stuck at 6.50m bgl within RH103, loss of flush and drilling rods dropped (indicating a void) from 6.00m to 6.50m bgl within RH103A.
General description	Weak to medium strong, narrowly laminated MUDSTONE. Discontinuities are 10° to 50°, very closely to closely spaced, planar striated to undulating striated, wall strength weak to medium strong, clean to slight clay infill. Medium strong, greyish brown, fine grained SANDSTONE. Discontinuities are horizontal to 20°, closely to very closely spaced, smooth stepped, wall strength strong, clean infill.

Coal – Arley Mine and Unnamed Seam

Loss of flush was encountered generally around 6 to 10m bgl within the rotary boreholes, which may be indicative of workings within the Arley Mine seam. This is discussed in further detail within the separate Coal Mining Risk Assessment.

Coal was also encountered at depth within all 3no. rotary boreholes that extended to 40.00m bgl, as presented in Table 6.1 below.

Table 6.1 Recorded Coal

Borehole	Depth (m bgl)	Thickness (m)	Coal Recorded
RH101	30.30 to 30.80	0.50	Hard coal
CP104/RH102	34.20 to 34.40	0.20	Possible coal/shale
RH103	16.80 to 17.00	0.20	Coal flash
	29.00 to 29.30	0.20	Hard coal

The results of the deep exploratory boreholes in regards to the recorded coal and loss of flush are discussed further within the separate Coal Mining Risk Assessment for the site, which should be referred to for further detail.

6.2. Obstructions

A concrete slab was recorded below the asphalt surfacing, with possible PFA Silt recorded below, as reported above. It should be noted that the shallower window sample holes often refused within this material, with SPTs recording refusals. The following potential obstructions were encountered below this slab during the ground investigation works.

Table 6.2 Obstructions Summary Table

Exploratory Hole Location	Location on Site	Depths recorded from (m bgl)	Depth of Base of Feature (m bgl)	General description and comments
HDP102	Northeast	0.60	0.87	Concrete footing of retaining wall from 0.60m to 0.87m in north face of pit.
HDP104	Southeast	0.05	>1.07	Concrete from 0.05m to beyond base of pit at 1.07m in southern pit wall.
		0.67	1.07	Grey CONCRETE. Hand drilled through to find base of concrete slab.
HDP105	East	0.82	1.52	Concrete foundation of brick wall encountered from 0.82 to 1.52m bgl. Hand dug pit terminated at 1.20m bgl, hand drilled through concrete final base.
RH101	Northwest	0.50	0.70	Red brick.
RH101A	Northwest	0.45	0.54	Red brick.
		2.20		Possible metal reported by drillers, drill bit slipping, can't grip to cut through. SPT refusal, no progress. Terminated on possible metal obstruction.
RH103	Northeast	6.50		Loss of flush. Core barrel stuck and loss of drill bit (possible cast iron).
RH103A	Northeast	6.00	6.50	Loss of flush, drilling rods dropped to 6.50m bgl, core barrel sticking on possible cast iron.
RH103B	Northeast	0.28	>0.30	Red BRICK (possible footing)
SA01	Northwest	1.98		Possible cobbles and boulders at base of pit
WS102	Northwest	0.61	>0.82	Brick cobbles
WS102A	Northwest	0.67	>0.69	Brick cobbles
WS103	Northwest	0.52	>0.61	Sandstone cobbles
WS103A	Northwest	0.80	>0.85	Sandstone cobbles
WS103B	Northwest	0.80	>0.82	Brick cobbles
WS106	North	3.80	4.10	No recovery, assumed Made Ground cobbles
WS107	North	1.33	>1.34	Possible brick/concrete obstruction
WS108	Centre	0.79		Refusal on possible obstruction
WS110	Centre	0.65	0.66	Brick
WS113	Northeast	0.55	>0.61	Cobbles of brick and occasional concrete
WS113B	Northeast	0.67	>0.71	Cobbles of concrete and brick
WS115	Northeast	0.60	>0.62	Cobbles of concrete and brick
WS115B	Northeast	1.40	>1.46	Cobbles of sandstone and concrete
WS116	East	0.90	1.10	Brick cobbles
		2.60	3.00	
WS117	Southeast	2.10	2.38	Red crushed brick
		2.89	>2.90	Refusal on suspected brick
WS118	Southeast	0.42	>0.43	Concrete cobbles
WS118A	Southeast	0.56	>0.57	Concrete cobbles
WS118B	Southeast	0.52	>0.56	Cobbles of sandstone, brick and concrete

A geophysics survey has also been undertaken for the site which has recorded areas of potential obstructions other than those encountered in the table above, and is included within Appendix A.

6.3. Visual and Olfactory Evidence of Contamination

A summary of visual and/or olfactory evidence of contamination and/or pertinent anthropogenics noted during Tier Environmental investigations is summarised in Table 6.3 below:

Table 6.3 Visual and/or Olfactory Evidence of Contamination and/or Pertinent Anthropogenics Summary

Exploratory Hole Location	Location on Site	Depth Range (m bgl) Encountered From	Depth Range (m bgl) Encountered To	Description
CP101	Centre	0.21	0.50	Frequent gravel sized silt pockets with white coating.
CP102	East	4.20	5.40	Ashy gravel
CP103	Southwest	2.20	3.40	Rare gravel of coal/ash
		5.10	6.50	Ashy gravel with slight organic odour
CP104/RH102	Centre	0.35	0.80	Frequent gravel sized silt pockets with white coating.
HDP101	Northwest	0.13	0.54	Ashy gravel
HDP102	Northeast	0.15	0.45	Ashy gravel
WS111	Centre east	0.50	0.65	Ashy gravel
WS112	Southeast	0.60	1.10	Slightly ashy gravel
		2.15	2.40	Gravel of brick, ash, possible clinker
WS116	East	1.10	1.85	Slightly ashy gravel

The previous Geotechnics ground investigation recorded black stained material with a strong hydrocarbon odour at 5.30 m bgl within CP02 in the northeast of the site. Tier have undertaken several boreholes have been undertaken surrounding this area, with no further evidence of hydrocarbon contamination observed.

6.4. Groundwater Observations During Fieldwork

Table 6.4 below provides a summary of the groundwater observations during the fieldworks. Further information of groundwater observed is presented in the exploratory hole logs in Appendix B.

Table 6.4 Field Observations of Groundwater.

Exploratory hole	Strike (m bgl)	Rise in groundwater after 20 mins. (m bgl)	Formation	Observations
CP101	3.50	3.20	Made Ground	Perched groundwater within Made Ground
CP102	3.40	-	Made Ground	Perched groundwater within Made Ground
CP103	3.40	3.20	Made Ground	Perched groundwater within Made Ground
CP104/RH102	3.50	-	Made Ground	Perched groundwater within Made Ground
	4.35	4.20	Made Ground	Perched groundwater within Made Ground
	No strike recorded	1.70 (overnight)	Pennine Lower Coal Measures	No strike recorded within Pennine Lower Coal Measures, but groundwater levels rising to 1.70m bgl overnight suggesting possible sub artesian groundwater body within Pennine Lower Coal Measures

Exploratory hole	Strike (m bgl)	Rise in groundwater after 20 mins. (m bgl)	Formation	Observations
CP105	3.40	3.00	Made Ground	Perched groundwater within Made Ground
HDP101	0.86	-	Made Ground	Localised shallower perched groundwater within Made Ground. Slow seepage at base of pit
RH101	3.20	-	Made Ground	Perched groundwater within Made Ground
RH103	3.00	1.80	Made Ground	Perched groundwater within Made Ground
RH103A	3.00	1.80	Made Ground	Perched groundwater within Made Ground
RH103C	No strike	1.80m (overnight), round level (overnight on second night)	Pennine Lower Coal Measures	No strike recorded within Pennine Lower Coal Measures, but groundwater levels rising to 1.80m bgl overnight suggesting possible sub artesian groundwater body within Pennine Lower Coal Measures. The following day water was recorded to be at ground level, however dropped when drilling started.
WS106	1.50	-		Localised shallower perched groundwater within Made Ground
WS116	3.30	-	Glaciofluvial Deposits	Wet material encountered
	4.00	-		Localised shallow groundwater

6.5. Groundwater Monitoring

Table 6.5 below provides a summary of the groundwater monitoring results conducted to date. In total, 4 No. visits have been carried out between 17th December 2024 and 24th January 2025.

Table 6.5 Groundwater Monitoring Results Summary

Exploratory hole	Response Zone (m bgl)	Depth range (m bgl)	Formation	Observations
RH101	28.00 to 33.00	None detected to 0.32	Deep Pennine Coal Measures (inc. coal)	Well head flooded during first visit. Water rising slowly but stopped at top of well head. Near-artesian water observed likely associated with deep confined groundwater body within sandstone bands in the Pennine Lower Coal Measures.
CP104/RH102	7.00 to 10.00	1.89 to 2.10	Shallow Pennine Coal Measures	No observations
RH103C	28.00 to 32.00	None detected to 0.85	Deep Pennine Coal Measures (inc. coal)	Well head flooded during first visit, water continued to flow out of well and did not stop. During second visit an extra pipe was added to well to determine extent of sub artesian head. Water level stabilised at 0.04m above ground level. Artesian water observed likely associated with deep confined groundwater body within sandstone bands in the Pennine Lower Coal Measures.
CP101	2.00 to 4.00	3.01 to 3.11	Made Ground / Alluvium / Pennine Coal Measures	No observations
CP102	2.00 to 6.00	3.43 to 3.77	Made Ground / Pennine Coal Measures	No observations
CP103	0.50 to 2.50	3.77 to 4.14	Made Ground	No observations

Exploratory hole	Response Zone (m bgl)	Depth range (m bgl)	Formation	Observations
CP105	1.00 to 4.00	1.28 to 2.19	Made Ground / Pennine Coal Measures	No observations
WS104	0.50 to 1.00	None detected	Made Ground	No observations
WS107	0.50 to 1.00	None detected	Made Ground	No observations
WS108	0.50 to 0.70	0.58 to 0.67	Made Ground	No observations
WS109	0.40 to 0.60	0.10 to 0.35	Made Ground	No observations
WS112	1.00 to 4.00	3.44 to 3.76	Made Ground / Glaciofluvial Deposits	No observations
WS116	1.00 to 2.50	None detected	Made Ground	No observations
WS111	0.50 to 0.70	0.64 to None detected	Made Ground	No observations

Groundwater contours from each monitoring visit have been plotted on plan, and are included within Appendix A.

7. PRELIMINARY GEOTECHNICAL ASSESSMENT

7.1. Mining and Quarrying

The risk to the site from historical mining is discussed in further detail within the Coal Mining Risk Assessment.

No evidence of historical quarrying or other surface abstraction on site was encountered during the ground investigation.

7.2. Determination of pH and Water-Soluble Sulphate

Consideration of Chloride and Nitrate

In accordance with BRE SD1 for ground suspected of containing mineral acids of industrial origin, a determination must be made as to whether Chloride (Cl) and Nitrate (NO3) need to be analysed. In the event that they do, and elevated concentrations of Cl and NO3 are reported, this may indicate that hydrochloric and nitric acids (HCl and HNO3) are present. The effect of these acids on concrete is likely to be similar to that of sulfuric acid; so, for classification purposes, their chemically equivalent sulphate concentration should be calculated and added to any actual soluble sulphate present (as SO4 mg/l) in the respective samples: SO4 equivalent of Cl = Cl x 1.35mg/l SO4 equivalent of NO3 = NO3 x 0.77mg/.l

Firstly a determination has been made as to whether a significant number of reported pH values are lower than pH 5.5. If they are, then amounts of chloride and nitrate (NO3) should also be determined (in mg/l) in addition to sulphate content.

The conclusion of this assessment is that a significant number of pH values are **not** lower than pH 5.5 and so no further consideration of Chloride (Cl) and Nitrate (NO3) needs to be conducted.

Consideration of Magnesium Levels

In accordance with BRE SD1, when the water soluble sulphate concentration or groundwater sulphate concentration is greater than 3000mg/l, an additional consideration of the level of magnesium is required.

In this instance, no reported concentrations of water soluble sulphate or sulphate in groundwater have been reported above 3,000mg/l and therefore no further consideration of magnesium has been made.

In accordance with BRE SD1, there is no need to take magnesium levels into account for natural ground – the 'm' suffix Design Sulphate Classes only apply to brownfield locations. This is because, in natural ground conditions in the UK, magnesium levels are invariably well below values that may significantly affect concrete.

Sulphide Bearing / Pyritic Ground Assessment

In accordance with 'Concrete in aggressive ground' Special Digest 1:2005 (Third Edition), Tier Environmental has first sought to establish whether the site lies within an area where pyrite bearing natural ground exists that could result in additional sulphate being converted from sulphides (particularly pyrite) during enabling works, earthworks and/or construction activities.

Firstly, the site location has been plotted on the extracted figure from BRE SD1 that shows the Principal Sulphate and Sulphide Bearing Strata in England and Wales, as shown on Figure 7.1 below.

Figure 7.1 Site Location Plotted on Principal Sulphate and Sulphide Bearing Strata in England and Wales (Extracted from BRE SD1)

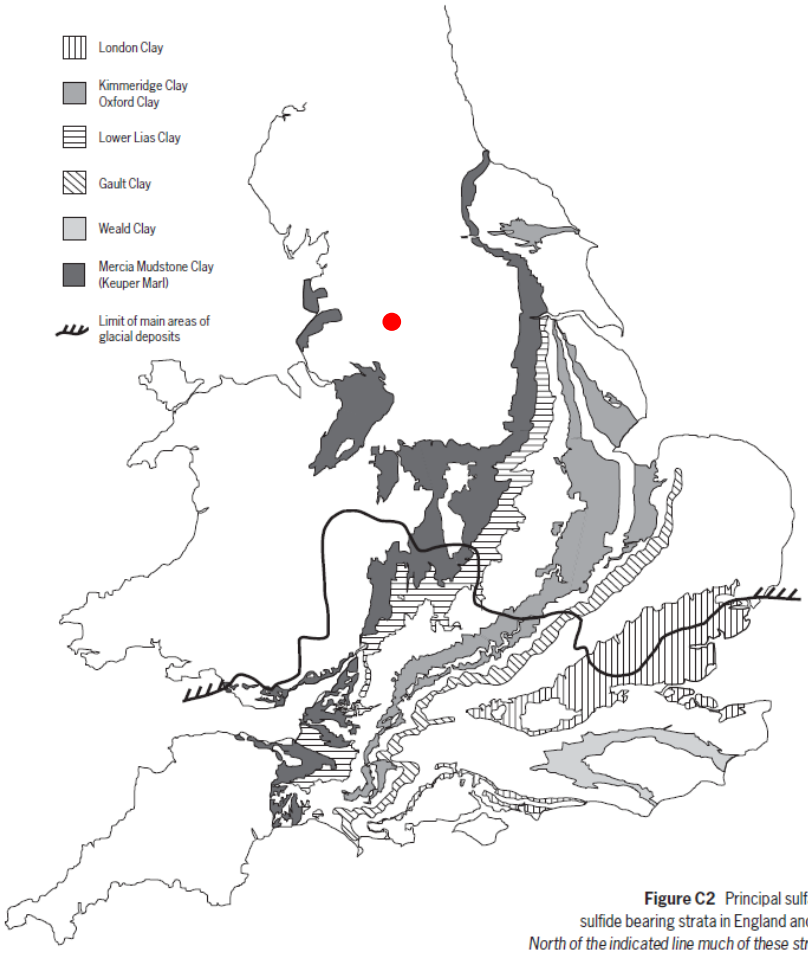


Figure C2 Principal sulfate and sulfide bearing strata in England and Wales
North of the indicated line much of these strata are covered by glacial deposits which, if partly derived from the indicated strata, may also contain sulfates and sulfides

Secondly, an assessment has been made of the site's location relative to coal mining areas of Great Britain on the figure below. This has been done because these represent areas where sulphate bearing coal mining wastes and metal processing slags are most likely to be encountered.

Figure 7.2 Site Location Plotted Relative to Coal Mining Areas of Great Britain (Extracted from BRE SD1)

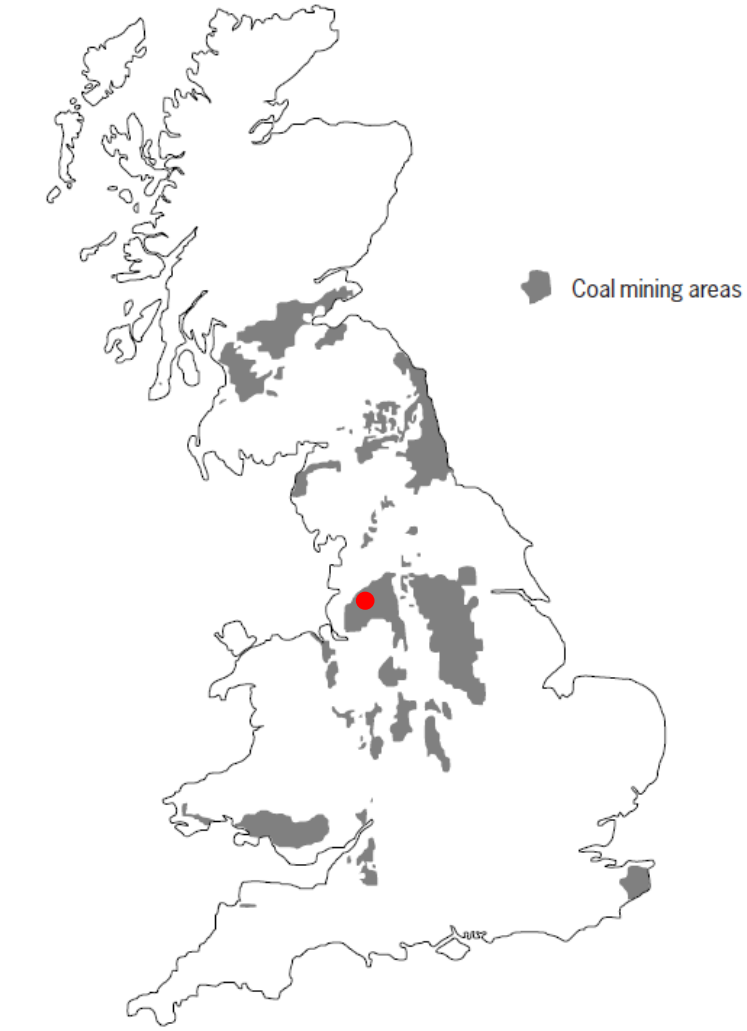


Figure C3 Coal mining areas of Great Britain where sulfate bearing, coal mining wastes and metal processing slags are most likely to be encountered

The table below has been developed to determine whether, based on the above assessment whether there is a possibility of sulphides in the ground (e.g. pyritic ground):

Table 7.1 Assessment for Potential Sulphide Bearing (e.g. Pyritic) Ground

Question 1:	Question 2:	Question 3 (only relevant if answer to Question 2 is 'Yes'):	Question 4:	Conclusion of Assessment for Potential Sulphide Bearing Ground
From Figure 7.1, Does the Site Lie Within a Principal Sulphate and Sulphide Bearing Area?	From Figure 7.1, Does the Site Lie North of the Black Line Indicating Extent of Glacial Deposits ?	Is it considered that the Glacial Deposits beneath the Site are Derived from Principal Sulphate and Sulphide Bearing Strata (even if the answer to Question 1 is 'No')?	From Figure 7.2, Does the Site Lie Within a Coal Mining Area?	
No	Yes	Potentially	Yes	The conclusion of the assessment is that there **is** the potential for sulphide (e.g. pyritic) bearing ground and further assessment of this is required in accordance with BRE SD-1.

Oxidisable Sulphides Calculation

The table below has been prepared in order to further assess, based on the laboratory data, whether there is likely to be pyrite present which may oxidise if the ground is disturbed:

Table 7.2 Oxidisable Sulphides Calculations

Exploratory Hole Location	Depth (m bgl)	Total Sulphur (TS) Concentration (%)	Calculated Total Potential Sulphate (TPS) (%)*	Acid-Soluble Sulfate (AS) Concentration (%)	Calculated Oxidisable Sulphides (OS) (%)#
Made Ground					
WS105	0.75	0.04	0.12	0.06	0.06
WS111	0.80	0.06	0.18	0.13	0.05
WS116	1.9	0.08	0.24	0.15	0.09
CP103	0.70	0.04	0.12	0.10	0.02
CP102	1.70	0.18	0.54	0.49	0.05
CP101	2.70	0.07	0.21	0.18	0.03
CP101	0.70	0.17	0.51	0.44	0.07
RH103C	3.00	0.14	0.42	0.41	0.01
RH101	3.50	0.04	0.12	0.04	0.08
Superficial Deposits					
WS112	3.35	0.03	0.09	0.02	0.07
WS116	3.40	0.04	0.12	0.02	0.10
RH103C	3.10	0.06	0.18	0.04	0.14
Bedrock					
RH103C	15.11	0.06	0.18	<0.02	0.16
RH102	8.00	<0.01	<0.03	<0.02	<0.01
CP104	5.50	0.06	0.18	<0.04	0.14
CP103	7.20	0.12	0.36	0.04	0.32
CP101	5.20	0.10	0.30	0.02	0.28

Note: * TPS = = 3 x total sulphur (TS % S). # OS = TPS - AS

Conclusion

A determination has been made as to whether the calculated Oxidisable Sulphides (%) are "*greater than 0.3% for a significant number of samples*", in accordance with BRE SD1. The conclusion of this assessment is that a significant number of samples are **not** in excess of 0.3% with respect to calculated Oxidisable Sulphides (%).

This does **not** indicate the presence of pyrite (which would otherwise oxidise if ground were disturbed) and in which case the design sulphate class may be determined solely on soil and groundwater sulphate concentrations and pH in accordance with BRE SD-1.

Design Sulphate Classification

Representative samples of the soils and groundwater encountered during the Tier Environmental ground investigations, were tested to determine their pH and concentrations of water-soluble sulphate (SO_4^{2-}). The results are presented in Appendix C and Appendix D and summarised in Table 7.3 below. It is assumed that the site is a 'brownfield' site, and the groundwater is 'mobile' in accordance with BRE SD1.

The conclusion of the assessment is that a DS-2 and ACEC Class AC-1 is appropriate for buried concrete design purposes, with due consideration of the sub-sections above (which include consideration of chloride, nitrate, magnesium and potential for sulphide bearing (e.g. pyritic) ground).

Whilst no evidence of gross hydrocarbon contamination has been observed at the site, it is a concrete specialist should review the TPH results and ground conditions summary within this report to ensure appropriate concrete design against retardation / degradation due to hydrocarbons.

Table 7.3 Results of Soil pH Testing and Water-Soluble Sulphate Determination

Exploratory Hole Location	Depth (m bgl)	pH	Water-soluble sulphate (mg/l)	Design sulphate class	ACEC sulphate class
MADE GROUND					
WS105	0.75	9.88	47.3	Mean of the highest two water soluble sulphate results = 680mg/l **DS-2**	Mean of the lowest two pH = 8.26 pH **AC-2**
WS111	0.80	8.97	140.1		
WS116	1.90	**8.42**	391.6		
CP103	0.70	9.08	117		
CP102	1.70	9.63	505		
CP101	2.70	11.07	132		
CP101	0.70	9.29	**546**		
RH103C	3.00	9.26	**814**		
RH101	3.50	**8.12**	52		
SUPERFICIAL DEPOSITS					
WS112	3.35	**7.1**	19.3	Mean of the highest two water soluble sulphate results = 66.7mg/l **DS-1**	Mean of the lowest two pH = 7.4 pH **AC-1**
WS116	3.40	**7.71**	**99.4**		
RH103C	3.10	8.69	**34**		
BEDROCK					
RH103C	15.11	8.77	24	Mean of the highest two water soluble sulphate results = 80mg/l **DS-1**	Mean of the lowest two pH = 8.67 pH **AC-1**
RH102	8.00	8.83	<10		
CP104	5.50	8.82	15		
CP103	7.20	**8.66**	**89**		
CP101	5.20	**8.68**	**71**		

Exploratory Hole Location	Depth (m bgl)	pH	Water-soluble sulphate (mg/l)	Design sulphate class	ACEC sulphate class
GROUNDWATER					
CP101	3.50	**7.37**	81.7	Mean of the highest two water soluble sulphate results = 163.7mg/l **DS-1**	Mean of the lowest two pH = 7.27 pH **AC-1**
CP102	4.50	7.5	**137.7**		
CP103	5.50	7.41	67.8		
CP4 (Geotechnics)	4.00	7.43	57.3		
RH102	5.00	8.06	93.9		
WS112	4.00	**7.16**	**189.7**		

ACEC - Aggressive Chemical Environment for Concrete (see BRE, 2005).

7.3. Geotechnical Parameters

The data obtained during the Ground Investigation has been assessed for the recorded soil and rock types in order to provide characteristic values in order to aid the final foundation design.

Soil Classification

Cohesive Soils

Moisture content and Atterberg Limit testing was undertaken on samples from cohesive superficial material at the site. A summary of the results is shown in Table 7.4 below.

Table 7.4 Summary of Natural Moisture Content and Atterberg Limits

Parameter	Material	No. Tests	Result	Comments
Natural MC %	Natural clay	1	23.7	-
	Mudstone	2	Non-plastic	-
	MG3 PFA silt	3	41.2	1 no. sample recorded as plastic, 2no. samples recorded as non-plastic
Plastic Limit %	Natural clay	1	21	-
	Mudstone	2	Non-plastic	-
	MG3 PFA silt	3	34	1 no. sample recorded as plastic, 2no. samples recorded as non-plastic
Liquid Limit %	Natural clay	1	33	-
	Mudstone	2	Non-plastic	-
	MG3 PFA silt	3	45	1 no. sample recorded as plastic, 2no. samples recorded as non-plastic
Plasticity Index	Natural clay	1	12	-
	Mudstone	2	Non-plastic	-
	MG3 PFA silt	3	11	1 no. sample recorded as plastic, 2no. samples recorded as non-plastic
Modified Plasticity Index	Natural clay	1	10.68	-
	Mudstone	2	Non-plastic	-
	MG3 PFA silt	3	11	1 no. sample recorded as plastic, 2no. samples recorded as non-plastic

The modified plasticity index of the natural clay indicates that it should be classed as low volume change potential. Whilst 2no. samples of the MG3 PFA Silt were recorded as non-plastic, the third sample was recorded to be plastic, with a modified plasticity index indicating that it should be classed as low volume change potential. It would therefore be prudent to assume that the MG3 PFA Silt should be assumed to be a worst case of low volume change potential.

A total of 1no. sample of natural clay was submitted for Particle Size Distribution test. The results recorded that this material could be classed as 2C/7A/7F in accordance with Series 600 Specification For Highways Work.

Granular Soils

A total of 4 No. samples of granular strata were submitted for Particle Size Distribution tests, including 2 No. samples of Made Ground Silt and 2 No. samples of Made Ground gravel. The tests show a distinction between the stratum types, as recorded in the table below.

Sample Location	Depth (m bgl)	Material Type	Classification in accordance with Series 600 SFHW
CP102	1.7-2.0	MG3 PFA Silt	2A&2B, 2C, 7A, 7E, 7F, 7I
CP101	2.7-3.0	MG2 Gravel	2C, 7A, 7D, 7F
CP101	0.7-1.2	MG3 PFA Silt	2A&2B, 7A, 7E, 7F, 7I
RH103C	2.0-3.0	MG2 Gravel	2C, 7A, 7E, 7F, 7I

Rock Classification

Point Load Tests

Point Load testing was performed on a number of rock core samples of the Pennine Lower Coal Measures. A total of 37 No. tests were performed on the Pennine Lower Coal Measures, with both axial and diametric testing being undertaken. The results of these tests are shown in Table 7.5 below.

Table 7.5 Summary of point load Is50 test results

Strata Type	Axial / Diametric	Minimum Is50 (MN/m²)	Maximum Is50 (MN/m²)	Average Is50 (MN/m²)
Pennine Lower Coal Measures	Axial	0.10	5.26	1.35
Pennine Lower Coal Measures	Diametric	0.18	0.54	0.36

The results show considerable variation but little increase with depth. Point load test data indicates axial Is50 values in the top approx. 5m of Pennine Lower Coal Measures strata are in the range of 0.49MPa to 5.26MPa for the 35 No. tests that were performed.

A correlation factor of 10 between point load Is50 values and unconfined compressive strength has been assumed. Outlying strength values have been eliminated by ignoring the lowest and highest 10% of values, and when this is applied Is50 values lie in the range 0.49MPa to 2.65MPa with an average of 1.16MPa and by applying the assumed correlation factor of 10, this would give equivalent UCS values in the range 4.9 MPa to 26.5 MPa with an average of 11.6MPa.

Unconfined Compressive Strength Tests

UCS testing was performed on a number of rock core samples of Pennine Lower Coal Measures which were recovered as intact pieces with a length which was at least 2.5 times the diameter of the core. A total of 5 No. tests were performed on the Pennine Lower Coal Measures. The results of these tests are shown in Table 7.6 below.

Table 7.6 Summary of UCS test results

Strata Type	Minimum Compressive Strength (N/mm²)	Maximum Compressive Strength (N/mm²)	Average Compressive Strength (N/mm²)
Pennine Lower Coal Measures	30.2	44.0	36.8

The results show variation but little increase with depth.

Foundation Recommendations

Made Ground was recorded to be present across the site, extending to a depth of between 3.40m and 6.50m bgl (and recorded to 6.80m bgl within the previous third party report). This is underlain by a thin band of Alluvium in the north and Glaciofluvial Deposits in the southeast, over mudstone with interbedded sandstone and siltstone of the Pennine Lower Coal Measures.

Portions of the site are covered by former or existing facilities on the site, including asphalt hard standing over a possible relict floor slab of the former building and possible underlying foundations. This material is unsuitable for foundations and relict foundations and floor slabs should be broken out

to avoid the formation of hard spots. Additional possible obstructions/ subsurface features have been identified during a geophysical survey, with a possible void and loss of flush indicative of probable mine workings recorded around 6.00m bgl which will require grouting / treatment (see separate Cola Mining Risk Assessment Report for details).

It is understood based on preliminary discussion with the piling contractors that a piled foundation will be utilised, with preliminary consideration of rock sockets Circa 5m into the bedrock. It is likely that CFA piles will be used.

7.4. Piling Risk Assessment

Continuous Flight Auger (CFA) Piles

The CFA piling method involves constructing the piles with a CFA piling rig which has a full length hollow stem auger. The pile is bored in a continuous downward movement to the requisite founding depth. As the auger rotates, spoil will travel upwards, keeping the flights of the auger full of spoil at all times. Once the auger has reached the founding depth, sand-cement or concrete is pumped down the stem at a controlled rate as the auger is steadily withdrawn, thus closing any pathway that may be created at this point. Standard reinforcement details are used where appropriate, which comprise either single centrally positioned reinforcing bars or reinforcement cages to suit horizontal/bending moments. Specially made reinforced cages can be manufactured to suit specific loading situations if needed.

The Environment Agency guidance on piling on land affected by contamination states that...."Provided the pile is formed or placed in intimate contact with the surrounding soil, there should be no formation of preferential pathways..."No permanent preferential pathways are created as a result of CFA pile construction. Furthermore, the method of construction of the pile minimises the risk of cross-contamination from upper groundwater to the lower Secondary A Aquifer.

The piling technique will generate arisings, which will almost certainly include contaminated materials. As the Made Ground soils at the site have been found to have elevated concentrations of asbestos, there will need to be in place a site based system which will set out the main risks for groundworkers during piling works and the appropriate mitigation measures required.

RISK TO UNDERLYING AQUIFER USING CFA PILES - Negligible

RISK TO CONSTRUCTION WORKERS USING CFA PILES - Moderate (pile arisings at surface which contain asbestos)

RISK TO PERCHED WATER/SHALLOW GROUNDWATER USING CFA PILES - Negligible

RISK TO END-USERS FROM GROUND GAS BY USING CFA PILES - Negligible

7.5. Floors

With regard to the design and construction of normal ground bearing floor slabs, it must be noted at the outset, that due to the thickness of Made Ground, unless appropriate measures are taken there will be a risk of significant total and differential settlements, the extent of which will be a matter of chance rather than being assessable by calculation.

To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design.

If it is necessary to take the piles below the base of the boreholes, the pilling contractor should undertake testing to confirm that strata of equal or greater strength are present below.

Ground bearing floor slabs may be suitable subject to a turnover, proof rolling and confirmatory testing of the Made Ground.

7.6. Earthworks

Based on visual inspection of the Made Ground, the materials are likely to be suitable for reuse. Some processing of the material (including screening and crushing of unsuitable elements) may be required during the enabling works phase to remove over-sized or unsuitable material, such as metal, plastic, fabric and timber. It should be noted that the geophysics survey has recorded obstructions that may lie beneath this depth. Where Made Ground is to be reused as an engineered fill, it would be sensible to select granular fills only and subject them to a confirmatory testing regime where they were required to achieve a compaction specification as a structural fill.

The Made Ground PFA silt materials generally recorded high SPT N values of between N=19 and N=>50, indicating this may be a suitable material for reuse. However careful management of the material will be required, particularly during inclement weather. Possible cement stabilisation of the material may be required should it start to degrade.

Construction plant should be provided with an adequate working platform in line with the requirements of BRE report, "BR 470: Working Platforms for Tracked Plant". Again, further advice should be sought from the temporary works designer. However, the following factors should be considered.

It is understood that the existing Made Ground at the site is to be excavated to a depth of 2.00m bgl and re-engineered to remove buried obstructions. Excavated materials will be processed and re-engineered as an Engineered Fill. The new Design CBR should be assumed to be equivalent to 2.5%, however values of between 10% and 20% should be achievable given the material present at the site.

During construction, the in situ CBR value must be checked against the Design CBR value, to confirm design requirements are being met.

7.7. Retaining Structures

Several retaining structures are present across the site, most notably a brick retaining wall of up to 1.00m height at the northern boundary with College Road (which lies at a higher level than the site at points along the northern boundary), and a concrete retaining wall at the south of the car park, with the banks of the River Roch lying between approximately 0.50m and 1.00m bgl lower than the car park level. Evidence of cracks and possible former repairs within this southern retaining wall were observed.

The footings of these retaining walls were exposed within HDP101, HDP102 and HDP104. Foundation Inspection drawings detailing the size, materials and backfill placed around the footings are included within Appendix A.

It is recommended that a structural survey is undertaken for any retaining features that are to remain on site.

7.8. Groundworks, Excavation Stability and Groundwater Dewatering

In our opinion, there should be no particular difficulties in excavating the strata indicated in the boreholes utilising an appropriate and suitably sized mechanical excavator. Excavations into existing Made Ground and the underlying natural soils should be assumed to be unstable. No man entry into unsupported excavations should be allowed without an appropriate risk assessment. Reference to CIRIA report 097 (1983) should be made to establish suitable means of support or battering of excavation sides.

It is recommended that all excavations to greater than 1.20 metres depth, or for shallower excavations where groundwater is encountered above this level are closely supported, especially where man entry is required. Alternatively, where space permits, the excavations might be battered back to an appropriate angle. Standing groundwater levels of between 0.86m and 4.35m were encountered in the boreholes, with possible sub artesian groundwater conditions noted during the intrusive investigation and groundwater monitoring undertaken to date . Should groundwater seepages occur, and water accumulate in shallow excavations it should be able to be removed by pumping from a filtered sump. However, groundwater control by more robust means, such as well pointing, may be required locally.

It should be noted that should deep basements be constructed as part of the development then we would recommend that the standpipes are monitored for groundwater levels for an extended period of time and take into consideration seasonal variations and periods of very wet weather to measure the fluctuation of the standing water levels. It should be noted that groundwater inflows and levels are likely to be subject to seasonal and climatic variations.

Great care will need to be taken if reducing groundwater levels to ensure that adjoining nearby buildings, structures and services are not affected.

It should be noted that all excavations and groundworks within the Made Ground will need to be undertaken in accordance with the Control of Asbestos Regulations (CAR:2012) due to the presence of asbestos.

7.9. Pavements and Highways

The results of the DCP testing area included within Appendix E. CBR values derived from DCPs have been presented for ***preliminary*** purposes only and should not be relied on for final design purposes. We would recommend that confirmatory CBRs derived from full Plate Bearing Tests are conducted once the final formation levels have been achieved.

Once the design layout is known and demolition/remediation is complete, then *in situ* testing should be carried out to confirm CBR values.

The design of pavements, highways, embankments and retaining structures (if required) should be discussed with the relevant local authority if highways are to be subject to Section 38 agreement.

The results indicate a range of values reported between 0.52% to >25%. Of the 49 results, 41 No. CBR values were reported >5%, 1 No. was reported between 2.5 and 5% and 7 No. were reported <2.5%.

7.10. Infiltration Testing

The results of the soakaway and falling head tests are included within Appendix H.

Sue to the significant depth of Made Ground and the poor infiltration test results, soakaways are not likely to be a viable form of surface water drainage.

8. HUMAN HEALTH RISK ASSESSMENT

The results of chemical analysis are presented in full in Appendix C and Appendix D.

8.1. Data Interpretation Approach

The analytical data obtained were reviewed for completeness and consistency. The data for each sample type was then compiled, screened against the Generic Assessment Criteria (GACs) for a commercial land use and those potential contaminants of concern which were found to exceed the GACs were then subjected to detailed analysis as described below.

Previously, it was possible for results from soil (and leachate) samples to be subject to statistical assessment in accordance with a 2008 guidance document (CL:AIRE / CIEH Guidance on Comparing Soil Contamination Data with a Critical Concentration). This guidance has now been withdrawn and replaced with the following document:

- Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration (CL:AIRE 2020)

The purpose behind statistical assessment is ultimately to determine whether concentrations of contaminants are at levels that present potential risk to the future site users (and the wider environment if the statistical assessment is conducted on leachate test results).

The new guidance places even greater emphasis and reliance on the desk study being carried out first, appropriately detailed sampling strategies, collection and testing of samples for contamination and use of appropriate screening criteria.

The guidance requires an increased number of criteria to be met before a robust statistical assessment can be conducted and introduces the principle of the Central Limit Theorem (CLT); a key tool of statistics that is used in the comparison of confidence intervals with the critical concentration. A common 'rule of thumb' is that the CLT will apply provided your sample size is between 20 and 50.

On this basis, Tier Environmental considers that statistical assessment in accordance with the CL:AIRE 2020 guidance may not be applied in this instance given that the number of samples obtained is below 20 No. for any given identified soil population.

Due consideration of the ground conditions, distinct identifiable populations of soil and proposed development layout has been undertaken and, where appropriate, laboratory results associated with discrete populations or 'hotspots' have been assessed separately.

8.2. Selection of Generic Assessment Criteria (GAC)

In short, for the majority of the contaminants of concern, LQM/CIEH Suitable 4 Use Levels (S4ULs) published in 2015 have been adopted as GACs for a commercial land use; however, further details on the hierarchal approach for the selection of the GACs used as screening criteria for this assessment is provided in Appendix J.

These values are considered as appropriate screening criteria as they incorporate updated assumption exposures derived for the production of C4SLs but within the context of deriving screening criteria above which assessment of the risks or remedial action may be needed (i.e. within the context of the planning regime rather than Part 2A context for which C4SLs were derived).

For those potential contaminants of concern where the selected GAC is dependent on Soil Organic Matter content (SOM), an assumed SOM of 2.5% has been selected based on the reported Total Organic Carbon (TOC) concentrations (which have been converted to SOM by dividing by a conversion

factor of 0.58). It should be noted; however, that for any soil samples where the TOC may be artificially driven by the presence of petroleum hydrocarbons, that these TOC results have been removed from the data set when determining an appropriate characteristic SOM. For this purpose, Tier Environmental have notionally considered that any TOC results from soil samples where the measured total TPH concentration exceeds 500mg/kg should be removed.

8.3. Human Health Risk Assessment

No measured concentrations of potential contaminants of concern have been reported in excess of the respective GACs protective of human health for a commercial/industrial land use.

However, given the proposed soft landscaping area within the east of the site, further sensitivity analysis has been undertaken using Public Open Space (POS) Park GACs. When comparing the results to these more sensitive GACs, there is 1no. exceedance recorded reported in excess of the respective GACs, as reported in the table overleaf:

Table 8.1 Measured Concentrations of Potential Contaminants of Concern Reported in Excess of the Respective GACs

Contaminant of Concern	Exploratory Hole Location	Depth (m bgl)	Soil Population	Units	Measured Concentration	GAC	Comments
PAHs							
Benzo(a)pyrene	WS113B	0.35	MG4 (clay)	mg/kg	13.24	12	Minor exceedance within the same order of magnitude as the GAC for POS Park. Note that this is not elevated when compared to the GAC for commercial end use.

Measured Potential Contaminant of Concern Concentrations without Publicly Available GACs

Table 8.2 summarises the measured concentrations of potential contaminants of concern have been reported in excess of the laboratory method detection limit for which there are no current publicly available GACs and provides qualitative commentary / discussion as to whether they may represent a potential risk to human health with due consideration of the Conceptual Site Model.

Table 8.2 Measured Concentrations of Potential Contaminants of Concern Reported in Excess of the Laboratory Method Detection Limit

Contaminant of Concern	Exploratory Hole Location	Depth (m bgl)	Soil Population	Units	Measured Concentration	Comments
VOCs/SVOCs						
Chloromethane	WS103A	0.40	MG5	mg/kg	0.06	These measured concentrations represent chlorinated hydrocarbons and so risks to chlorinated VOCs has been assessed via comparison of measured results against those chlorinated VOCs for which GACs are available. Overall, it is not considered that the risk assessment demonstrated a significant risk from chlorinated VOCs.
Dichloromethane (DCM)	WS105	0.60	MG2	mg/kg	0.087	
	WS112	1.20	MG5	mg/kg	0.013	
	WS113B	0.35	MG4	mg/kg	0.051	
	WS117	0.40	MG2	mg/kg	0.019	
	WS114	0.50	MG2	mg/kg	0.01	
Chlorobenzene	WS105	0.60	MG2	mg/kg	0.005	
4-Methylphenol	WS113B	0.35	MG4	mg/kg	0.166	Risk from phenols has been conducted via comparison of the total phenols concentrations and phenol concentrations to the phenol GAC.
2-Methylnaphthalene	WS103A	0.40	MG5	mg/kg	0.097	2-Methylnaphthalene is PAH based. PAHs have been assessed in against the EPA16 GACs, for which there is a GAC for naphthalene. No measured concentrations of naphthalene were recorded for these locations or elsewhere across the site, and therefore it is considered that the risk from 2-Methylnaphthalene has been adequately considered within the assessment of PAHs in general above.
	WS105	0.60	MG2	mg/kg	0.174	
	WS110	0.61	MG2	mg/kg	0.027	
	WS113B	0.35	MG4	mg/kg	0.525	
	WS117	0.40	MG2	mg/kg	0.105	
	WS116	1.90	MG3	mg/kg	0.182	
	WS114	0.50	MG2	mg/kg	0.322	
Bis(2-ethylhexyl) phthalate	WS117	0.40	MG2	mg/kg	0.3	Bis(2-ethylhexyl) phthalate has low volatility and strong sorption to soil particles, meaning it is not readily released as vapour and is unlikely to migrate significantly via groundwater. This reduces the primary exposure pathways for on-site commercial workers to incidental ingestion of or direct dermal contact with soil particles. The main concern for DEHP is often chronic exposure through ingestion of food or consumer products, rather than incidental contact with soil.
	WS111	0.80	MG3	mg/kg	1.274	
	WS116	1.90	MG3	mg/kg	1.201	
	WS114	0.50	MG2	mg/kg	0.245	

Contaminant of Concern	Exploratory Hole Location	Depth (m bgl)	Soil Population	Units	Measured Concentration	Comments
4-Nitroaniline	WS110	0.61	MG2	mg/kg	0.023	4-nitroaniline exhibits relatively low volatility (i.e., low vapour pressure), so the potential for inhalation of vapours is low. The reported concentration is not indicative of any widespread concern and as it has been reported at a depth of 0.61m bgl, the risks from dermal contact / ingestion are not likely to be viable.
Carbazole	WS103A	0.40	MG5	mg/kg	0.022	Carbazole and dibenzofuran both exhibit limited volatility, which means minimal potential for inhalation, and under typical commercial use. Publicly available commercial GAC were not available for carbazole and dibenzofuran. An international literature search including the following sources was undertaken to provide a risk based context for these analytes: • RIVM (2001). Maximum Permissible Values • USEPA (2014). Regional Screening Levels • CCME (2014). Soil Quality Guidelines. These sources are not supported by the UK Contaminated Land Framework. However, if concentrations reported are several orders of magnitude below the international assessment values then the potential for exceeding a UK specific number is considered to be very low. The maximum concentration of dibenzofuran (0.516 mg/kg) is three orders of magnitude below the USEPA (2014) Regional Screening Level of 100 mg/kg. The potential human health risk from these chemicals is considered to be low. An international literature search did not reveal a commercial soil GAC for carbazole. The Henry's Law Constant for carbazole is 5.11 x10^{-7} atm m3 / mol. Carbazole is not considered to be volatile as the UK based contaminated land exposure assessment (CLEA) model only considers volatility if the Henry's Law Constant exceeds 1 x 10^{-5} atm m3 / mol. Due to the lack of commercial GAC, it is considered that risks from carbazole should be considered in the context of the broader VOC/SVOC assessment carried out for this site which does not indicate that the reported concentrations of VOCs/SVOCs represent a risk to the proposed end-users.
	WS105	0.60	MG2	mg/kg	0.014	
	WS113B	0.35	MG4	mg/kg	0.427	
	WS117	0.40	MG2	mg/kg	0.155	
	WS116	1.90	MG3	mg/kg	0.299	
	WS114	0.50	MG2	mg/kg	0.182	
Dibenzofuran	WS103A	0.40	MG5	mg/kg	0.059	
	WS105	0.60	MG2	mg/kg	0.044	
	WS110	0.61	MG2	mg/kg	0.012	
	WS113B	0.35	MG4	mg/kg	0.431	
	WS117	0.40	MG2	mg/kg	0.206	
	WS116	1.90	MG3	mg/kg	0.516	
	WS114	0.50	MG2	mg/kg	0.241	

Contaminant of Concern	Exploratory Hole Location	Depth (m bgl)	Soil Population	Units	Measured Concentration	Comments
Nitrobenzene	WS110	0.61	MG2	mg/kg	0.028	Nitrobenzene is an aromatic hydrocarbon. Hydrocarbons have been assessed in accordance with the GACs for TPHCWG, of which benzene is included. No fractions were recorded to be elevated, and therefore it is considered that the risk from nitrobenzene has been adequately considered within the assessment of TPH above.
OTHERS						
pH	WS105	0.60	MG2 (gravel)	pH	10.93	Alkali conditions in line with what would be expected for materials containing concrete. However likely due to be due to gravel comprising crushed brick and concrete, and therefore given that these materials are relatively inert, it is not considered to pose a significant risk to human health
	WS117	0.40	MG2 (gravel)	pH	10.24	Alkali conditions in line with what would be expected for materials containing concrete. However likely due to be due to gravel comprising brick, concrete, sandstone, limestone, and therefore given that these materials are relatively inert, it is not considered to pose a significant risk to human health.
	WS108	0.70	MG2 (gravel)	pH	10.40	Alkali conditions in line with what would be expected for materials containing concrete. However likely due to be due to gravel comprising brick, sandstone, rare plastic and metal, and therefore given that these materials are relatively inert, it is not considered to pose a significant risk to human health

Asbestos

Asbestos can be present in soil as fragments of bulk Asbestos Containing Materials (ACMs) (e.g. asbestos cement sheeting) and also as discrete asbestos fibres within the soil matrix. This investigation has carried out assessments to determine whether both bulk fragments and / or fibres are present in the soil at the site. The asbestos assessment commenced on site with inspection of the Made Ground by our suitably qualified supervising engineer for the presence of bulk ACMs.

During the fieldwork no suspected ACMs were identified.

It should be noted that widespread asbestos was recorded to be present across the site during a previous third party ground investigation, up to a maximum concentration of 0.003% w/w. However it is understood that Wilmott Dixon has no reliance on this data.

Of the 18 No. Made Ground samples submitted for asbestos screening by Tier Environmental, 10 No. were reported to contain asbestos. Those positive identifications are summarised in Table 8.3, below.

Table 8.3 Summary of Asbestos Assessment

Exploratory Hole Location	Depth (m bgl)	Location on Site Description	Soil Population	Asbestos Type	Quantification (% w/w)
Asbestos in Soil Samples (Tier Environmental, 2024)					
WS103A	0.40	Northwest (proposed car park with soft landscaping)	MG5 (gravelly sand)	Chrysotile and amosite fibre bundles	<0.001
WS105	0.60	Centre (beneath proposed building footprint)	MG2 (gravel)	Chrysotile fibre bundles and bitumen products	0.019
WS106	1.00	North (north of proposed building footprint)	MG2 (gravel)	Chrysotile and amosite fibre bundles	0.03
WS108	0.70	Centre east (beneath proposed building footprint)	MG2 (gravel)	Chrysotile and amosite fibre bundles and ACM debris	0.017
WS113B	0.35	Northeast (proposed car park with soft landscaping)	MG4 (clay)	Chrysotile and amosite fibre bundles	<0.001
WS114	0.50	East (east of proposed building footprint)	MG2 (gravel)	Chrysotile and amosite fibre bundles and ACM debris	0.021
WS115B	0.90	Northeast (proposed soft landscaped area)	MG3 (silt)	Chrysotile and amosite fibre bundles	0.002
WS116	1.90	Southeast (east of proposed building footprint)	MG3 (silt)	Chrysotile fibre bundles	<0.001
WS117	2.20	East (southeastern current soft landscaped area not to change)	MG2 (gravel)	Amosite fibre bundles	<0.001
WS117	2.40	East (southeastern current soft landscaped area not to change)	MG5 (gravelly sand)	Chrysotile and amosite fibre bundles	<0.001

The reported asbestos concentrations are also shown on Drawing Ref TE1880-TE-00-XX-DR-GE-013-V01, included within Appendix A. It is considered that further detailed assessment would be required , in accordance with CIRIA C733 in order to further assess the risks from these reported concentrations.

Groundwater

The groundwater results have been compared to the SOBRA general assessment criteria for commercial land use detailed in Tables 6, 7, 8, 9 and 10 of the 'Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater'.

The GACs given in the above guidance assume that the groundwater is at a depth of 0.65m bgl. Recorded groundwater levels on site range between 0.10m bgl and 4.14m bgl, and as such these GACs are considered likely to be over cautious for groundwater deeper than 0.65m bgl.

None of the recorded contaminants exceed the GAC for commercial land use.

8.4. Utilities

It is recommended that the results of the chemical testing and details of the proposed remedial works are provided to the appropriate utility companies to determine the necessity for service protection.

8.5. Construction and Maintenance Workers

Contamination may pose a short-term (acute) or long-term (chronic) risk to workers during construction and maintenance. The potential risks must be specifically assessed as part of the health and safety evaluation for the works to be performed in accordance with prevailing legislation. Site practices must conform to the specific legislative requirements and follow appropriate guidance (e.g., HSE, 1991; CIRIA, 1996).

On the basis of the results obtained, the following potential exposure risks to construction and maintenance workers have been highlighted:

- Localised elevated benzo(a)pyrene – Minor exceedance (13.24mg/kg) within the same order of magnitude as the GAC for POS Park (12mg/kg). Note that this is not elevated when compared to the GAC for commercial end use (35mg/kg).
- Asbestos within the Made Ground – chrysotile and amosite fibre bundles, bitumen products and ACM debris at a maximum concentration of 0.03% w/w.

As asbestos has been reported at concentrations above 0.001% w/w (i.e. above 'trace' levels), the Control of Asbestos Regulations 2012 should be adhered to. A summary of complying with CAR: risk assessments, licensing and training is provided in Appendix O.

9. CONTROLLED WATERS RISK ASSESSMENT

9.1. Introduction

In order to assess whether there is a potentially unacceptable risk of pollution of controlled waters, samples of soil leachate, groundwater and surface water have been submitted for laboratory chemical analysis as per the summary presented in Table 5.4 within this report. Analytical data from soil leachate, groundwater and surface water sample testing undertaken by Tier Environmental have been evaluated against Water Quality Standard (WQS) values appropriate to the Conceptual Site Model.

In accordance with Part 2A of the Environmental Protection Act 1990, Tier Environmental has made regard to all of the WQS values that are relevant to the site and a judgment has been made against the most stringent of those relevant standards. Further details are provided, along with the approach for selection of TPH / BTEX WQS values, in Appendix K.

In some instances, the laboratory method detection limit is greater than the appropriate WQS value. In these instances, only measured concentrations in excess of the laboratory method detection limit have been considered likely to potentially represent a possible significant risk to controlled waters.

For those potential contaminants of concern for which the WQS values are dependent on hardness (e.g. cadmium EQS values), a hardness of 50-<100mg CaCO3/l has been selected based on the reported values in the groundwater beneath the site.

9.2. Controlled Waters Environment Conceptual Site Model Summary

From a conceptual site model perspective, both the Alluvium and Glaciofluvial deposits are Secondary A Aquifers, with the Pennine Lower Coal Measures also classed as a Secondary A Aquifer. There are no Source Protection Zones, potable, non-potable or surface water abstractions recorded within 250m of the site. The nearest surface water feature is the River Roch located beyond the southern site boundary, with the River Spodden also located 209m southwest of the site. No further surface water features are located within 250m of the site. There are no saltwater bodies beneath or near to the site. Groundwater flow is anticipated to be towards the southwest based on surrounding topography and the presence of the River Roch. There is understood to be limited surface water drainage in the form of ACO drains at the main car park perimeters, with an interceptor located in the northeast of the car park. The site is located within an area of significant historical commercial and industrial heritage, meaning it is less likely the underlying aquifer systems may be used as a future water resource in the future.

On the basis of the above, the sensitivity of the controlled waters environment is considered to be moderate.

9.3. Soil Leachate Testing

Table 9.1 below summarises the measured concentrations of contaminants of concern from soil leachate samples at the site that have been reported in excess of the respective WQS values.

Table 9.1 Summary of Measured Concentrations of Soil Leachate Potential Contaminants of Concern in Excess of WQS Values

Potential Contaminant of Concern	Units	LoD*	WQS	Maximum concentration	No. samples >WQS	Exploratory Hole Location	Depth (m bgl)	Soil Population
Arsenic	µg/l	2.5	50	166.8	1 of 5	WS107	0.65	MG3 (silt)

Potential Contaminant of Concern	Units	LoD*	WQS	Maximum concentration	No. samples >WQS	Exploratory Hole Location	Depth (m bgl)	Soil Population
Chromium	µg/l	1.5	4.7	10.5	2 of 5	WS105, WS110	0.60, 0.61	MG2 (gravel), MG2 (gravel)
Copper	µg/l	7	1	11	1 of 5	WS105	0.60	MG2 (gravel)
Anthracene	µg/l	0.005	0.1	0.102	1 of 5	WS105	0.60	MG2 (gravel)
Fluoranthene	µg/l	0.005	0.12	0.826	4 of 5	WS105, WS110, WS113B, WS118	0.60, 0.61, 0.35, 0.30	MG2 (gravel), MG2 (gravel), MG4 (clay), MG1 (topsoil)
Benzo(a)pyrene	µg/l	0.005	0.27	0.606	4 of 5	WS105, WS113B	0.60, 0.35	MG2 (gravel), MG4 (clay)

* LOD= Laboratory Method Limit of Detection

Measured leachable concentrations of arsenic, chromium, copper, anthracene, fluoranthene and benzo(a)pyrene have been reported only *marginally* in excess of the WQS protective of the controlled waters environment by up to one order of magnitude. Given the following, these marginal exceedances are not considered to pose a significant risk to the controlled waters environment.

- The marginal nature of these exceedances;
- The localised nature of those soil leachate concentrations in excess of the WQS and the absence of any reported widespread leachable concentrations (with the exception of fluoranthene that was recorded to exceed the WQS in 4 of 5 locations, discussed further below);
- There are no source protection zones, potable or non-potable groundwater or surface water abstractions located within 500m of the site;
- The historical commercial / industrial heritage of the wider area surrounding the site;
- The fact that the site will incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils.

Further specific consideration of the reported soil leachate concentrations of fluoranthene and benzo(a)pyrene concentrations have been made.

The EQS values for fluoranthene and benzo(a)pyrene are derived assuming bioaccumulation in fish and ultimately consumption of the fish by humans which is an exposure scenario that is not viable for this site given the urban setting of the site.

Subsequent sensitivity analysis has demonstrated that measured soil leachate concentrations of fluoranthene and benzo(a)pyrene have been reported only *marginally* in excess of the respective Maximum Allowable Concentrations (MAC) EQS values for Inland Surface Waters by up to one order of magnitude. As such, and in the absence of viable 'bioaccumulation in fish and consumption of fish by humans' scenario and given the factors listed above, it is therefore considered that the reported soil leachate concentrations of fluoranthene and benzo(a)pyrene are unlikely to present a potential risk to the controlled waters environment; however, further assessment has been given in groundwater testing section below.

9.4. Groundwater Testing

Table 9.2 below summarises the measured concentrations of contaminants of concern from groundwater samples at the site that have been reported in excess of the respective WQS values. In addition to selected Tier Environmental monitoring locations, CP4 from the previous Geotechnics ground investigation was sampled due to its downgradient location on site.

Table 9.2 Summary of Measured Concentrations of Dissolved Phase Groundwater and Surface Water Potential Contaminants of Concern in Excess of WQS Values

Potential Contaminant of Concern	Units	LoD*	WQS	Maximum Concentration	No. samples >WQS	Monitoring Well Location	Surface Water Location
Copper	µg/l	1	1	3	6 of 9	CP01, CP02, CP03	Upstream (WS02UP), Midstream (WS03MID), Downstream (WS01DS)
Nickel	µg/l	0..2	4	17.7	1 of 9	CP01	-
Zinc	µg/l	1.5	10.9	12.9	3 of 9	CP103	Upstream (WS02UP), Midstream (WS03MID)
Fluoranthene	µg/l	0.005	0.12	0.007	2 of 9	CP4, WS112	-
Bis(2-ethylhexyl) phthalate	µg/l	5	1.3	12	1 of 9	CP4	-
Total Ammonia	mg/l	0.03	0.3	0.5	4 of 9	CP103, CP4, RH102, WS112	-

* LOD= Laboratory Method Limit of Detection

Measured groundwater concentrations of copper, nickel, zinc, bis(2-ethylhexyl) phthalate and total ammonia have been reported in excess of the WQS protective of the controlled waters environment by either the same order of magnitude or one order of magnitude. Given the marginal nature of these exceedances, Given the following, these marginal exceedances are not considered to pose a significant risk to the controlled waters environment.

- The marginal nature of these exceedances;
- The localised nature of those groundwater concentrations in excess of the WQS and the absence of any reported concentrations
- Elevated concentrations of copper and zinc were recorded in the upstream, midstream and in the case of copper downstream samples as well as within groundwater samples from monitoring locations on site. This suggests that there is elevated background concentrations of copper and zinc;
- There are no source protection zones, potable or non-potable groundwater or surface water abstractions located within 500m of the site;
- The historical commercial / industrial heritage of the wider area surrounding the site;
- The fact that the site will incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils.

Measured dissolved phase groundwater concentrations of fluoranthene have been reported in excess of the respective WQS protective of the controlled waters environment by 2 No. orders of magnitude. Further qualitative assessment of these reported concentrations has been undertaken.

The EQS values for fluoranthene is derived assuming bioaccumulation in fish and ultimately consumption of the fish by humans which is an exposure scenario that is not viable for this site given the urban setting of the site.

Subsequent sensitivity analysis has demonstrated that measured groundwater concentrations of fluoranthene have been reported only *marginally* in excess of the respective Maximum Allowable Concentrations (MAC) EQS values for Inland Surface Waters by up to one order of magnitude. As such, and in the absence of viable 'bioaccumulation in fish and consumption of fish by humans' scenario and given the factors listed above, it is therefore considered that the reported groundwater concentrations of fluoranthene are unlikely to present a potential risk to the controlled waters environment.

Glycols have been recorded above the laboratory detection limit within CP101 and RH102 within the centre of the site, for which there are no assessment criteria available. However, given the fact that these gave been recorded within the centre of the site only, and that concentrations above

the limit of detection have not been recorded downgradient, these recorded concentrations are considered to be localised and are not considered to pose a significant risk to the controlled waters environment.

It should be noted that the results of the surface water testing demonstrate that water quality improved by the point that the water has flowed past the site.

10.GROUND GAS RISK ASSESSMENT

10.1. Introduction

The ground gas risk assessment has been undertaken in accordance with the following guidance:

- BS 8485:2015+A1:2019;
- CIRIA C665, 2007;
- Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide Are Present, NHBC, 2007 (note that this is being withdrawn on 1st July 2025);
- A Pragmatic Approach to Ground Gas Risk Assessment RB17. CL:AIRE, 2012; and,
- Ground Gas Monitoring and 'Worst-Case' Conditions TB17, CL:AIRE, 2018

In addition, due to the findings of the ground investigation, due consideration has been made with respect to coal mine gas risk in line with the CL:AIRE Good Practice for Risk Assessment for Coal Mine Gas Emissions (dated October 2021).

The ground gas risk assessment has been conducted with full consideration of the viable sources, pathways and receptors discussed in detail in Section 3 and included within the Preliminary Conceptual Site Model presented in Section 3.

Ground gas monitoring was conducted in conjunction with groundwater monitoring (and sampling); however, it should be noted during the gas monitoring was conducted first, prior to any groundwater monitoring / sampling works. The monitoring well locations and construction were designed with due consideration of the proposed development layout and preliminary conceptual site model. Further information pertaining to monitoring wells is provided in Table 5.2.

10.2. Groundwater Conditions

BS 8576:2013 states *"Where practical and reasonable, the response zone for permanent gas monitoring wells should be located in an unsaturated zone. (Such a zone might exist below perched water tables and could form a migration pathway.) This is subject to intercepting all potential gas sources. For example, peat layers in alluvium might be below the groundwater table but pockets of gas can be trapped within the peat. In this case, it would be desirable for the well to penetrate below the groundwater. If there is doubt, it is useful to install wells with response zones above and below the water table."*

Tier Environmental observed during the ground investigation works that groundwater levels were ostensibly shallow beneath the site. To date, groundwater levels have been monitored at depths between 0.10m and 4.14m bgl and artesian water was observed during monitoring of RH103C and groundwater was reported at ground level at RH101; however in both instances this is representative of a deep confined water body within the Pennine Lower Coal Measures. As such, gas monitoring has been conducted within a combination of gas monitoring wells with shallow response zones designed to target the unsaturated zone (e.g. WS104, WS107, WS108, WS109, WS111 and WS116), some designed to target deep coal bearing strata within the Pennine Lower Coal Measures (e.g. RH101 and RH103C), RH102 was designed to target the shallower Pennine Lower Coal Measures and other wells included slotted response zones within the deeper Made Ground and superficial deposits. On this basis, it is considered that the ground gas monitoring well design is sufficient to adequately characterise the ground gas regime beneath the site by virtue of intercepting all viable ground gas sources and geological pathways.

10.3. Gas Monitoring Data Quality

The calibration certificate for the Geotech GA5000 unit used on site for the reported gas monitoring results in Appendix F, is also provided in Appendix F. Field checks were conducted to ensure accuracy during the monitoring events. The locations for the monitoring wells are considered adequate to assess the current ground gas regime.

Flow rates and gas concentrations were allowed to fully stabilise during the monitoring.

10.4. Ground Gas Monitoring Results

The full ground gas monitoring results from the installations are presented in Appendix F and summarised below:

Table 10.1 Ground Gas Monitoring Results Summary –6 No. Visits of Proposed Monitoring Programme of 6 No. Visits

Strata targeted by response zone	Monitoring well reference	Maximum peak CH_4 (%v/v)	Maximum steady state CH_4 (%v/v)	Maximum peak CO_2 (%v/v)	Maximum steady state CO_2 (%v/v)	Lowest O_2 recorded (%v/v)	Maximum peak gas flow rate (l/h)	Maximum steady state gas flow (l/h)
Deep PCM (inc. coal)	RH101	0.6	0.6	0.3	0.2	20.4	0.3	0.3
Shallow PCM	RH102	**0.7**	**0.7**	1.1	1.1	12.3	1.0	-0.1
Deep PCM (inc. coal)	RH103C	0.6	0.6	0.7	0.7	15.4	**24.0**	<0.1
MG / GT / PCM	CP101	0.6	0.6	2.9	2.9	12.3	0.2	0.2
MG / PCM	CP102	0.6	0.6	3.0	3.0	13.4	1.0	<0.1
MG	CP103	**0.7**	**0.7**	1.9	1.9	18.1	0.2	0.2
MG / PCM	CP105	0.6	0.6	0.4	0.1	10.2	0.1	<0.1
MG	WS104	**0.7**	**0.7**	0.3	0.1	17.0	0.1	0.1
MG	WS107	**0.7**	0.6	2.6	0.3	13.4	0.4	**0.4**
MG	WS108	0.6	0.6	0.3	0.2	18.6	0.1	0.1
MG	WS109	**0.7**	**0.7**	0.2	0.2	14.0	4.3	-0.1
MG / GFD	WS112	0.6	0.6	**4.2**	**4.2**	**0.5**	0.2	0.2
MG	WS116	0.6	0.6	0.5	0.2	18.6	-0.1	-0.1
MG	WS111	0.6	0.6	1.8	0.1	12.1	0.2	0.2

Bold = maximum value reported across all visits.

For information: gas analyser instrument limits of detection are as follows: Methane 0.1% v/v, Carbon Dioxide 0.1% v/v, Oxygen 0.1% v/v, Hydrogen Sulphide 1ppm, Carbon Monoxide 1ppm and flow rate 0.1 l/hr

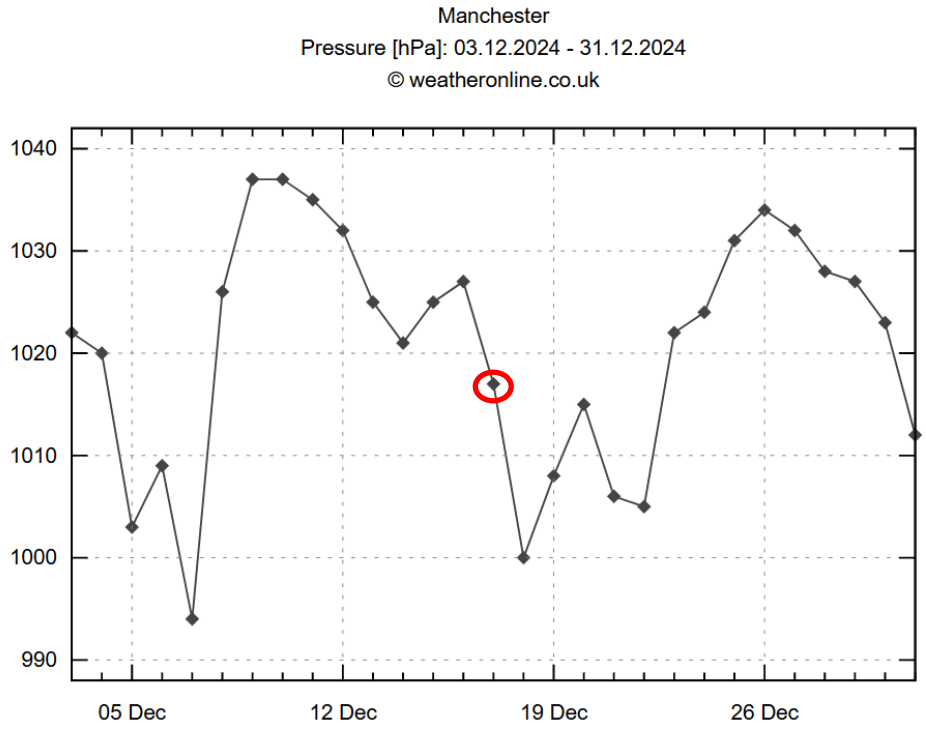
10.5. Ground Gas Risk Assessment

Section 6 of the separate PRA report demonstrates how, in accordance with CIRIA C665, the periods and frequency of monitoring have been selected for the site.

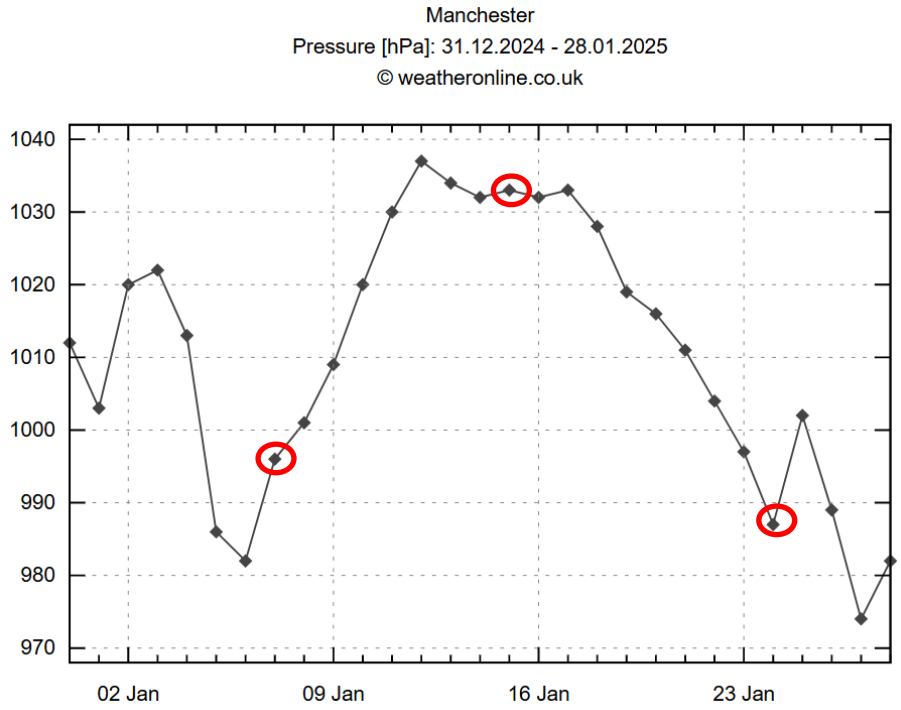
The total atmospheric pressure range of the ground gas monitoring data included in this report was between 963mbar and 1020mbar. This range covers low (<1000 mbar), moderate (1000 mbar to 1015mbar) and high (>1015 mbar) atmospheric pressures. Monitoring events included periods of stable, rising and falling pressure trends.

The pressure graphs information is from the *nearest* available weather station (relative to the site) and therefore indicative of *regional* pressure trends. The below does not represent direct atmospheric pressure conditions on the site.

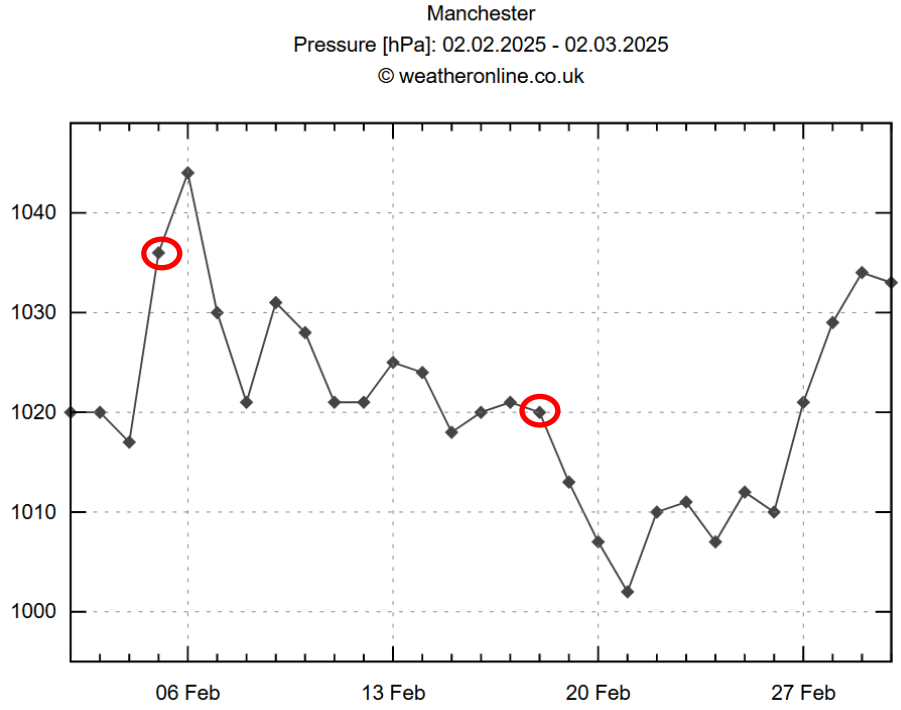
Visit 1 – 17.12.24



Visits 2, 3 & 4 – 07.01.25, 15.01.25 and 24.01.25



Visits 5 & 6 – 05.02.25 and 18.02.25



BS8576:2013 states that gas monitoring does not necessarily need to be carried out under worst case conditions. It does not necessarily need to be at low or falling atmospheric pressure, but rather should be continued until it is unlikely that additional data will change the interpretation of the data, the outcome of the risk assessment and proposed remedial actions. One of the main considerations is to assess whether gas flow rates or concentrations could possibly increase and thereby affect the risk assessment and hence the choice of protective measures. On the basis of the above results and conceptual site model understanding of the site, Tier Environmental does not consider that additional data is necessary.

Consideration of Groundwater Effects

An assessment has been made to determine whether groundwater levels beneath the site lie at a shallow depth at, or above, the plain section of the monitoring well or within cohesive strata. In those instances where shallow groundwater is located within the plain section of the monitoring well pipe or within cohesive strata this can result in 'groundwater pumping' or a 'piston effect' where the measured peak (and in some cases steady) flow rates reported at these monitoring well locations are significantly (and artificially) influenced by the pressures formed in the void above the groundwater in the plain section of the pipe or within the pipework installed within cohesive strata, as opposed to being truly representative of the ground gas flow rates. In such instances, this scenario can create 'artificial' negative and /or relatively high peak positive readings depending on whether the groundwater levels have increased or decreased in between monitoring events or since installation of the monitoring wells.

The results of gas monitoring have indicated the following instances where groundwater pumping is likely to have influenced the measured ground gas flow rates such that they may be reasonably discounted from the Gas Screening Value (GSV) calculation:

- Groundwater levels at RH101, RH102, RH103C and WS109 have all been reported at depths within the pain section of the monitoring well pipe. Therefore elevated peak flow rates can be reasonably discounted from these locations (particularly, the maximum peak flow rate of 24.0 l/hr that was reported at RH103C and a peak flow rate of 4.3 l/hr reported at WS109 during the first ground gas monitoring visit);

In addition to the above, consideration has been made as to whether waterlogged ground or frozen ground conditions may have led to gas becoming trapped and then emitted into the monitoring wells causing a rapid gas release. There is no evidence of this from the monitoring works to date with respect to carbon dioxide or methane.

The results of the ground gas monitoring have been assessed in accordance with the criteria specified for this site, which were derived as described in Appendix L.

Ground Gas Risk Assessment

Methodology

In accordance with Section 6.3.1 in BS 8485:2015 +A1:2019, the development of the GSV for the site or the zone follows a process in which:

1. borehole hazardous gas flow rates are calculated for each borehole standpipe for each monitoring event and included in a database;
2. the reliability of the measured gas flow rates and concentrations is assessed taking into account borehole construction, etc;
3. decisions are made as to whether to use peak gas flow rates or steady-state rates in each calculation;
4. decisions are made about how to deal with any temporal or spatial shortages in the data;
5. a decision is made about whether the site might be zoned or not; and
6. judgements are made about what GSV to use for design purposes taking all relevant information into account.

Subsequently to the above, the calculated borehole hazardous gas flow rates are considered to determine a Gas Screening Value (GSV) either for the site as a whole, or for site zones, if applicable.

Additionally, CIRIA C665 indicates that in the event that the reported methane concentrations are 'typically' >1% v/v and/or the reported carbon dioxide concentrations are 'typically' >5% then *consideration* should be made to increase the determination of the site to a Characteristic Situation 2 – Low Risk scenario.

Consideration of Peak Gas Flow Rates

In accordance with BS 8485:2015 +A1:2019 it may be appropriate to robustly discount *"peak instantaneous flows and negative flows that have been judged to be unrepresentative of a possible worst case".* In addition, it is stated that *"peak flow measurements might result in a disproportionately high gas hazard prediction, and assignment of an over-precautionary CS".*

Tier Environmental has conducted a review of the peak flow rates reported at the site. A maximum peak gas flow rate of 24 l/hr was reported at RH103C on the first gas monitoring visit. This, alongside other peak instantaneous peak flow rates attributable to groundwater pumping have been discounted for the purposes of borehole hazardous gas flow rate assessment.

Consideration of Peak Ground Gas Concentrations

An assessment has been made as to whether peak flow rates or steady flow rates should be applied for the purposes of calculating the borehole hazardous gas flow rates.

Overall, based on the conceptual site model understanding of the site and with due consideration of the flow rates and reported TOC concentrations, it is not considered that there is evidence of significant gas generation from the Made Ground.

Similarly, for superficial deposits peak concentrations and flow rates are not representative of sustained gas flow that would cause elevated emissions from the ground. Finally, no significantly elevated flows, carbon dioxide or methane has been reported from the wells targeting coal seams within the Coal Measures.

On this basis, it is considered appropriate to discount peak gas concentrations from the borehole hazardous gas flow rate calculations.

Borehole Hazardous Gas Flow Rates

Calculated borehole hazardous gas flow rates have been determined and are presented in Appendix F. In light of the above conclusions regarding whether peak or steady flow rates and peak or steady gas concentrations should be included within the borehole hazardous gas flow rate calculations, it shows that across the whole site in all deposit types the Borehole Hazardous Gas Flow Rates are below the limit for Characteristic Situation CS1.

'Worst-Case' GSV Check Calculation – Carbon Dioxide and Methane

In accordance with BS8485, Tier Environmental has conducted a 'worst-case' check by calculating the Gas Screening Value (GSV) for the site:

> *"Irrespective of the apparent comprehensiveness of the dataset, the plausible worst case condition should be calculated for each hazardous gas by multiplying the maximum recorded flow in any standpipe in that strata (and zone) with the maximum gas concentration in any other standpipe in that strata (and zone), but discounting any peak instantaneous flows and negative flows that have been judged to be unrepresentative of a possible worst case."*

Therefore, the following process has been followed:

- the maximum reported methane or carbon dioxide concentration (whichever is highest) from any monitoring well and during any ground gas monitoring visit; and,

- the remaining maximum peak positive flow rate (after any negative flow rates or 'artificially' high flow rates have been discounted as described above) from any monitoring well and during any ground gas monitoring visit.

Table 10.2 Worst-Case GSV Check Calculation

Ground Gas	Maximum Reported Peak Concentration (% v/v)	Selected Concentration used in GSV Calculation (% v/v)		Maximum Appropriately Selected Gas Flow Rate (l/hr)		'Worst case' GSV (l/hr)
Methane (CH_4)	0.7	4.2	X	0.4	=	0.0168
Carbon dioxide (CO_2)	4.2					

CIRIA C665 provides two separate methods to 'characterise' a site that firstly requires the assessor to distinguish between two fundamental development 'situations':

- **Situation A** - Any development other than Situation B (e.g. factories, shops, commercial, warehouses, schools, cinemas, sports centres, stadiums, high rise housing, housing with basements, etc) for which the **Modified Wilson and Card 'Characteristic Situation' classification system** is applied; and,
- **Situation B** - Low rise building with minimum ventilated under floor void (min 150mm) for which the **NHBC Traffic light classification system** is applied.

In this instance, as the site is due to be developed as new proposed college building in the north, a water tank and small ancillary building in the centre, and a substation in the northwest of the site., it shall be regarded as a Situation A scenario for the purposes of the ground gas risk assessment.

Table 10.2 demonstrates that the site is placed in a Characteristic Situation 1 – Very Low Risk scenario on the basis of the 'worst case' GSV alone calculated for the data set obtained from 6 No. of the proposed total of 6 No. gas monitoring visits.

CIRIA C665 indicates that in the event that the reported methane concentrations are *'typically'* >1% v/v and/or the reported carbon dioxide concentrations are *'typically'* >5% then consideration should be made to increase the determination of the site to a Characteristic Situation 2 – Low Risk scenario.

In this instance, as no maximum peak or steady methane or carbon dioxide concentrations have been reported in excess of 1% v/v or 5% v/v respectively, the site can be reasonably classified as a Characteristic Situation 1 – Very Low Risk scenario for which no basic ground gas protection measures are required.

Carbon Monoxide and Hydrogen Sulphide

There is no current UK risk assessment guidance available for carbon monoxide and hydrogen sulphide derived from ground gases.

No measured steady concentrations of hydrogen sulphide have been reported in excess of the instrument's detection limit. As such, there is no evidence to suggest that the site presents a potential risk to future land users from hydrogen sulphide.

A maximum steady carbon monoxide concentration of 12 ppm has been reported which is below the workplace long term exposure limit (30ppm) and the workplace short term exposure limit (200ppm) published by the Health and Safety Executive (EH40/2005 Workplace Exposure Limits) but above the WHO long term (24 hours) indoor exposure guideline value (5.68 ppm). Nevertheless, it is not considered that the measured concentrations are sufficient to warrant any variation in the ground gas recommendations for the site.

Coal Mine Gas Risk Assessment Considerations

Tier Environmental has encountered potential evidence of shallow coal mine workings and recommendations are to be made with respect to remedial grouting works, prior to construction of the new building development. Tier Environmental has therefore further considered coal mine gas risks in line with the CL:AIRE Good Practice for Risk Assessment for Coal Mine Gas Emissions (dated October 2021).

It is evident from the coal mine risk assessment works conducted to date (including desk-based research) that any shallow workings beneath the site are dated from prior to 1808. The CL:AIRE Guidance states that Abandoned mine methane (AMM) emissions are characterised by a high rate of release immediately following closure, then falling to much lower rates of emission over a period of 8 to 10 years. In one study, emissions completely stopped after 15 to 20 years although the majority of methane currently vented by the Coal Authority surpasses this timescale (Duda and Krzemien, 2018). As such, it is considered that the gas generation potential from the extremely old workings beneath the site is therefore very low in line with terminology used in BS 8576:2013 and The Local Authority Guide to Ground Gas, CIEH (2008), if it can be proven that they are permanently flooded.

Other extracts from the CL:AIRE Guidance further suggest lower risk concern associated with flooded coal mine workings:

- From Page 15: “Abandoned mines can continue to release methane until the workings are completely flooded…..”;
- From Page 16: “Static flooded workings will limit the supply of oxygen and subsequent transport of gas”;
- From Page 18: “Once a mine becomes flooded desorption of methane reduces significantly and when the water pressure is greater than the desorption pressure it stops completely. A study of abandoned mine sites in the USA has observed that if a mine floods after closure, methane emissions are negligible while if no flooding occurs, emissions are likely to occur (Kirchgessner et al., 2000);
- From Page 25: “If workings are above the natural groundwater levels then rising groundwater is not likely to push gas out of them. However, the interconnection with deeper workings that could become flooded should be considered and is known to have caused issues on some sites.”, and “Partially flooded workings where the groundwater level can vary above and below some workings present a high risk situation in relation to mine gas.”
- From Page 28: “There will be a requirement to undertake more detailed assessment where there are credible potential sources of mine gas emissions (**unflooded working less than 150m** or there is <50m to a mine entry).
- From Page 42: “Once a mine becomes completely flooded, the risk of gas emissions reduces significantly”.

Consideration has been given to the distance from the nearest off-site recorded mine shaft (which may act as a preferential pathway for mine gas if located in close proximity to the building footprint). It should be noted that there are no mine shafts located within 50m of the site (the closest is Circa 300m from the site).

Tier Environmental has prepared the table below to assess the reported groundwater levels at the site relative to potential evidence of mine workings beneath the Site.

The table below demonstrates that the groundwater levels monitored in wells to date by Tier Environmental are consistently more elevated than the worst-case shallowest probable mine workings identified beneath the site. Seasonal variations in shallow groundwater are captured by the late summer water monitoring conducted by Geotechnics which reported groundwater levels ranging between 118.23m AOD and 115.51m AOD again demonstrating that the shallow mine workings are evidently permanently flooded.

Further consideration has been made with regards to coal mine gas risk in line with Figure 13.1 from the Good Practice for Risk Assessment for Coal Mine Gas Emissions (CL:AIRE, 2021)

- Workings are shallow but permanently flooded;
- Mine entries are >50m from the site boundary according to the Coal Authority information for the shaft;
- Additional lines of evidence include
    - The significant age of the mine workings (pre 1808);
    - No reports of any historical ground related issues in nearby adjacent college building structures developed pre-1977 (at which time gas protection measures were not a standard practice in UK building practices);
    - The absence of any significant ground gases or flow rates monitored at the site and determination of the site based on available data as a Characteristic Situation 1 – Very Low Risk scenario.
- The ternary plot produced for the steady gas concentrations (see below) does not indicate the presence of thermogenic methane (mine gas) in any wells monitored (either in saturated or unsaturated zone)
- The shallow flooded mine workings are to be grouted as part of the development works thereby significantly reducing ground gas risks even further by sealing potential migration pathways, reducing void space, and mitigating the risk of any gas displacement.

On this basis, it is considered that the site is likely to be regarded as being a Low Risk Zone in accordance with the guidance for which mitigation is not required.

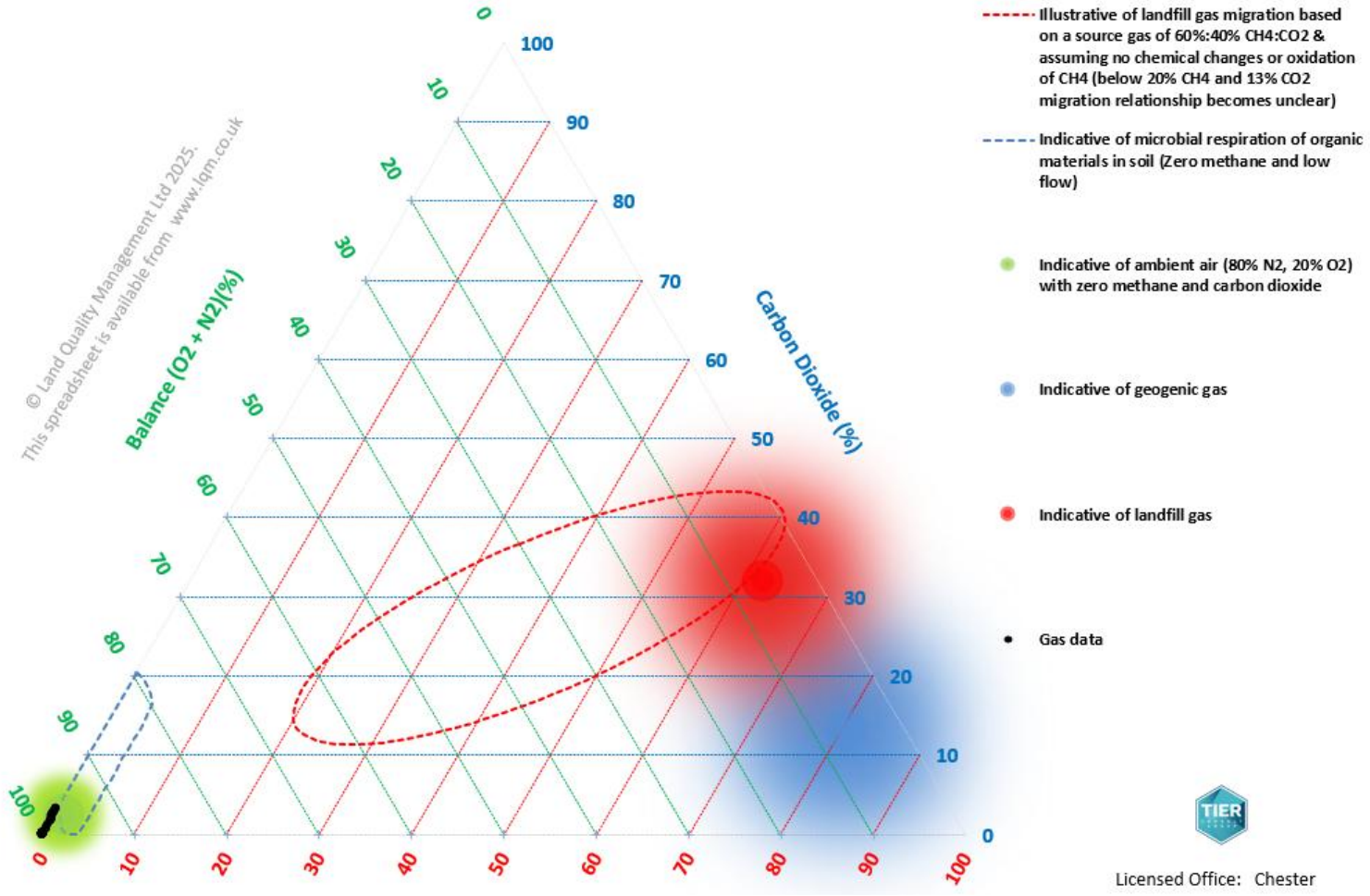
It should be noted that the above may be re-evaluated in the event that any unrecorded mine shafts are encountered during development works.

Table 10.3 Groundwater Depth Summary (after and Anticipated Depth to Possible Mine Workings

Monitoring Well Reference	Well Elevation	Minimum Groundwater Level (mbgl)	Maximum Groundwater Level (mbgl)	Minimum Groundwater Level (mAOD)	Maximum Groundwater Level (mAOD)	Elevations of Probable Workings
RH101	119.52	ND	0.32	119.20	119.52	Shallowest elevation reported of probable mine workings would be: RH101 – 113m to 111m AOD; RH102 – 110m AOD RH103 (RH103, RH103A, RH103B and RH103C) – 113m to 112m AOD The deepest measured groundwater reported beneath the building footprint is 115.74m AOD which means that the shallowest recorded probable mine workings are a full 2.74m below the saturated zone beneath the building footprint. Third party monitoring data from summer months demonstrates that seasonal fluctuations do not significantly affect the groundwater levels and the workings remain permanently flooded.
RH102	119.64	1.89	2.10	117.54	117.75	
RH103C	119.53	ND	0.85	118.68	119.53	
CP101	119.53	3.01	3.11	116.42	116.52	
CP102	119.51	3.43	3.77	115.74	116.08	
CP103	119.43	3.77	4.14	115.29	115.66	
CP105	119.50	1.28	2.19	117.31	118.22	
WS104	119.69	ND	ND	ND	ND	
WS107	119.51	ND	ND	ND	ND	
WS108	119.61	0.58	0.67	118.94	119.03	
WS109	119.56	0.10	0.35	119.21	119.46	
WS112	118.86	3.44	3.76	115.10	115.42	
WS116	119.14	ND	ND	ND	ND	
WS111	119.74	0.64	0.71	119.03	119.10	

N.D. Green highlighted locations are beneath (or in close proximity to) the proposed building footprint.

Figure 10.1 Ternary Plots for Ground Gases



Consideration of Foundation Types and Floor Slab Design

BS 8485 states that deeper foundations can influence or change ground gas pathways and gas generation rates. This might be due to the creation or alteration of flow paths for existing ground gases or be the result of the introduction of oxygen at depth (e.g. in peaty soils) promoting the generation of ground gas. The guidance states that the foundations adopted for a building can influence the generation of gas and/or the pathways through which the gas might move and thus impact on the gas protection measures required. This could be a result of changing the permeability of the underlying strata, possible changes to the groundwater regime and the creation of preferential pathways due to the proposed foundation solution.

The guidance also states that assumptions made during initial gas risk assessments, including gas flow rates, are re-evaluated during the design of the foundations for the building.

Tier Environmental has considered the proposed foundation types within the ground gas risk assessment, which are proposed at this stage to comprise Continuous Flight Auger (CFA) piles socketed into the solid bedrock. CFA piles are cast in place with a continuous concrete column, which effectively seals the borehole, thereby minimizing vertical and lateral gas migration pathways. Therefore the proposed CFA piles represent a preferred piling solution, particularly when compared with alternatives such as Vibro Stone Columns which, due to their permeable nature, allows gases to migrate vertically and laterally.

Tier Environmental considers that it would be possible, via multiple lines of evidence provided above, and consideration of the CSM, to determine that the site be regarded as a Characteristic Situation 1 – Very Low risk scenario, for which no ground gas protection measures would be required and the proposed foundation design will not alter the gas regime in such a way that increased gas generation or preferential pathways will be formed in such a way that it affects the 'baseline' assumption that diffusive flow is the principle gas migration mechanism beneath the site.

With regards to the inherent design of the floor slab, it is assumed that the slab may be formed from a suspended cast in situ floor slab which would, in isolation achieve a point score as a structural barrier (point score of 1.0, or possibly 1.5 points if well reinforced to control cracking with minimal penetrations) in accordance with Table 5 in BS 8485 thereby providing additional confidence in the conclusions. In the event that a ground bearing floor slab be implemented, then again it is considered that such a structure may also attract 0.5 or 1.0 points in accordance with BS 8485 and again provide confidence in the conclusions.

Considerations for Construction and Maintenance Workers

During engineering and construction activities, the ground gas data indicate that the following aspects are to be considered during the preparation of relevant site H&S plans, method statements and related documents, and appropriate working methods adopted:

Carbon dioxide concentrations in ground gas: The measured CO2 concentrations in ground gas reported are slightly elevated relative to background levels and could present an asphyxiation risk in excavations and other confined spaces. The Health & Safety Executive has published information defining safe occupational exposure levels for CO2 and the latest guidance must be consulted to determine whether the ground gas regime necessitates specific precautions during site works.

Methane concentrations in ground gas: The measured methane concentrations in ground gas reported are slightly elevated relative to background levels and could give rise to explosive mixtures in confined spaces. Safe working methods should be adopted to mitigate this risk.

Radon Gas

The site lies within an area where less than 1% of properties above the Action Level. As stated within BR 211, basements represent areas that are more at risk because the walls are in contact with the ground as well as the floor. This, coupled with reduced natural ventilation below ground level, increases the risk of elevated radon levels. All basements are therefore considered under BR 211 to be at increased risk of elevated levels of radon regardless of geographic location. Currently, it is understood that no basements are proposed for the development and therefore no additional consideration of potential increased risk needs to be made; however, this should be revisited in the event that the proposals change to include for a basement.

Radon protection measures are not required.

11.REVISED CONCEPTUAL SITE MODEL AND GENERIC QUANTITATIVE RISK ASSESSMENT OF POLLUTANT LINKAGES

The preliminary combined conceptual site model and conceptual exposure model, developed from the desk study information and presented in Section 3, has been revised in light of the ground investigation and the chemical analysis results presented above in Table 11.1, below.

The revised conceptual site model is presented in schematic form in Appendix A, Drawing No. TE1880-TE-00-XX-DR-GE-015-V01.

A revised qualitative risk assessment has also been made of the likelihood of the linkage operating and its potential significance in accordance with CIRIA C552.

Table 11.1 Revised Assessment of Potential Pollutant Linkages (Continued on Next Page).

Justification / Comments
• An asphalt surfacing over concrete (possible former floor slab) was recorded across the main car park area, underlain by further Made Ground generally comprising silt (suspected PFA former ground improvement layer) and further generally granular Made Ground. Made Ground was encountered to depths of between 3.40m and 6.50m bgl (and recorded to 6.80m bgl within the previous third party report). This was recorded to be underlain by a thin band of Alluvium in the north and Glaciofluvial Deposits in the southeast, over mudstone with interbedded sandstone and siltstone of the Pennine Lower Coal Measures. • Groundwater strikes were recorded at depths of between 0.86m and 4.35m were encountered in the exploratory locations, with possible sub artesian groundwater conditions noted during the intrusive investigation and groundwater monitoring undertaken to date. Perched groundwater within the Made Ground and a deeper groundwater body have been identified. • Benzo(a)pyrene has been recorded to be elevated above POS park GAC but not commercial GAC within the proposed soft landscaping area in the northeast of the site. It is not considered that there is any risk to end-users in the proposed car parking / hardstanding / building areas or peripheral proposed soft landscaping associated with commercial land use. However, it is recommended that post-demolition, further soil sampling is conducted in the vicinity of the proposed contoured landscaped area in the east. It is also understood that no soft landscaping will be used for horticultural or vegetable growing purposes; however, should this change then the risk assessment will need to be updated accordingly. • Asbestos was recorded widespread across the site, at concentrations of up to 0.03% w/w. This includes chrysotile and amosite fibre bundles and ACM debris. No visible ACMs were observed during the ground investigation. Further detailed risk assessment is required in accordance with CIRIA C733 to further define the potential risk associated with these reported concentrations. • Measured soil leachate and groundwater concentrations are unlikely to present a potential risk to the controlled waters environment. No free phase product was encountered. • The results of the ground gas monitoring undertaken to date conclude that the site lies within Characteristic Situation 1 – Very Low Risk alongside multiple lines of evidence considered with respect to coal mine gas risk which have identified a low risk from coal mine gases.

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
Localised concentrations of benzo(a)pyrene within the northeast of the site which exceeds Public Open Space (Park) land use (NOT commercial land use) GAC.	benzo(a)pyrene	Direct contact, dust inhalation and ingestion	Future site users (educational)	Medium	Low Likelihood	Moderate / Low Risk
			Adjacent site users (residential and commercial)	Medium	Unlikely	Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	Unlikely	Low Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (residential and commercial)	Medium	Unlikely	Low Risk
Widespread asbestos within the Made Ground, up to 0.03% w/w	Asbestos	(Dust migration and) dust inhalation	Future site users (educational)	Medium	Likely	Moderate Risk
			Adjacent site users (residential and commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	Likely	Moderate Risk

For definition of the terms used in the qualitative risk assessment, please see Appendix I.

12.PRELIMINARY WASTE MATERIALS CLASSIFICATION AND WASTE DISPOSAL ROUTE DETERMINATION

12.1. Introduction

If the site is to be redeveloped and materials are disposed off site, the material exported from the site to Landfill should be hauled by a register waste carrier in accordance with Duty of Care Regulations 1991 and the Hazardous Waste Regulations 2005.

There will be requirement for the waste producer to provide appropriate Waste Acceptance Criteria (WAC) testing of the Soils for disposal to ensure that the soils are appropriately classified and that the landfill is licensed to receive such soils. Mixing of hazardous and non-hazardous waste is not permitted. For any hazardous wastes, a consignment note shall be completed, signed, and retained by all parties involved. The consignment note shall state the volume of waste, a physical description of the material and statement of its chemical composition. The waste consignment notes shall be kept by the contractor for a period of at least two years. For non-hazardous wastes, a Waste Transfer Note (WTN) shall be completed. The WTN should be signed and a copies should be kept by the contractor for a period of at least two years. Finally, consignment notes and WTNs shall be shown to an enforcement officer from the local council or the Environment Agency, if asked.

Approach to Assessing Hazard Properties

Flammability and Oxidisability

For any samples flagged as possessing hazardous properties flammability and oxidisability, for which there are no thresholds, Tier Environmental has used professional judgment and on-site observations to decide whether the waste soil, as a whole, is likely to be flammable or oxidising. It should be noted that flammability/oxidisability alone are unlikely to result in a hazardous classification for waste soil.

Worst Case Metal Compounds

The choice of an appropriate worst case metal compound in soil has been made on the basis of the available lines of evidence. For example, if laboratory chemical analysis has demonstrated that no measured concentrations of hexavalent chromium have been reported in excess of the laboratory method detection limit, there it would be regarded as evidence of an absence of a soil source of hexavalent chromium. In such an instance, the worst case metal chromates may be replaced in favour of the next worst case metal compound.

pH

For samples that have been determined as hazardous based on pH alone and cement/concrete has been identified in the sample, Tier Environmental may assume that the high pH was due to the crushing process in the laboratory and is not representative of the waste as a whole. If further detailed determination of this is required then Tier Environmental recommend that such assessment is carried out on these results in a manner described in the AGS Waste Classification for Soils – A Practitioners' Guide (dated 2019):

- Consideration of the acid/alkali reserve to be conducted (as described in WM3 Appendix C4 and C8).
- If large enough, the cement/concrete fraction may be separated manually before testing. Waste concrete from construction and demolition which doesn't contain hazardous substances is non-hazardous (LoW code 17-01-01).
- If cement/concrete has been identified in the sample, a second analysis may be conducted on an 'as received' sample, avoiding the need for crushing before testing. The high pH is typically associated with the finer fractions of cement. If the 'as received' sample has an

acceptable pH, this provides additional confidence that the high pH was due to the crushing process and is not representative of the waste as a whole.

Asbestos

With respect to asbestos, If the waste contains fibres that are free and dispersed then the waste will be hazardous if the waste as a whole contains 0.1% w/w or more asbestos in accordance with WM3. If the waste contains any identifiable pieces of suspected asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then these pieces must be assessed separately. The waste is hazardous if the concentration of asbestos in the piece of asbestos containing material is 0.1% w/w or more. The waste shall then be regarded as a mixed waste and classified accordingly.

The following codes will then be assigned to the asbestos waste as appropriate:

- 17 06 05* Construction material containing asbestos.
- 17 06 01* Insulation material containing asbestos.

17 06 05* would normally be used in preference to 17 06 01* for the asbestos in asbestos contaminated soil and stones in accordance with WM3.

Tier Environmental Geoenvironmental engineers hold up to date UKATA Asbestos Awareness training certificates in order to demonstrate 'competence' that is required as described in WM3.

Flammable Liquid Waste

Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As such, in those instances where materials are classified as hazardous based on this alone and no free phase product is encountered, it is considered that the materials may be regarded as being non-hazardous. Please note that the table below includes a column to show whether free phase product has been encountered within the sample location.

12.2. Preliminary Waste Materials Classification and Waste Disposal Route Determination

Tier Environmental have assessed the chemical results in terms of basic waste characterisation of materials on site. This provides a preliminary assessment of whether a material is potentially non-hazardous or hazardous waste. In addition, Waste Acceptance Criteria (WAC) testing has been carried out on selected samples with a determination made as to the appropriate waste disposal route in each case.

The results of this preliminary assessment are summarised in the following table.

Natural Soils / Bedrock

Representative samples of natural soils have been obtained during the investigation.

The results of basic waste characterisation are summarised in the table below. It is likely that any natural soils (that are not impacted by any known contamination from shallow Made Ground, or unexpected contamination or that are organic rich and therefore likely to a have a TOC >3%) would be suitable for disposal to an inert waste landfill. It is recommended that the landfill is approached to confirm this position prior to off-site disposal.

Table 12.1 Preliminary Materials Waste Classification and Waste Disposal Route Determination

Exploratory Hole Location	Sample Depth (m bgl)	Simplified Description of the Sample	Basic Waste Characterisation Result	If 'Potentially Hazardous': Is it Possible to Demonstrate the Material is Non-Hazardous?	If the material is Hazardous – What is the Driver for Hazardous Waste Classification?	Asbestos Presence, Type and Quantification	WAC Sample Available?	Soil Waste Disposal Route Determination
WS114	0.50m	MADE GROUND: Greyish brown, slightly sandy, clayey GRAVEL with medium cobble content. Sand is fine to medium, gravel is fine to coarse, subangular to angular of brick, sandstone, slate and limestone of slag. Cobbles are angular of brick and concrete	Potentially Hazardous Waste	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	Chrysotile and Amosite fibre bundles and ACM debris - 0.002% w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS108	0.70m	MADE GROUND: Dark greyish black, slightly clayey, sandy GRAVEL of fine to coarse, angular to subangular of mixed lithologies including brick, sandstone, rare plastic and metal	Non-hazardous	N/A	N/A	Chrysotile and Amosite fibre bundles and ACM debris - 0.017% w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS109	0.40-0.60m	MADE GROUND: Very stiff, light grey, slightly gravelly SILT. Gravel is fine to medium, angular of brick. (possible PFA)	Non-hazardous	N/A	N/A	Not analysed.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS111	0.80m	MADE GROUND: Very stiff, light grey, slightly sandy, slightly gravelly SILT. Gravel is medium to coarse, angular to subangular of brick. Refusal of core barrel at 0.80m bgl. (possible PFA) MADE GROUND	Potentially Hazardous Waste	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	No asbestos detected.	Yes	Materials should be disposed to a non-hazardous waste facility due to elevated selenium and arsenic in excess of the inert waste landfill WAC threshold.
WS116	1.90m	MADE GROUND: Firm, dark grey, gravelly CLAY/SILT. Gravel is fine to coarse, angular to subangular of brick. (possible PFA)	Potentially Hazardous Waste	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	Chrysotile fibre bundles <0.001 w/w	Yes	Materials should be disposed to a non-hazardous waste facility due to elevated TOC and sulphate as SO4 in excess of the inert waste landfill WAC threshold.
WS116	3.40m	Loose, brownish grey silty SAND. Wet material between 3.30m and 3.50m bgl.	Non-hazardous	N/A	N/A	No asbestos detected.	No	Natural soils =, likely to be suitable for disposal to an inert waste landfill.
WS103A-	0.40m	MADE GROUND: Greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional concrete, timber and rare glass.	Potentially Hazardous	Yes. Driven by 'HP 3(iv): Flammable "flammable gaseous waste"' (hazard statement: Flam. Gas. 1; H220 "Extremely flammable gas."). However, Tier Environmental consider that such a hazard property does not apply to soils and as no flammable properties were observed during the ground investigation (i.e. during sampling) it is considered that the materials above may be regarded as being non-hazardous.	N/A	Chrysotile and amosite fibre bundles <0.001 w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS105	0.60m	MADE GROUND: Reddish brown, sandy GRAVEL of fine to coarse, angular to subangular crushed brick and rare concrete.	Hazardous	N/A	TPH (C6 to C40) petroleum group (conc.: 0.137%), toluene (conc.: 2.32e-06%), xylene (conc.: 6.02e-07%) &chlorobenzene (conc.: 4.3e-07%)	Chrysotile fibre bundles and bitumen products 0.019% w/w	Yes	Materials are suitable for being disposed of as hazardous waste to a Stable Non-Reactive Hazardous Waste facility.
WS105	0.75m	MADE GROUND: Dense, very compacted, light grey, sandy SILT with occasional fine brick fragments. (possible PFA)	Non Hazardous	N/A	N/A	No asbestos detected.	Yes	Materials should be disposed to a non-hazardous waste facility due to elevated TOC and arsenic in excess of the inert waste landfill WAC threshold.
WS107	0.40m	MADE GROUND: Reddish brown, fine to coarse, angular GRAVEL of crushed brick.	Non Hazardous	N/A	N/A	No asbestos detected.	No	Non-hazardous waste landfill, based on WAC results from other samples.

Exploratory Hole Location	Sample Depth (m bgl)	Simplified Description of the Sample	Basic Waste Characterisation Result	If 'Potentially Hazardous': Is it Possible to Demonstrate the Material is Non-Hazardous?	If the material is Hazardous – What is the Driver for Hazardous Waste Classification?	Asbestos Presence, Type and Quantification	WAC Sample Available?	Soil Waste Disposal Route Determination
WS107	0.65m	MADE GROUND: Light grey, friable SILT/SAND (possible PFA)	Non Hazardous	N/A	N/A	Not analysed.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS110	0.61m	Greyish brown, sandy, fine to coarse, angular to subangular GRAVEL of brick, limestone and sandstone.	Potentially Hazardous	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	Not analysed.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS112	1.20m	MADE GROUND: Medium dense, light grey, friable, silty, slightly gravelly SAND. Gravel is fine to medium, angular of brick. Cobble of brick at 1.50m to 1.60m bgl and 1.90 to 1.92m bgl. (possible PFA)	Potentially Hazardous	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	No asbestos detected.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS112	3.35m	POSSIBLE MADE GROUND: Very loose, grey, mottled dark grey, clayey, silty SAND	Non Hazardous	N/A	N/A	Not analysed.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS113B	0.35m	MADE GROUND: Dark brown, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick, concrete, sandstone. Occasional cobbles of brick and sandstone. Cobble content increasing from 0.50m bgl.	Potentially Hazardous	Yes. Driven by 'HP 3(i): Flammable "flammable liquid waste"' (hazard statement: Flam. Liq. 3; H226 "Flammable liquid and vapour."). However, Tier Environmental consider that such a hazard property would apply if free phase product has been reported in the sample. As no free phase product was encountered, it is considered that the materials above may be regarded as being non-hazardous.	N/A	Chrysotile and amosite fibre bundles <0.001 w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS115	0.10m	TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional rootlets. Cobbles of sandstone and brick.	Non Hazardous	N/A	N/A	No asbestos detected.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS115B	0.90m	MADE GROUND: Grey, stiff, gravelly SILT. Gravel is fine to medium, angular to subangular of brick, occasional concrete. Gravel content increasing around 1.05m bgl. (possible PFA)	Non Hazardous	N/A	N/A	Chrysotile and amosite fibre bundles 0.002 w/w	Yes	Materials should be disposed to a non-hazardous waste facility due to elevated TOC in excess of the inert waste landfill WAC threshold. Fluoride has also been reported at the inert waste landfill threshold.
WS117	1.10m	MADE GROUND: Firm, light grey, sandy SILT. (possible PFA)	Non Hazardous	N/A	N/A	Not analysed.	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS117	0.40m	MADE GROUND: Dark brown, slightly clayey, sandy GRAVEL of fine to coarse, angular to subangular of brick, concrete, sandstone, limestone and occasional clinker.	Hazardous	N/A	TPH (C6 to C40) petroleum group (conc.: 0.16%)	No asbestos detected.	No	Maybe suitable for disposal to a stable non-reactive hazardous waste facility based on site-wide WAC results.
WS117	2.40m	MADE GROUND: Dense, dark grey, slightly clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, occasional concrete, limestone and sandstone. MADE GROUND	Non Hazardous	N/A	N/A	Chrysotile and amosite fibre bundles <0.001 w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS117-	2.20m	Red crushed BRICK	Non Hazardous	N/A	N/A	Amosite fibre bundles <0.001 w/w	No	Non-hazardous waste landfill, based on WAC results from other samples.
WS118	0.20m	TOPSOIL: Grass over, dark brown, slightly silty, sandy LOAM with occasional rootlets	Non Hazardous	N/A	N/A	No asbestos detected.	No	Non-hazardous waste landfill, based on WAC results from other samples.

Table 12.2 Preliminary Asphalt Materials Waste Classification

Exploratory Hole Location	Sample Depth (m bgl)	Is the sample Representative of 'Black Top' (Road Surface) Waste?	Coal Tar Concentration (%)	Concentration of Benzo(a)pyrene	Benzo(a)pyrene Units (µg/kg or mg/kg)	Does the Reported Concentration of Benzo(a)pyrene exceed 50ppm (50mg/kg)	If Coal Tar Concentration Greater Than, or Equal To, 0.1%: Is Concentration of Benzo(a)pyrene less than 0.005% of the Concentration of the Coal Tar?	Asphalt Waste Classification
RH101	0.05	Yes	0.3	<10	µg/kg	No	Yes	Despite the coal tar concentration being at or greater than 0.1%, as BaP is <0.005% of the coal tar concentrations, the asphalt would be classed as NON-HAZARDOUS WASTE in accordance with WM3. The non-hazardous EWC code 17 03 02 (bituminous mixtures other than those mentioned in 17 03 01), therefore applies.
WS105	0.05	Yes	0.2	497	µg/kg	No	No	As the coal tar concentration is at or exceeds 0.1% and the concentration of BaP is >0.005% of the coal tar concentration, the asphalt would be classed as HAZARDOUS WASTE in accordance with WM3. The hazardous EWC code 17 03 01* bituminous mixtures containing coal tar, therefore applies.
WS112	0.05	Yes	0.3	533	µg/kg	No	No	As the coal tar concentration is at or exceeds 0.1% and the concentration of BaP is >0.005% of the coal tar concentration, the asphalt would be classed as HAZARDOUS WASTE in accordance with WM3. The hazardous EWC code 17 03 01* bituminous mixtures containing coal tar, therefore applies.
WS116	0.05	Yes	0.3	309	µg/kg	No	No	As the coal tar concentration is at or exceeds 0.1% and the concentration of BaP is >0.005% of the coal tar concentration, the asphalt would be classed as HAZARDOUS WASTE in accordance with WM3. The hazardous EWC code 17 03 01* bituminous mixtures containing coal tar, therefore applies.
RH103	0.05	Yes	0.2	48	µg/kg	No	Yes	Despite the coal tar concentration being at or greater than 0.1%, as BaP is <0.005% of the coal tar concentrations, the asphalt would be classed as NON-HAZARDOUS WASTE in accordance with WM3. The non-hazardous EWC code 17 03 02 (bituminous mixtures other than those mentioned in 17 03 01), therefore applies.

12.3. Materials Re-Use

Subject to volumetric fill requirements and a future assessment of suitability of re-use (both chemically and geotechnically), some materials may be considered for potential re-use in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP). Please note that any previously landfilled or mining waste materials may not be appropriately subject to consideration under DoWCoP and may not be re-used under DoWCoP unless sufficient lines of evidence and agreement with the local Environment Agency Waste Team can be sought beforehand.

Re-Use of Excavated and Stockpiled Clean Naturally Occurring Soils on Other Sites

In addition, Tier Environmental are aware that CL:AIRE is classing stockpiled clean, naturally occurring soils as waste, unless their final destination is identified in a Materials Management Plan, before they are excavated. However, Tier Environmental consider that any clean naturally occurring soils arising from enabling works, earthworks or construction activities would be regarded as an asset and the default assumption for this site (prior to excavation and stockpiling) is not the intention to discard these materials where they may be reasonably re-used on this, or another, development site. Stockpiling is a recognised, recommended means of safely storing soils. Whilst there may be advantages to leaving soils in-situ, stripping topsoil and subsoil prior to earthworks is a routine construction activity. Tier Environmental consider that it is not unreasonable to state that in the event that the developer owns another site where the construction phase is ongoing, soils can be transferred between their sites as an owned product and never become waste.

The above paragraph above is therefore considered a clear intention to reuse any clean, naturally occurring soils derived from excavations at this site (which may also include temporary stockpiling these materials). It is considered; however, that in addition to this the following must be adhered to:

- Reuse does need to occur within a ‘reasonable’ timeframe (12 No. months); and,
- If soils are transferred to a third party (another developer), there needs to be some contractual agreement in place, as in this situation it is important to have something in place confirming that surplus soils are required by the third party.

Re-Use of Excavated and Stockpiled Clean Naturally Occurring Soils Within The Site They Are Excavated From

Further to the above, where soils are naturally occurring, uncontaminated and re-used on the site they are excavated from, they fall outside of the Waste Framework Directive (WFD) i.e. they will not be classified as a waste Currently the CL:AIRE Definition of Waste Code of Practice states the following which appears to support this position: *“If the material is waste an Environmental Permit will be required to lawfully deposit or re-use it unless the material is “uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated”, which is excluded from waste regulation by the Waste Framework Directive (2008).”*

13.CONCLUSIONS AND RECOMMENDATIONS

13.1. Conclusions

- Some areas of the site were not accessible due to pre-existing site activities, buildings or safe access. Nevertheless, it is considered that the ground investigation works have provided good coverage of the site so as to characterise the ground conditions in key areas which are due to be redeveloped.
- Hardstanding comprising asphalt was encountered in the car park, access road, and footpaths across the site to depths between 0.05m and 0.35m bgl. A concrete slab was encountered across the footprint of the former building which occupied the present-day car park, comprising thicknesses between 0.21m and 0.47m. Made Ground has been reported to a maximum depth of 6.50m bgl and was found to be thickest towards the southwest and central west of the site within the former infilled watercourse. Made Ground was found to comprise both granular and cohesive deposits, with a layer of suspected Pulverised Fuel Ash (PFA) identified across the site, thickest beneath the former building footprint within the present-day car park area. Other anthropogenic materials encountered within the Made Ground include brick, concrete, sandstone, limestone, clinker/slag, plastic, metal, glass, timber, and occasional rebar.
- The Made Ground was found to be underlain by superficial deposits in some instances, comprising Alluvium (clay) and Glaciofluvial Deposits (silty sand). The Made Ground and superficial deposits were found to be underlain at depths between 3.30m and 6.50m bgl by bedrock of the Pennine Lower Coal Measures, found to comprise mudstone with interbedded sandstone and siltstoneCoal
- Coal was reported at depths between 6m and 40m bgl within rotary boreholes, with evidence of probable workings within the Arley Mine seam.
- Shallow groundwater has been monitored across the site at depths between 0.10m and 3.97m bgl and a separate deeper confined, locally artesian, groundwater body has been reported within the deep sandstone bands at RH101 and RH103C (sandstone bands present from depths of 28.50m bgl and 32.00m bgl). The head of water reported during one groundwater monitoring visit at RH103C was reported as 0.04m.
- It is understood that a CFA piled solution will be implemented at the site with preliminary consideration of socketing Circa 5m into the bedrock; however, the final design of the piles will be subject to a specialist piling contractor and due consideration will need to be made with respect to the probable shallow coal mining workings encountered.
    - To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design. Ground bearing floor slabs may be suitable subject to a turnover, proof rolling and confirmatory testing of the Made Ground.
- CBR values derived from DCPs have been presented for preliminary purposes only and should not be relied on for final design purposes. The results indicate a range of values reported between 0.52% to >25%. Of the 49 results, 41 No. CBR values were reported >5%, 1 No. was reported between 2.5 and 5% and 7 No. were reported <2.5%.
- It is considered that a Design Sulphate Class of DS-2 and ACEC Class AC-2 is appropriate for buried concrete at the site.
- Justification has been provided for screening measured soil concentrations of potential contaminants of concern against commercial / industrial GACs. No measured concentrations of potential contaminants of concern have been reported in excess of these GACs. Sensitivity analysis via comparison against POS Park GACs has reported a single measured concentration of benzo(a)pyrene in Made Ground in the northeast of the site. Overall, it is not considered that the site presents a risk from potential chemical contaminants of concern for the proposed areas of hardstanding, buildings or peripheral soft landscaping; however, it is recommended that additional, post-demolition, soil sampling and risk assessment is conducted in the vicinity of the proposed contoured landscaped area in the east of the site.
- Asbestos has been reported in the Made Ground across the site (in 56% of those samples analysed) at concentrations between <0.001% and 0.03% w/w (amosite and chrysotile - fibre bundles, ACM debris and locally, bitumen products). Further detailed risk assessment is recommended for asbestos at the site in accordance with CIRIA C733.

- Results from controlled waters risk assessment has demonstrated that measured groundwater concentrations of cadmium, copper, nickel, zinc, fluoranthene, and ammonia reported in excess of relevant Water Quality Standards and localised measured concentrations of glycols do not present a significant risk to the controlled waters environment when factors including the hydraulic upgradient and downgradient concentrations, aquifer sensitivity, wider commercial and industrial use of the surrounding land and surface water sample results are taken into account.
- Due consideration of the conceptual site model (including ground gas generation potential of possible sources) has been considered alongside the results from ground gas monitoring works conducted. Based on the information obtained, it is considered that the site may be regarded as a Characteristic Situation 1 – Very Low Risk scenario for which no basic ground gas protection measures are required.
    - In addition, separate consideration has been made for potential coal mine gas risk. Multiple lines of evidence have demonstrated a low risk for which no protection measures are required.
- Less than 1% of properties are recorded to be above the Action Level for Radon, therefore no radon protection measures are required.
- The results of soakaway testing (failed test) and prevalence of deep Made Ground across the site indicates that soakaways are not suitable for the site.
- Tier Environmental considers that further discussions are held with the structural engineers regarding the interaction between the former floor slab and the river-side retaining wall. Tier Environmental has studied photographs taken during the former building demolition works and these suggest that the slab is not tied into the retaining wall. Tier Environmental also has noticed some evidence of resin repairs to the river-side retaining wall and so further discussion and consideration of this should be made by the structural engineer.
- Basic waste characterisation has determined that Made Ground soils are non-hazardous with the following exceptions:
    - Made Ground at WS105 (0.60m bgl) due to elevated TPH;
    - Made Ground at WS117 (0.40m bgl) due to elevated TPH.
- The results of WAC testing demonstrate that the localised hazardous soils are suitable for disposal as **hazardous waste to a Stable Non-Reactive Hazardous Waste Cell in a Non-Hazardous Landfill**.
- For the non-hazardous Made Ground and Topsoil, WAC testing has demonstrated that these materials are not suitable for disposal to an inert waste landfill and therefore should be disposed to a **non-hazardous landfill**.
- Natural soils (other than any organic rich materials with TOC >3%) are suitable for disposal to an inert waste landfill.
- The results from asphalt testing have indicated coal tar concentrations consistently >0.1% w/w/ indicating that these materials would be hazardous waste. However, further assessment has demonstrated that in some (but not all) cases that the concentration of benzo(a)pyrene is low such that the classification may be downgraded to non-hazardous. It is recommended that further detailed consideration of asphalt is conducted to determine potential re-use opportunities and further refine the waste classification. In the meantime, it is recommended that all asphalt is considered to be coal-tar containing until such additional works are carried out.

13.2. Recommendations

The following further work is recommended (at a time when the car park is no longer in use):

- It is recommended that further works are conducted to confirm that the former concrete slab associated with the building is not tied into the river-side retaining wall.
- It is recommended that further soil sampling and human health risk assessment is conducted post-demolition in the vicinity of the proposed contoured landscaped area in the east of the site.
- It is recommended that an asbestos Detailed Quantitative Risk Assessment is carried out for the asbestos concentrations reported at the site. If this is not carried out or if a potential risk is identified following any future risk assessment, then a remediation strategy will be required for a clean cover system at the site.
- It is recommended that an Asbestos Management Plan is prepared for the site.

- Treatment / grouting works will be required associated with probably shallow coal mine workings identified beneath the site. Please see the separate Coal Mining Risk Assessment report for more details.
- An earthworks specification is recommended that taken into consideration any proposed re-use / earthworks of the PFA materials which may degrade in inclement weather.
- It is recommended that further detailed consideration of asphalt is conducted to determine potential re-use opportunities and further refine the waste classification.
- Any further intrusive works, groundworks and earthworks will need to be undertaken in accordance with the Control Of Asbestos Regulations (CAR2012) due to the recorded presence of asbestos.
- Presently no ground gas protection measures are considered necessary for the site, subject to reappraisal in the event of identification during earthworks of any unrecorded mine shaft, adit or associated coal mining features that may present a preferential pathways.
- An asbestos DQRA is recommended in accordance with CIRIA C733; however, in the event that an unacceptable risk is identified then a clean cover system will likely be required for the soft landscaped areas. If the results of the risk assessment demonstrate a minimal risk from asbestos , then a clean cover system will not be required.
- Tier consider that due to the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site there is a risk of unacceptable differential settlements that could affect the development. Due to this the building footprint, drainage/attenuation and service corridors will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.

14.REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the site investigation. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and/or other organisations for their comment and approval prior to undertaking any works on site.

It is recommended that conditions placed on any planning permission are discharged prior to commencement of site works.

15.REFERENCES

BRE BR211 (2015). Radon: Guidance on Protective Measures for New Dwellings. IHS BRE Press, Bracknell.

BRE SD1 (2005). Concrete in Aggressive Ground. Special Digest 1 (revised edition). IHS BRE Press, Bracknell.

BRE 414 (2001) Protective measures for housing on gas-contaminated land. BRE.

BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites - Code of Practice. British Standards Institution, London.

BS EN 1997-1:2004 Eurocode 7. Geotechnical Design. General Rules. British Standards Institution, London.

BS EN 1997-2:2007 Eurocode 7. Geotechnical Design. Ground Investigation and Testing. British Standards Institution, London.

BS5930:2015+A12020 Code of practice for ground investigations BSI

BS EN ISO 17892-1-12:2018 Geotechnical investigation and testing BSI

BS EN ISO 14688-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Identification and Description. British Standards Institution, London.

BS EN ISO 14688-2:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Principles for a Classification. British Standards Institution, London.

BS EN ISO 14689-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Rock. Identification and Description. British Standards Institution, London.

BS8485 2015 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases in new buildings. British Standards

BS85762013 Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs). BSI,

CIRIA Rep R 97 (2001) Trenching Practice. Report 097, 2nd edition, CIRIA, London.

CIRIA Rep R 149 (1995a) Protecting Development from Methane. Report 149, CIRIA, London.

CIRIA Rep R 150 (1995b) Methane Investigation Strategies. Report 150, CIRIA, London.

CIRIA Rep R 151 (1995c) Interpreting Measurement of Gas in the Ground Report 151, CIRIA, London.

CIRIA Rep R 152 (1995d) Risk Assessment for Methane and Other Gases from the Ground. Report 152, CIRIA, London.

CIRIA Rep R 132 (1996) A Guide for Safe Working on Contaminated Sites. Report 132, CIRIA, London.

CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice (report no. C552).

CIRIA C665 (2007) Assessing the risks posed by hazardous gases to buildings CIRIA, London

CIRIA C748 (2014) Guidance on the use of plastic membranes as VOC barriers, CIRIA, London

CIRIA C735 (2014) Good practice on the testing and verification of protection systems for buildings against hazardous ground gases. CIRIA.

CIRIA C681 (2009) Unexploded ordnance (UXO) A guide for the construction industry (C681)

CIRIA C785 (2019) Unexploded ordnance (UXO) risk management guide for land-based projects (C785)

CIRIA C758D (2019) Abandoned mine workings manual (C758D)

Contaminated Land: Applications in Real Environments (CL:AIRE) (2011) Definition of Waste Code of Practice (version 2).

Department of Environment Food and Rural Affairs (DEFRA) (2012) Environmental Protection Act 1990:Part 2A Contaminated Land Statutory Guidance (report no. PB13735).

Environment Agency (2000) Technical Aspects of Site Investigation. Report P5-065/TR, Environment Agency, Bristol.

Environment Agency (2002) Guidance on Monitoring Landfill Leachate, Groundwater and Surface Water. Report LFTGN02, Environment Agency, Bristol.

Environment Agency (2007) Evaluation of Models for Predicting Plant Uptake of Chemicals from Soil. Report SC050021/SR, Environment Agency, Bristol.

Environment Agency (2006) Remedial Targets Methodology - Hydrogeological Risk Assessment for Land Contamination (report no.ea/br/e/std/vr10thanni).

Environment Agency (2008) Science Report SC050021/SR7 Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values.

Environment agency, 2007. Inter-laboratory comparison of in vitro bioaccessibility measurements for arsenic lead and nickel in soil, Science Report SC040060/SR2.

Environment Agency, 2009 Human health toxicological assessment of contaminants in soil (Science Report Final SC050021/SR2)

Environment Agency (2015) Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (1st edition). European Union (1998) Drinking Water Directive (Council Directive 98/83/EC).

Gibbons, R. (1994) Statistical Methods for Groundwater Monitoring. Wiley, New York.

Groundsure Report 2021 GSIP-2021-10752-4061

Highways Agency (2006) Design of Pavement Foundations. Document HD 25/IAN 73/06.

HSE (1991) Protection of Workers and the General Public During the Development of Contaminated Land. HMSO, London.

HSE (2005) Occupational Exposure Limits. HSE report EH40/2005, HMSO, London.

ICRCL (1986) Notes on the Fire Hazards of Contaminated Land. Guidance Note 61/84, 2nd Edition, Interdepartmental Committee on the Redevelopment of Contaminated Land, London.

Jeffries, J.(2009). A review of body weight and height data used within the Contaminated Land Exposure Assessment model (CLE A). Project SC050021/ Technical Review 1. Bristol: Environment Agency

Land Contamination Risk Management (LCRM) Environment Agency October 2020 https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm .

LQM/CIEH Ltd (2015) S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

NHBC (2007) Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present (report no .04).

NRA (1994) Protocol for a Leaching Test to Assess the Leaching Potential for Soils from Contaminated Sites. R&D Note 181.

SoBRA (2017) Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater – Version 1.0.

The Water Framework Directive, (Standards and Classification) Directions (England and Wales).

UK Water Industry Research (2010) Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (report no. 10/WM/03/21)

WHO (2000) Air Quality Guidelines for Europe. 2nd edition, WHO Regional Office for Europe, Copenhagen.

World Health Organisation (2017) Guidelines for Drinking Water Quality (4th edition).

Britain From Above - https://britainfromabove.org.uk/en/image/WPW060399

http://www.warstateandsociety.com/Bombing-Britain

https://www.epa.gov/pfas/basic-information-pfas

UK Maps of Radon, http://www.ukradon.org/information/ukmaps

Health and Safety Executive (2015) Construction (Design and Management) Regulations.

Coal Authority Interactive Map Viewer, http://mapapps2.bgs.ac.uk/coalauthority/home.html

BGS Geology of Britain Viewer http://mapapps.bgs.ac.uk/geologyofbritain/home.html

16.GLOSSARY OF TERMS

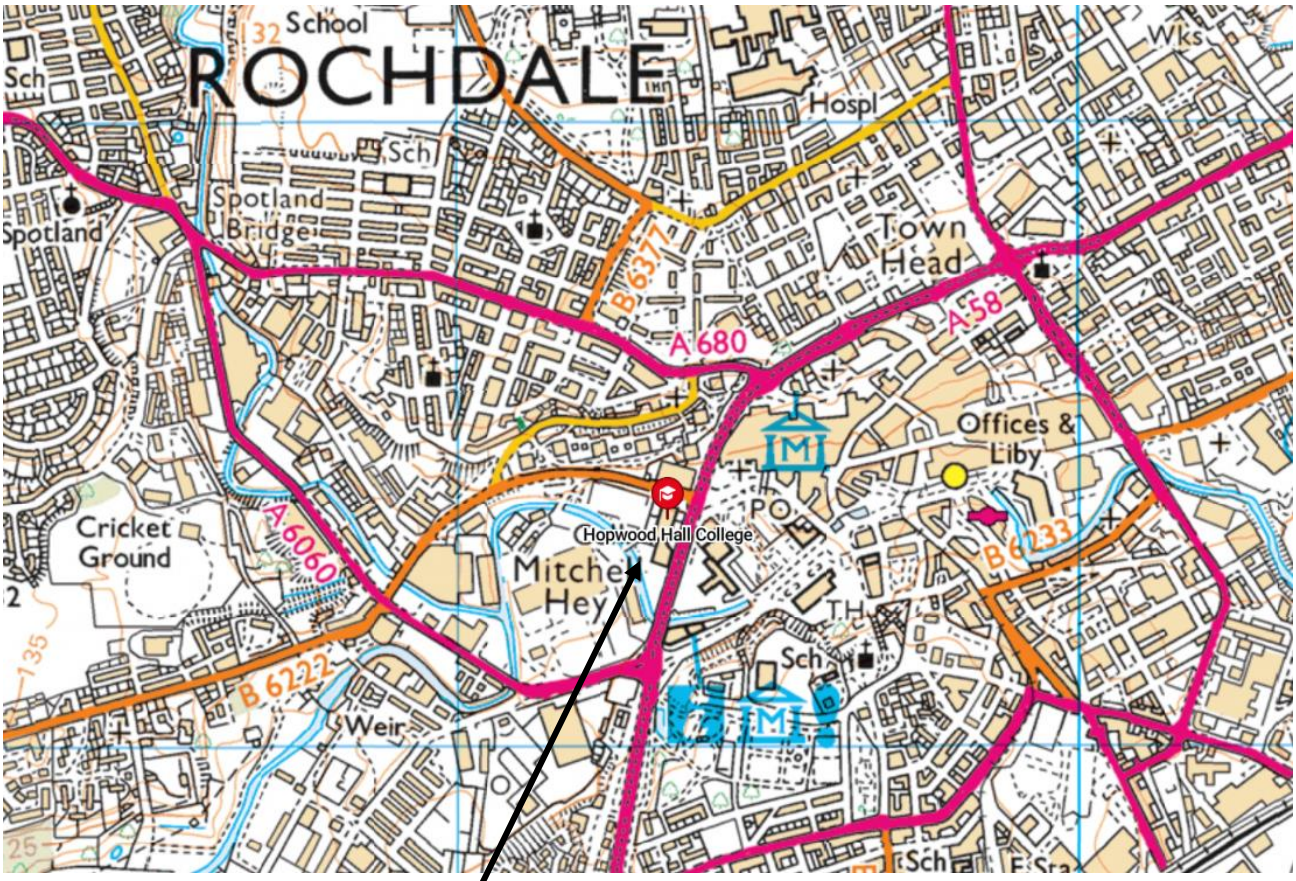
ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national of international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K_{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter

SPT	Standard Penetration Test
SPZ	Source Protection Zone (see Appendix K)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

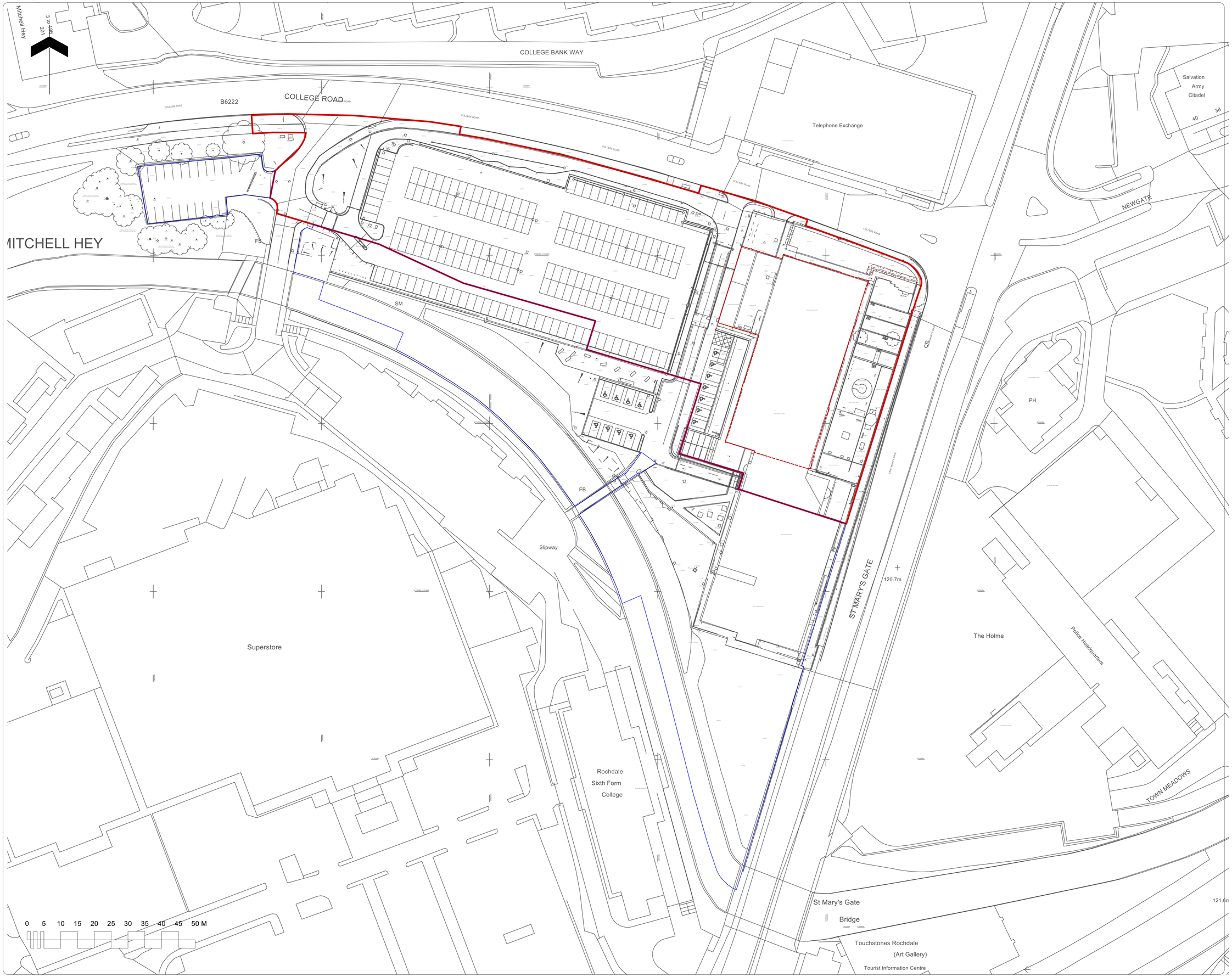
APPENDIX A - DRAWINGS

Contract Number:	TE1880
Contract:	Hopwood Hall College, Rochdale
Client:	Wilmott Dixon Construction

Site Location Plan



Scale	NTS		
Drawn by	SE	Approved	AR
Drawing Number	TE1880-TE-00-XX-DR-GE-001-V01		



Note

1. Do not scale from this drawing
2. To be read in conjunction with Project Risk Register REF: FS0939-ALA-XX-XX-RR-L-0001
3. To be read in conjunction with Landscape Outline Specifications REF: FE012-ALA-ZZ-XX-SP-L-0001
4. To be read in conjunction with all submitted Landscape Architect's drawings.
5. To be read in conjunction with all other consultants' drawings.

KEY

- Planning Application Boundary (10,387.618m2)
- Site Ownerhsip Boundary 8683.461m2)

ID	RISK	MITIGATION	DATE MITIGATED

RESIDUAL PROJECT RISKS

DATE	REV	DESCRIPTION OF REVISION	DRAWN BY	APPROVED BY
09/12/2024	P03	Site ownership line amended. Issued for Stage 3 S5.	MM	

REVISIONS

DEIR:
DEIR 197

STATUS
S5 - *Suitable for DfE Review & Acceptance*

ares LANDSCAPE ARCHITECTS
Ares Landscape Architects LTD
Gatecrasher,
51 Eyre Lane
Sheffield
S1 4RB
t: 0114 276 2000
e: hello@aresdesign.co.uk
w: ares.eu.com

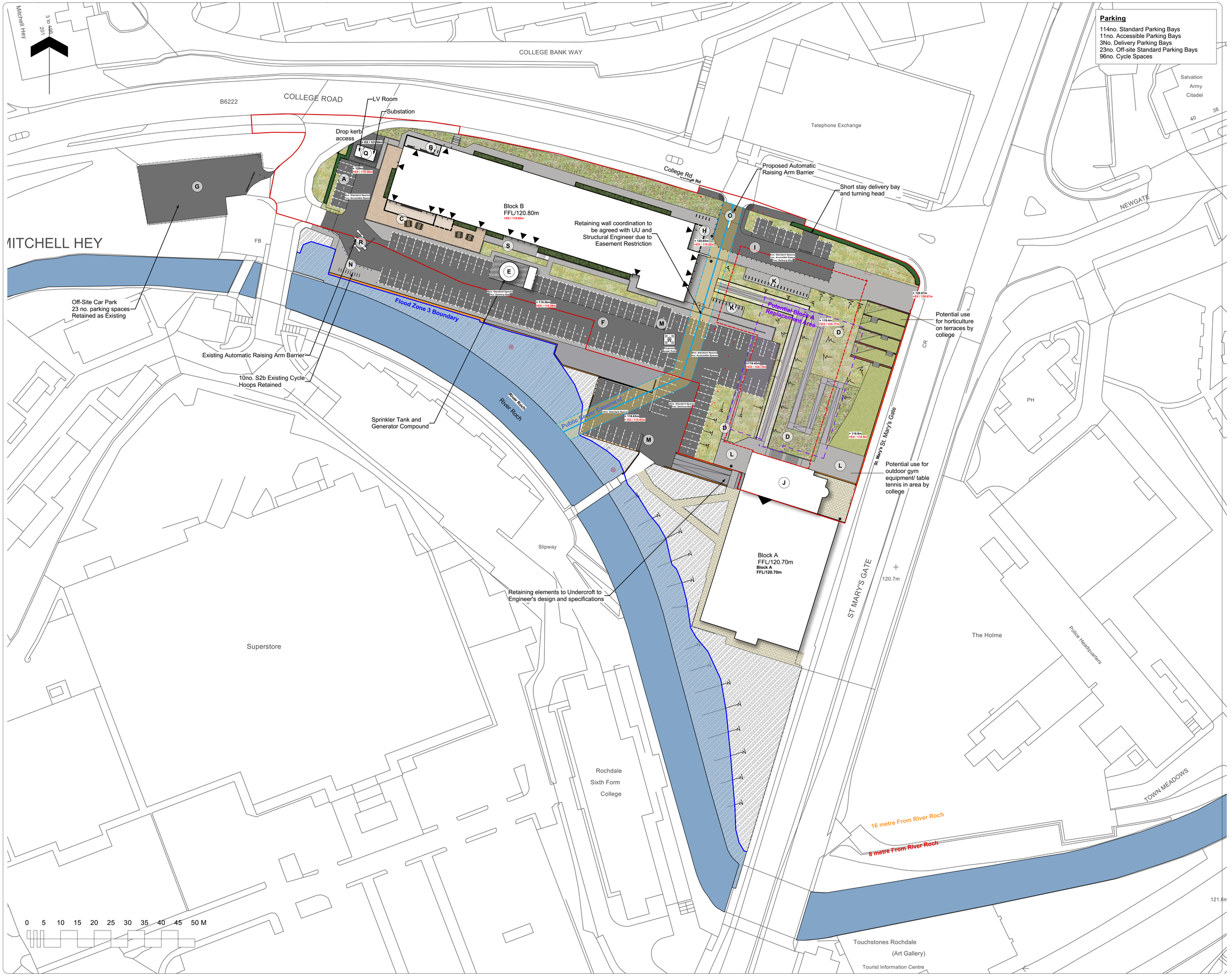
CLIENT :
Hopwood Hall College

PROJECT TITLE :
Hopwood Hall College

DRAWING TITLE :
Demolition Plan

DRAWING SCALE :	DRAWN BY :	DRAWN DATE :
1:500	LS	02/12/2024
PAPER SIZE :	APPROVED BY :	ALA PROJECT CODE:
A1	MM	ALA866

DRAWING NUMBER :	STATUS :	REVISION :
FE0012-ALA-XX-XX-D-L-0019	**S5**	**P03**



Parking

114no. Standard Parking Bays
11no. Accessible Parking Bays
3No. Delivery Parking Bays
23no. Off-site Standard Parking Bays
96no. Cycle Spaces

Note

1. Do not scale from this drawing
2. To be read in conjunction with Project Risk Register REF: FS0939-ALA-XX-XX-RR-L-0001
3. To be read in conjunction with Landscape Outline Specifications REF: FE012-ALA-ZZ-XX-SP-L-0001
4. To be read in conjunction with all submitted Landscape Architect's drawings.
5. To be read in conjunction with all other consultants' drawings.

KEY

- **Site Boundary**
- **Canopy**
- **Zone of Level to be Retained**
- **Scheduled for Demolition**
- **Invasive Species** *To be confirmed in latest Ecology Report*
- **Proposed Muster Point** TBC by Fire Engineer
- **Potential Location of PV panels** *Within Landscape (283.7 sqm)*
- **A** Nursery Parking - *6no. Standard Bays*
- **B** Nursery Cycle Parking - *6no. Cycle Spaces*
- **C** Nursery Outdoor Play
- **D** Proposed Meadow Planting
- **E** Sprinkler Tank and External Generator Compound
- **F** Main College Carpark
- **G** College Secondary Carpark (as Existing)
- **H** College Main Entrance
- **I** Visitor Parking
- **J** Block A New Entrance *Gullwing to Architect's Details*
- **K** Proposed Cycle Parking *Cycle provision TBC by LPA*
- **L** Campus Secured Outdoor Area *All seating shown are from existing college legacy TBC with College*
- **M** Service Bay
- **N** Existing Cycle Parking Retained
- **O** New Controlled Vehicle Access
- **P** Fire Escape Route to Muster Point
- **Q** Proposed Substation and Switch Room
- **R** Controlled Vehicle Access *Barrier Retained as Existing*
- **S** Plant Room / switch Room

RESIDUAL PROJECT RISKS

ID	RISK	MITIGATION	DATE MITIGATED

REVISIONS

DATE	REV	DESCRIPTION OF REVISION	DRAWN BY	APPROVED BY
09/12/2024	P03	Site ownership line amended. Issued for Stage 3 S5.	MM	

DEIR:
DEIR 197

STATUS
S5 - *Suitable for DfE Review & Acceptance*

ares LANDSCAPE ARCHITECTS
Ares Landscape Architects LTD
Gatecrasher,
51 Eyre Lane
Sheffield
S1 4RB
t: 0114 276 2000
e: hello@aresdesign.co.uk
w: ares.eu.com

CLIENT :
Hopwood Hall College

PROJECT TITLE :
Hopwood Hall College

DRAWING TITLE :
Whole Site Plan

DRAWING SCALE :	DRAWN BY :	DRAWN DATE :
1:500	LS	02/12/2024
PAPER SIZE :	APPROVED BY :	ALA PROJECT CODE:
A1	MM	ALA866

DRAWING NUMBER : **FE0012-ALA-XX-XX-D-L-0018** STATUS : **S5** REVISION : **P03**

DO NOT SCALE

NOTES

- HAND DUG PIT LOCATION
- WINDOW SAMPLE LOCATION
- ROTARY BOREHOLE LOCATION
- CABLE PERCUSSION LOCATION
- SOAKAWAY LOCATION
- AREA NOT ACCESSIBLE
- SEWER EASEMENT

APPROXIMATE LOCATION OF FORMER INFILLED WATERCOURSE (TAKEN FROM HISTORICAL MAPS)

APPROXIMATE LOCATION OF FORMER WEIR (TAKEN FROM HISTORICAL MAPS)

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	30.01.2025	CS	ISSUED FOR INFORMATION	SE	SE

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4
9QZ
t: 01925 818 388

CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

TITLE: EXPLORATORY HOLE LOCATION PLAN

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SE	SE
CAD FILE:	DESIGN/DRAWN:	DATE:
-	CS	30.01.2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-008-V05	P5

B6222
COLLEGE ROAD
Telephone Exchange
College Rd
WS102
SA01
RH101 & RH101A
HP101
WS106
WS107
WS102A
WS104
CP101
CP105
HP102
WS103
WS103B
WS105
WS109
WS103A
CP104 & RH102
WS108
RH103B
HP105
WS113
WS113B
FB
CP103
WS110
RH103 & RH103A
WS114
WS115
RH103C
CP102
WS115B
WS111
Zwod Zone 3 Boundary
WS112
HP104
WS116
CR
River Roch
PH
FB
WS117
St. Mary's Gate
Slipway
Block A
FFL/120.7m
ST MARY'S GATE
120.7m
WS118B
WS118
WS118A
The Holme
Superstore
N
W
E
S

HDP101

HDP101 PHOTOGRAPHIC RECORD



Coordinates
X:389251.000
Y:413436.000

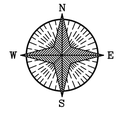


Geological log

0.00 - 0.13: Black ASPHALT

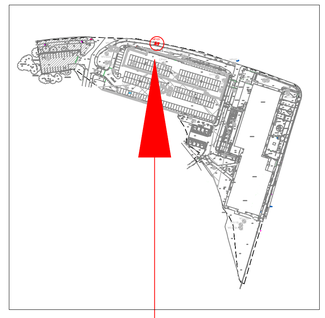
0.13 - 0.54: MADE GROUND: Dark greyish brown, fine to coarse, angular to subangular, sandy, slightly ashy GRAVEL of mixed lithologies including brick, sandstone, concrete and limestone

0.54 - 0.86: MADE GROUND: Soft to firm, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine to medium, angular to subangular of brick



DO NOT SCALE

NOTES



REV	DATE	BY	DESCRIPTION	CHK	APD
P1	10/12/2024	CS	ISSUED FOR INFORMATION	SE	SE

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

TITLE: HAND DUG PIT 101

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SE	SE
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	10/12/2024

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-009-V01	P1

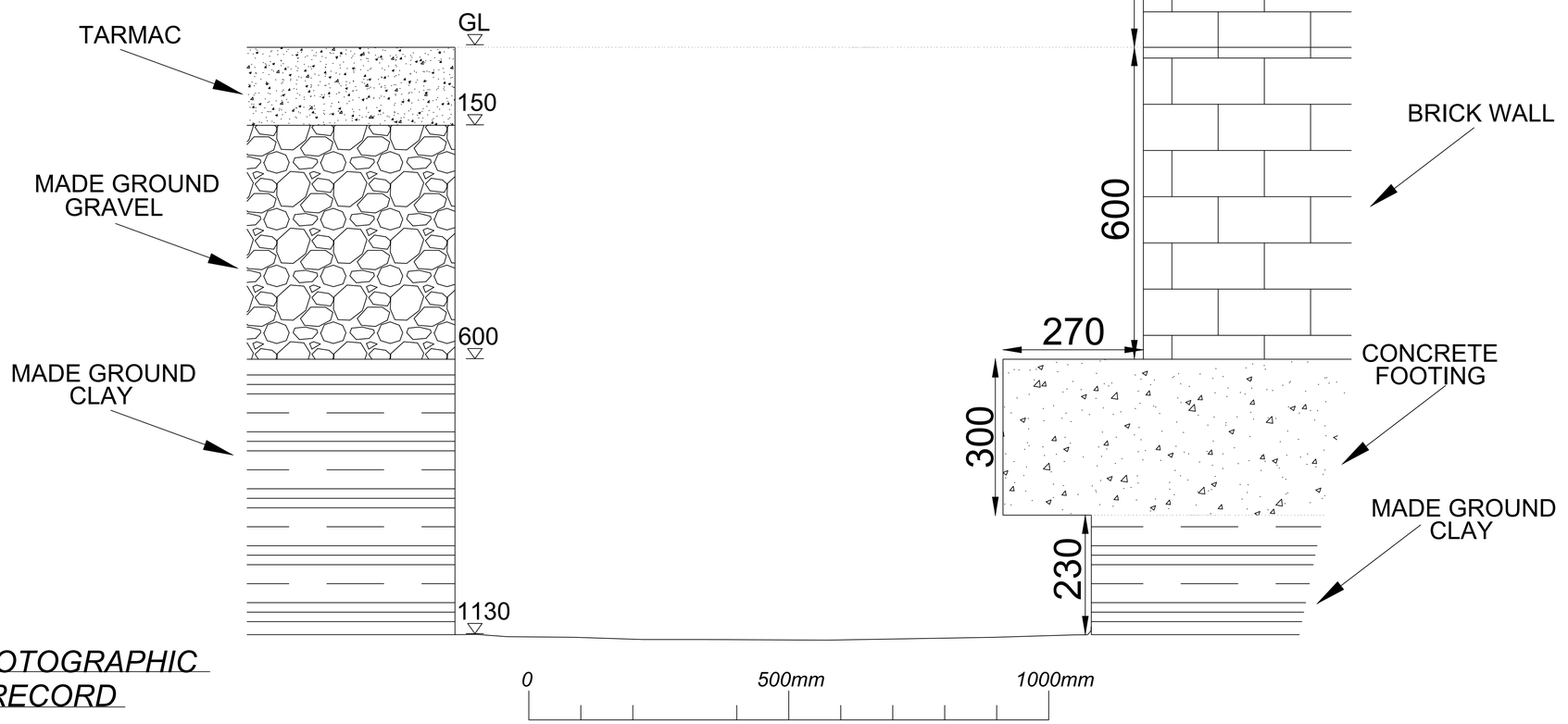
Geological log

HDP102

0.00 - 0.15: Black ASPHALT

0.15 - 0.45: MADE GROUND: Dark greyish brown, fine to coarse, angular to subangular, sandy, slightly ashy GRAVEL of mixed lithologies including brick, sandstone, concrete and limestone

0.45- 1.13: MADE GROUND: Soft to firm, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine to medium, angular to subangular of brick

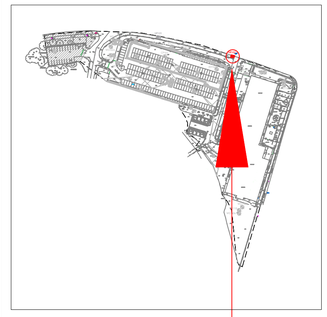


HDP102 PHOTOGRAPHIC RECORD





Coordinates
X:389320.000
Y:413418.000



DO NOT SCALE

NOTES

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	10/12/2024	CS	ISSUED FOR INFORMATION	SE	SE

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

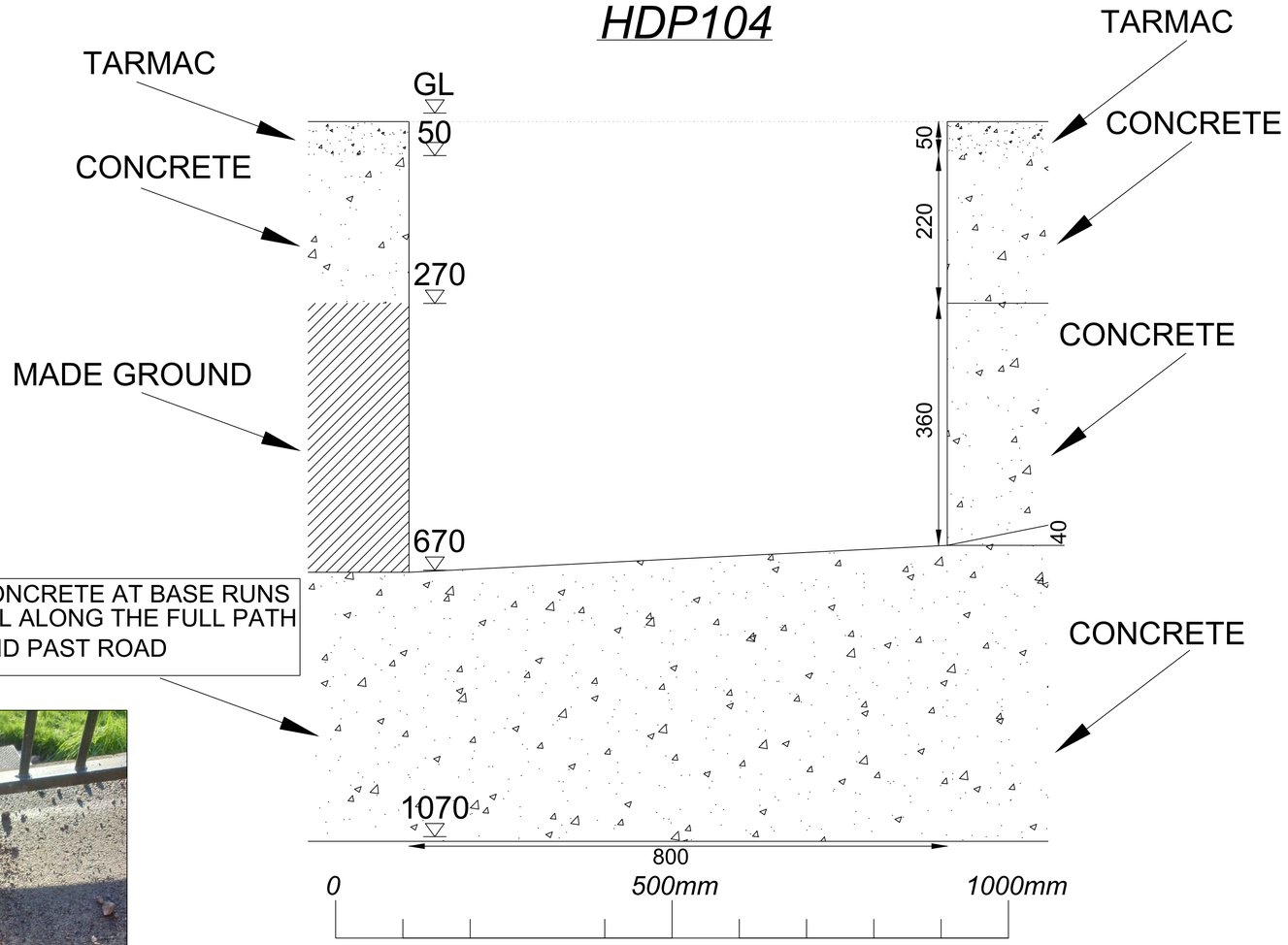
TITLE: HAND DUG PIT 102

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SE	SE
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	10/12/2024

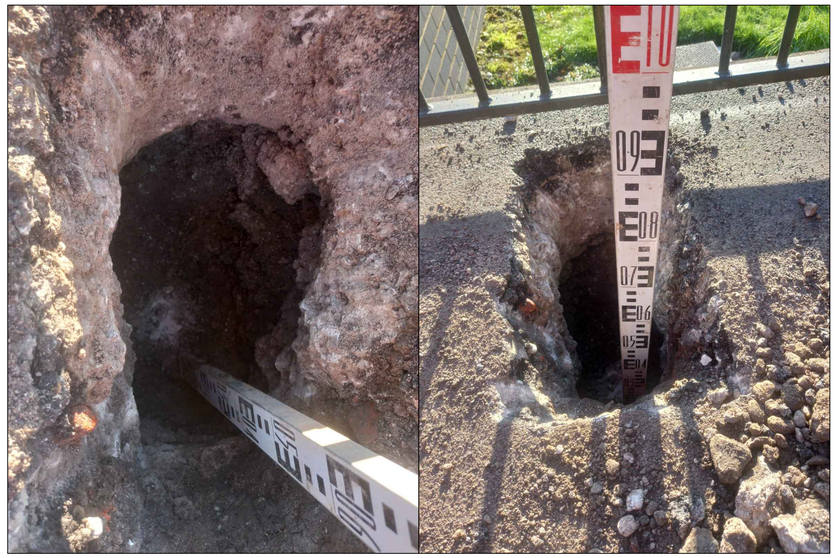
PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-010-V01	P1

Coordinates
X:389284.000
Y:413367.000

HDP104



HDP104 PHOTOGRAPHIC RECORD

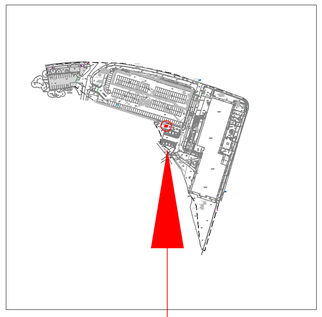


Geological log

0.00 - 0.05: Black ASPHALT
0.05 - 0.22: MADE GROUND: fine to coarse, angular to subangular, sandy GRAVEL of mixed lithologies including brick, concrete and sandstone
0.22 - 0.67: MADE GROUND: Grey CONCRETE. Hand drilled through to final base of concrete slab

DO NOT SCALE

NOTES



REV	DATE	BY	DESCRIPTION	CHK	APD
P1	10/12/2024	CS	ISSUED FOR INFORMATION	SE	SE

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

TITLE: HAND DUG PIT 104

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SE	SE
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	10/12/2024

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-011-V01	P1

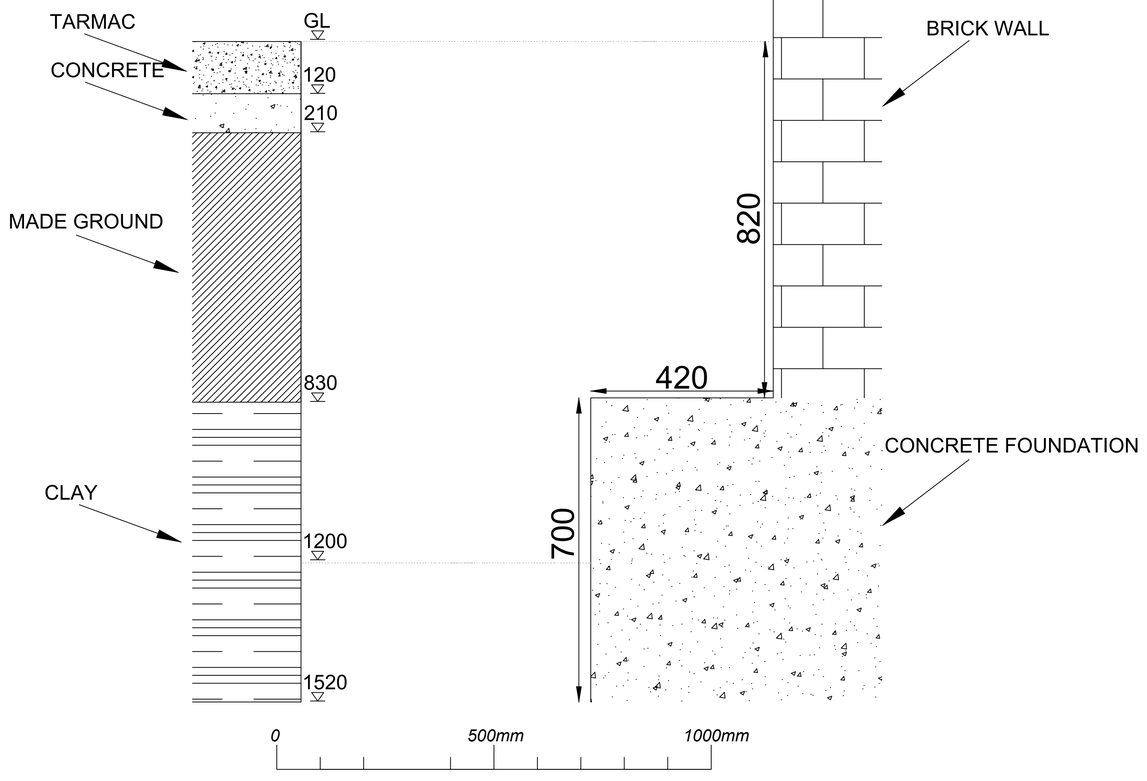
Concrete foundation of brick wall encountered from 0.82m to 1.52m bgl. Hand dug pit terminated at 1.20m bgl, hand drilled through concrete to find base.

HDP105

Coordinates
X:389332.271
Y:413401.872



HDP105 PHOTOGRAPHIC RECORD

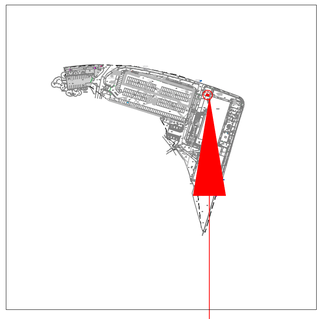


Geological log

0.00 - 0.12: Black ASPHALT
0.12 - 0.21: MADE GROUND: Brown, sandy, gravelly COBBLES of brick, sandstone and concrete
Gravel is fine to coarse, angular to subangular of brick, sandstone, concrete and limestone
0.21 - 0.83: POSSIBLE MADE GROUND: Soft to firm, brown CLAY

DO NOT SCALE

NOTES



REV	DATE	BY	DESCRIPTION	CHK	APD
P1	10/12/2024	CS	ISSUED FOR INFORMATION	SE	SE

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

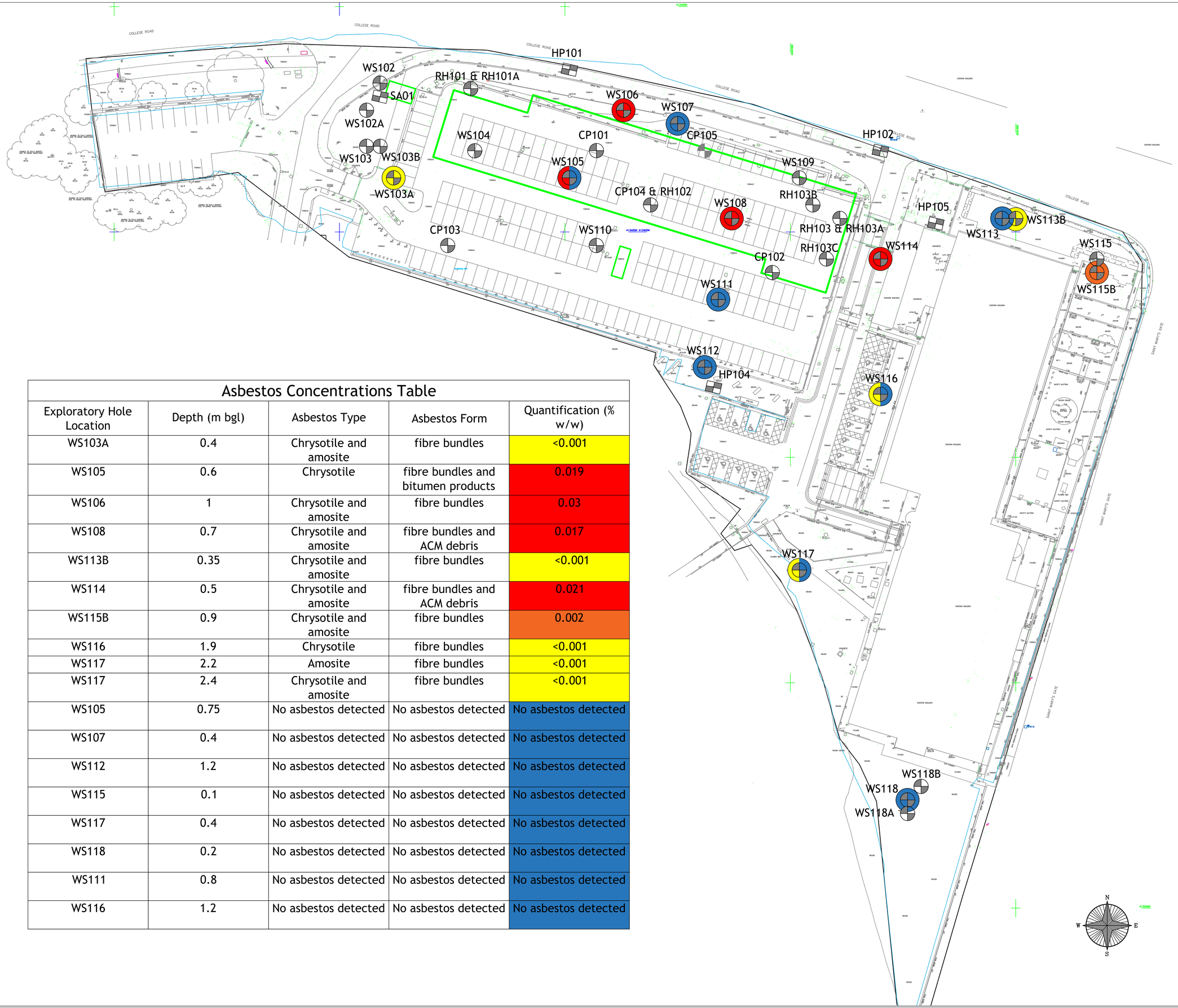
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

TITLE: HAND DUG PIT 105

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SE	SE
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	10/12/2024

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-012-V01	P1



Asbestos Concentrations Table

Exploratory Hole Location	Depth (m bgl)	Asbestos Type	Asbestos Form	Quantification (% w/w)
WS103A	0.4	Chrysotile and amosite	fibre bundles	<0.001
WS105	0.6	Chrysotile	fibre bundles and bitumen products	0.019
WS106	1	Chrysotile and amosite	fibre bundles	0.03
WS108	0.7	Chrysotile and amosite	fibre bundles and ACM debris	0.017
WS113B	0.35	Chrysotile and amosite	fibre bundles	<0.001
WS114	0.5	Chrysotile and amosite	fibre bundles and ACM debris	0.021
WS115B	0.9	Chrysotile and amosite	fibre bundles	0.002
WS116	1.9	Chrysotile	fibre bundles	<0.001
WS117	2.2	Amosite	fibre bundles	<0.001
WS117	2.4	Chrysotile and amosite	fibre bundles	<0.001
WS105	0.75	No asbestos detected	No asbestos detected	No asbestos detected
WS107	0.4	No asbestos detected	No asbestos detected	No asbestos detected
WS112	1.2	No asbestos detected	No asbestos detected	No asbestos detected
WS115	0.1	No asbestos detected	No asbestos detected	No asbestos detected
WS117	0.4	No asbestos detected	No asbestos detected	No asbestos detected
WS118	0.2	No asbestos detected	No asbestos detected	No asbestos detected
WS111	0.8	No asbestos detected	No asbestos detected	No asbestos detected
WS116	1.2	No asbestos detected	No asbestos detected	No asbestos detected

DO NOT SCALE

NOTES

- HAND DUG PIT LOCATION
- WINDOW SAMPLE LOCATION
- ROTARY BOREHOLE LOCATION
- CABLE PERCUSSION LOCATION
- SOAKAWAY LOCATION
- PROPOSED BUILDING OUTLINE

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	28.01.2025	CS	ISSUED FOR INFORMATION	AR	AR

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ
t: 01925 818 388

CLIENT: WILLMOTT DIXON CONSTRUCTION LIMITED

PROJECT: HOPWOOD HALL COLLEGE ROCHDALE

TITLE: ASBESTOS CONCENTRATIONS

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AR	AR
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	28/01/2025
PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-013-V01	P1

Site Boundary

West-southwest

East-northeast

Results from human health risk assessment has demonstrated that measured concentrations of asbestos have been reported in the Made Ground across the site at 56% of locations at concentrations between <0.001% and 0.03% w/w (amosite and chrysotile - fibre bundles, ACM debris and locally, bitumen products). Further detailed assessment required.

No measured chemical concentrations (inorganic or organic) reported to exceed GAC protective of a commercial land use.

Results from controlled waters risk assessment has demonstrated that measured groundwater concentrations of cadmium, copper, nickel, zinc, fluoranthene, and ammonia reported in excess of relevant Water Quality Standards and localised measured concentrations of glycols do not present a significant risk to the controlled waters environment when factors including the hydraulic upgradient and downgradient concentrations, aquifer sensitivity, wider commercial and industrial use of the surrounding land and surface water sample results are taken into account.

Proposed CFA piles - CFA piles are cast in place with a continuous concrete column, which effectively seals the borehole, thereby minimising vertical and lateral gas migration pathways. Therefore the proposed CFA piles represent a preferred piling solution with respect to ground gas considerations, particularly when compared with alternatives such as Vibro Stone Columns.

Pre-existing building and existing use of part of the site as a nursery means that additional post-demolition soil sampling will be required in the vicinity of the proposed contoured landscaped areas in the west of the site.

Off Site multi-storey residential

Off Site commercial properties

Historical landfill located Circa 204m west

Shallow coal mine workings are permanently flooded

Pre-existing college buildings

Pre-existing college building - to be demolished

Off Site commercial properties

Assumed localised cohesive and granular Alluvium (Secondary A Aquifer)

Concrete slab associated with former college building

4 Made Ground

Proposed contoured landscaped area

Deeper Made Ground associated with former infilled watercourse 4

Localised cohesive and granular Alluvium (Secondary A Aquifer)

Assumed Made Ground

???

???

Loss of flush likely associated with probable coal mining

Probable coal mining-related void

Localised lense of unnamed coal

Interbedded sandstone and mudstone

Pennine Lower Coal Measures (Secondary A Aquifer)

Predominantly mudstone

Interbedded sandstone and mudstone

Dib Hole Coal

Deep confined groundwater body - artesian at RH103C

The preliminary conceptual site model identified potential on-site ground gas sources which vary between a very low, very low/low and low gas generation potential.

Ground gas monitoring has demonstrated that individual borehole gas flow rate calculations and even reasonable worst case GSV calculations mean that the site is classed as a Characteristic Situation 1 - Very Low Risk. Further consideration of coal mine gas risks using multiple lines of evidence have demonstrated a low risk for which no protection measures are required. these include:

- Workings are shallow but permanently flooded;
- Mine entries are >50m from the site boundary according to the Coal Authority information for the shaft;
- Additional lines of evidence include
  - The significant age of the mine workings (pre 1808);
  - No reports of any historical ground related issues in nearby adjacent college building structures developed pre-1977 (at which time gas protection measures were not a standard practice in UK building practices);
  - The absence of any significant ground gases or flow rates monitored at the site and determination of the site based on available data as a Characteristic Situation 1 - Very Low Risk scenario
  - The ternary plot produced for the steady gas concentrations (see below) does not indicate the presence of thermogenic methane (mine gas) in any wells monitored (either in saturated or unsaturated zone)
  - The shallow flooded mine workings are to be grouted as part of the development works thereby significantly reducing ground gas risks even further by sealing potential migration pathways, reducing void space, and mitigating the risk of any gas displacement.

A Future site users

B Current site users

C Adjacent site users

D Construction, site investigation, demolition and future maintenance workers

E Buildings, hardstanding and services

F Secondary A Aquifers

G Surface Water - River Roch

1 Inhalation of indoor and outdoor gas

2 Direct contact

3 Migration of ground gas through permeable Made Ground

4 Dust migration and inhalation/ingestion

5 Migration of mobile contaminants

6 Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits

7 Migration of mobile contaminants through water pipes

DO NOT SCALE

NOTES

This drawing is purely schematic and is a representation of the ground conditions and process, based upon information derived from the third party reports, desk study, ground investigations, and Preliminary Risk Assessment.

Please refer to the tabular Conceptual Site Model in the Ground Investigation report for more details.

This model should be revised, following the availability of any supplementary site investigation information to ensure its relevance to actual conditions.

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04/02/2025	AR	ISSUED FOR INFORMATION	SL	SL

DRAWING STATUS: FINAL

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

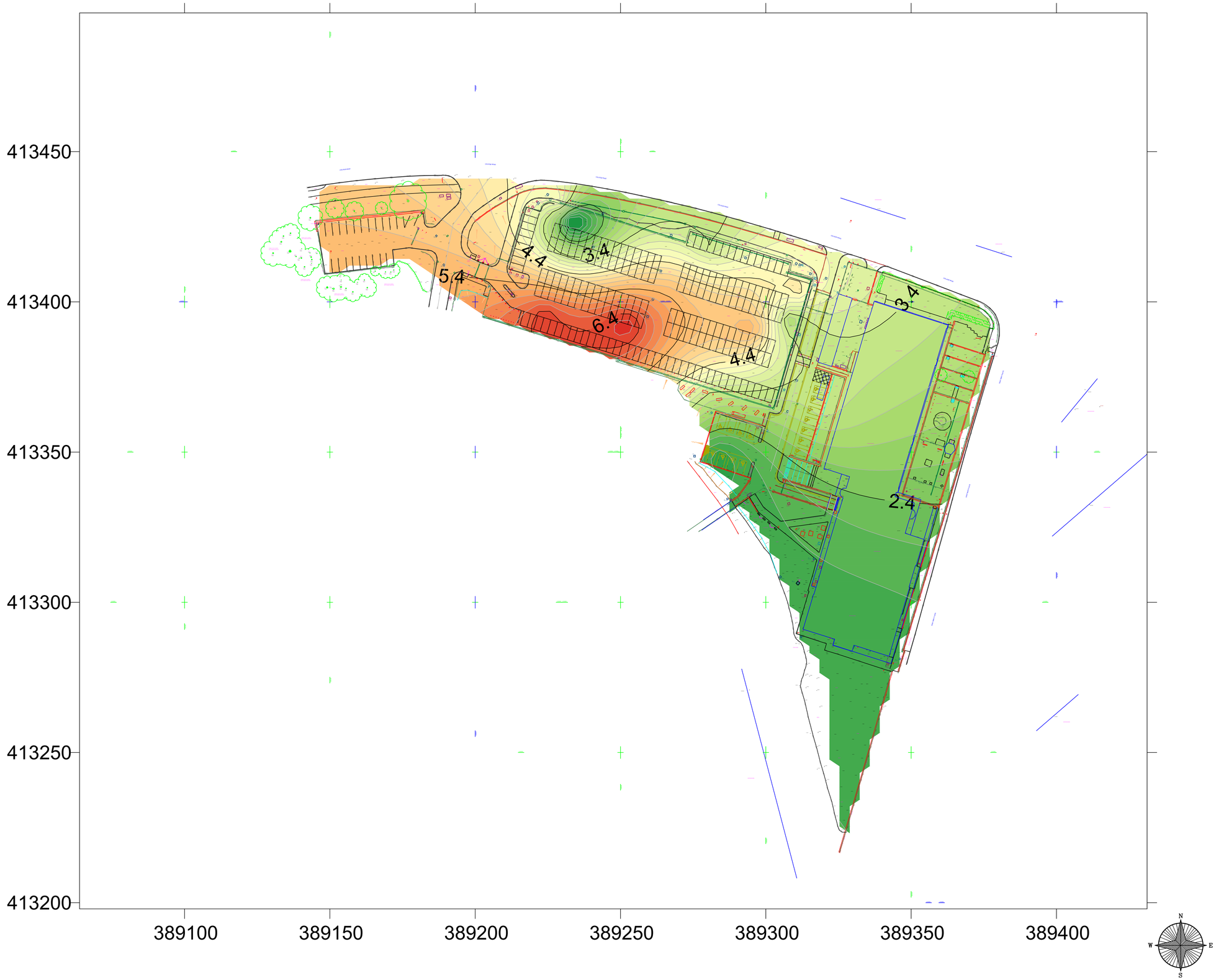
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL, ROCHDALE

TITLE: CONCEPTUAL SITE MODEL

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	SL	SL
CAD FILE:	DESIGN/DRAWN:	DATE:
–	AR	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-015-V01	P1



DO NOT SCALE

NOTES

M bgl
6.6
6.2
5.8
5.4
5
4.6
4.2
3.8
3.4
3
2.6
2.2
1.8
1.4

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

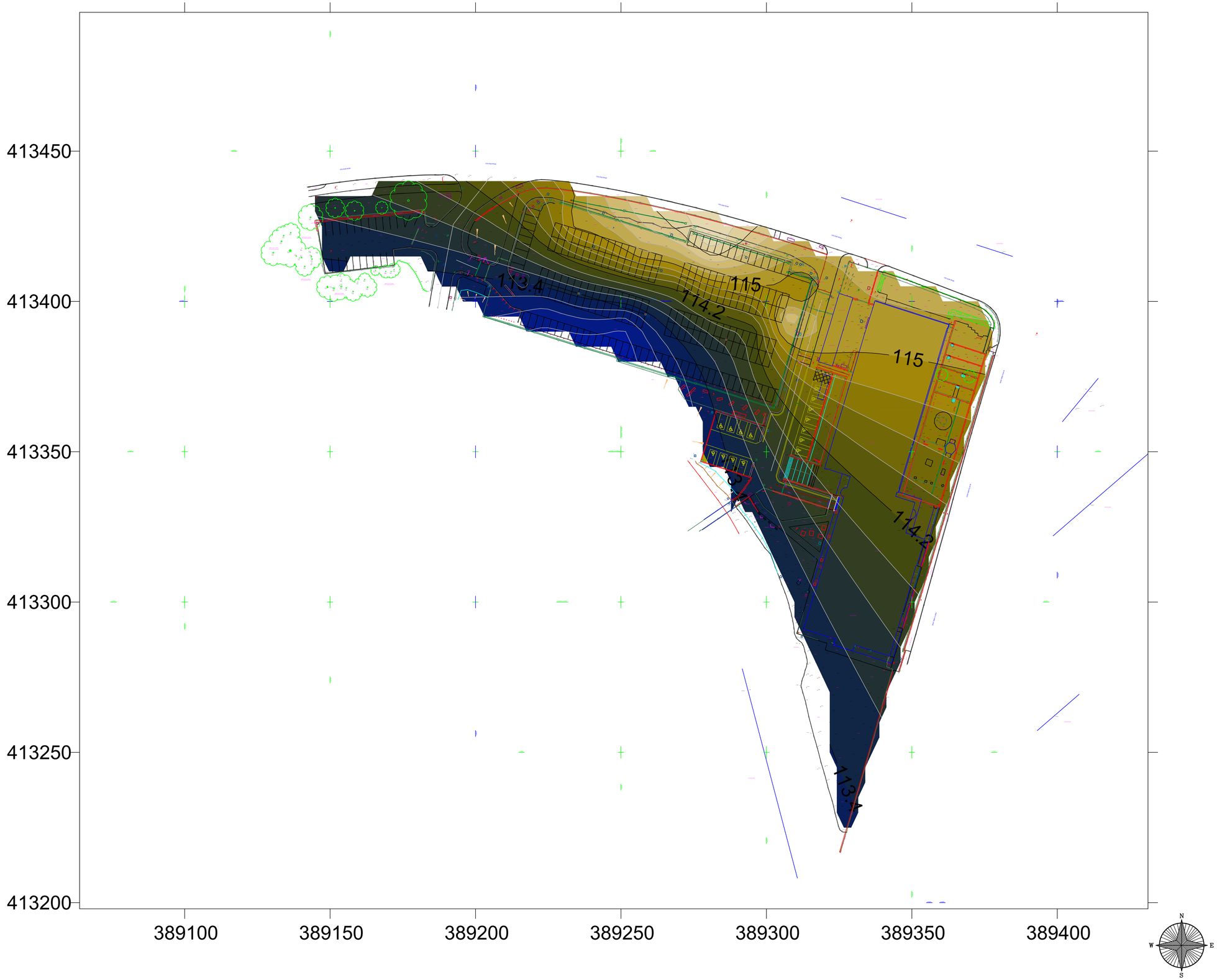
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: DEPTH OF MADE GROUND

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-017-V01	P1



DO NOT SCALE

NOTES

M bgl

- 116.2
- 116
- 115.8
- 115.6
- 115.4
- 115.2
- 115
- 114.8
- 114.6
- 114.4
- 114.2
- 114
- 113.8
- 113.6
- 113.4
- 113.2
- 113
- 112.8
- 112.6

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

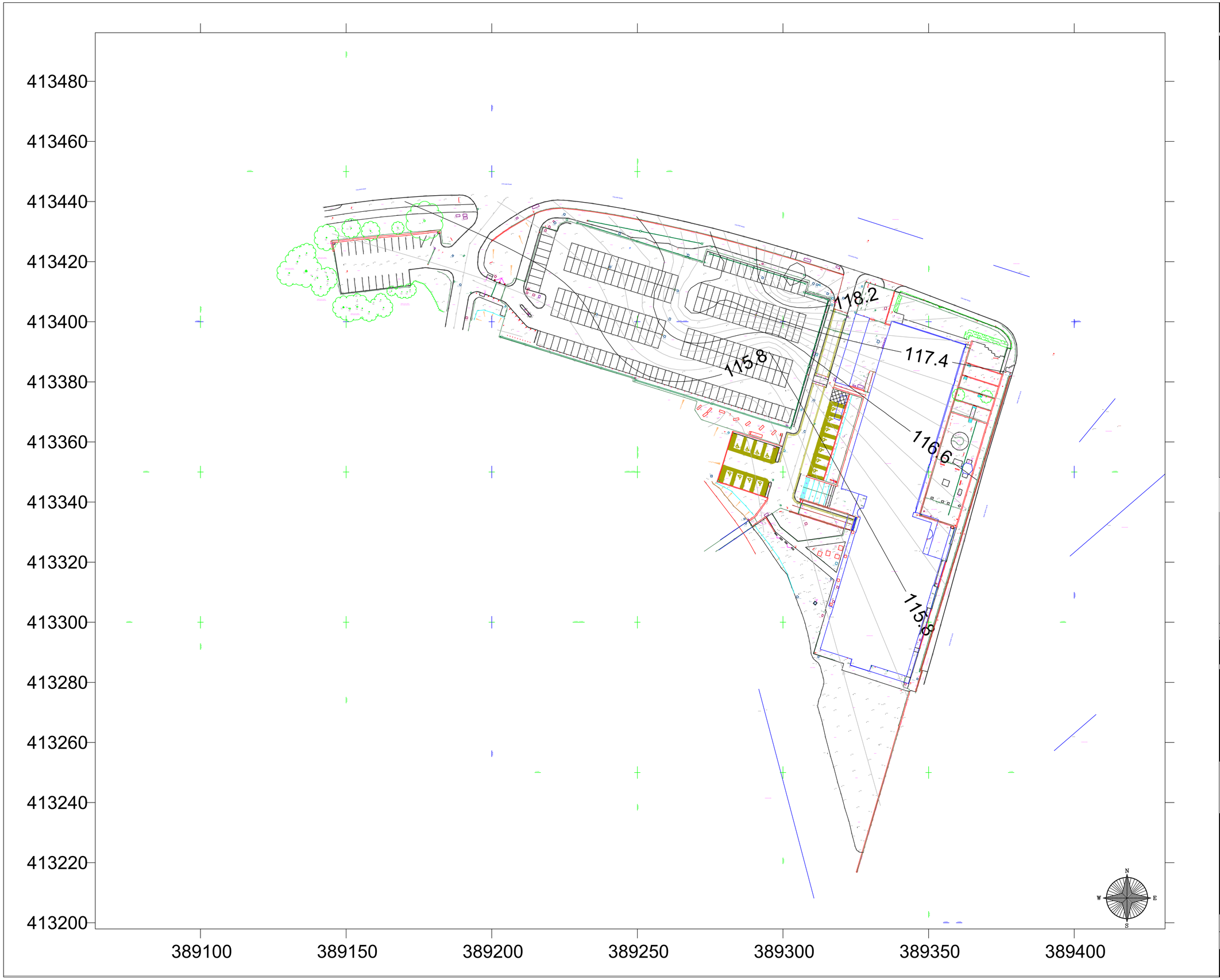
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: BEDROCK ELEVATIONS

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-018-V01	P1



DO NOT SCALE

NOTES

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

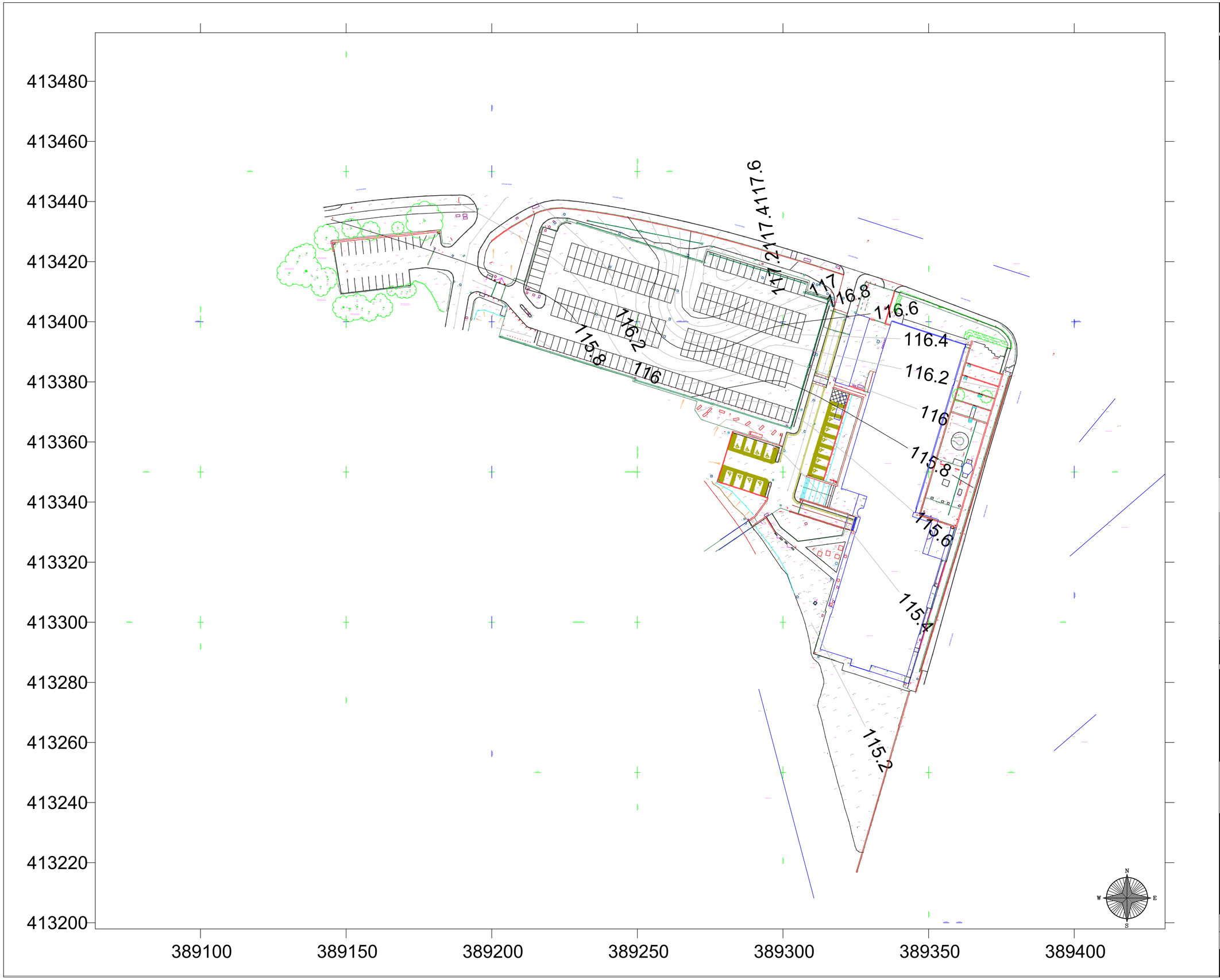
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: GROUNDWATER CONTOURS - MONITORING VISIT 1 17.12.2024

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-019-V01	P1



DO NOT SCALE

NOTES

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

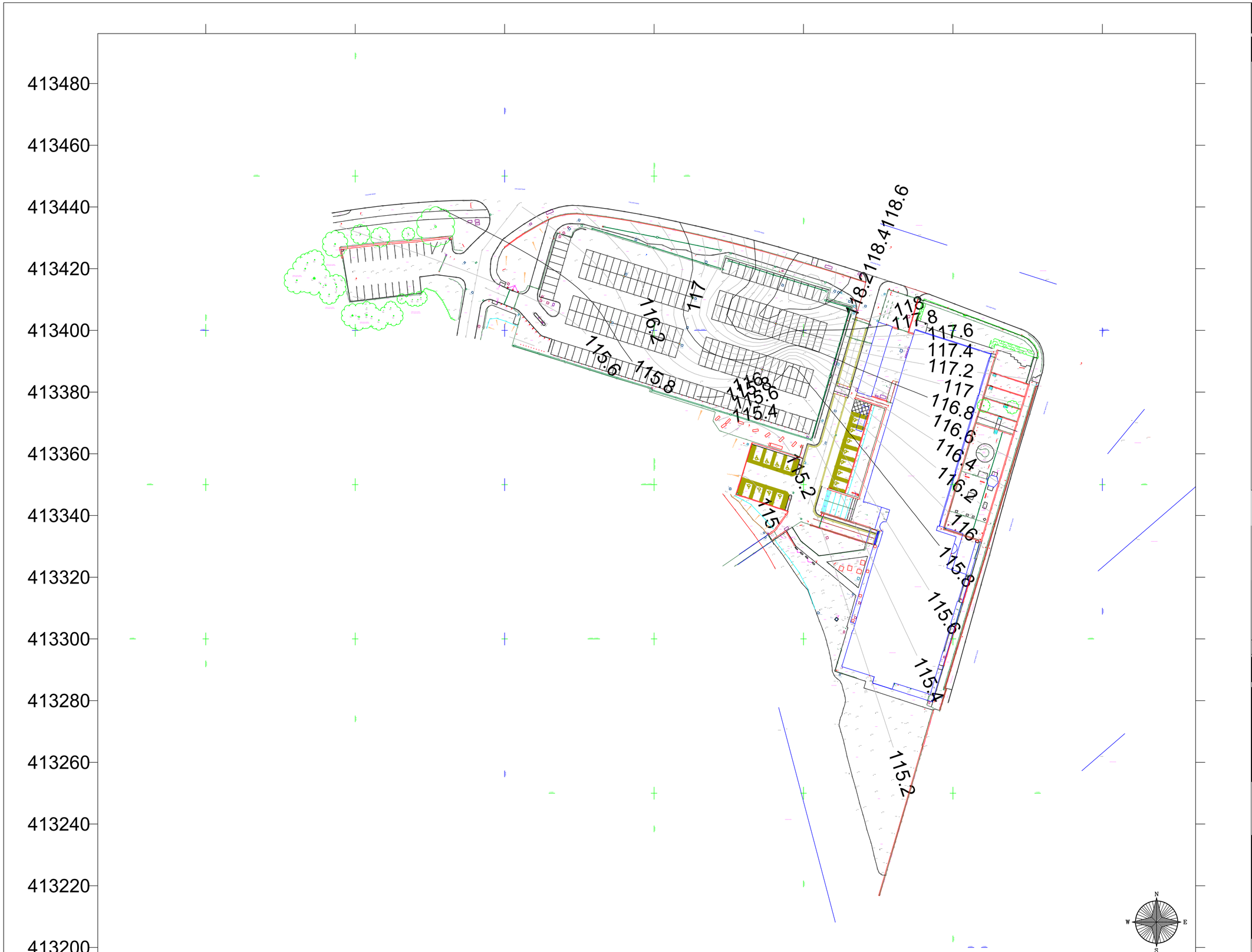
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: GROUNDWATER CONTOURS - MONITORING VISIT 2 07.01.2025

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-020-V01	P1



DO NOT SCALE

NOTES

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

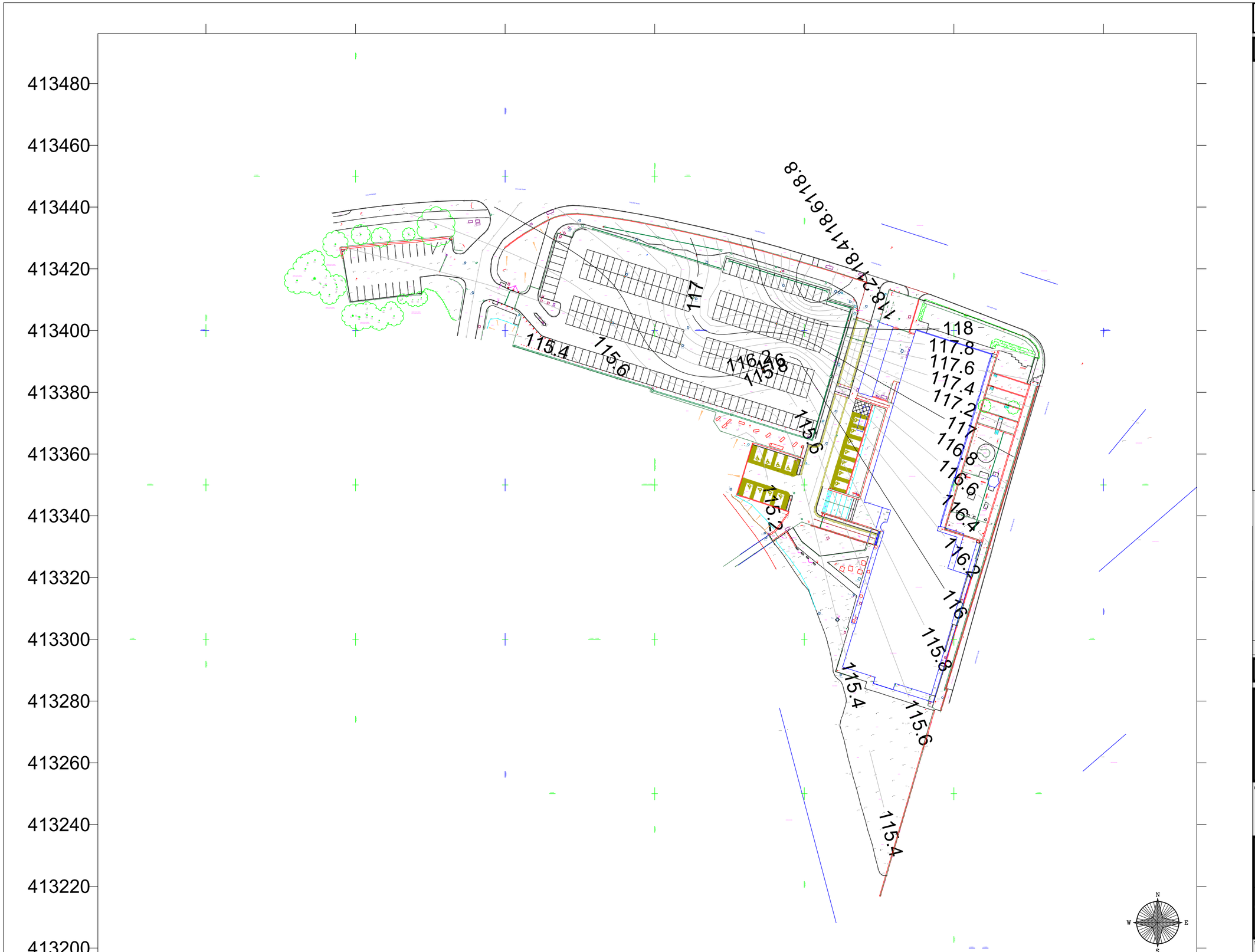
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: GROUNDWATER CONTOURS - MONITORING VISIT 3 15.01.2025

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-021-V01	P1



DO NOT SCALE

NOTES

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

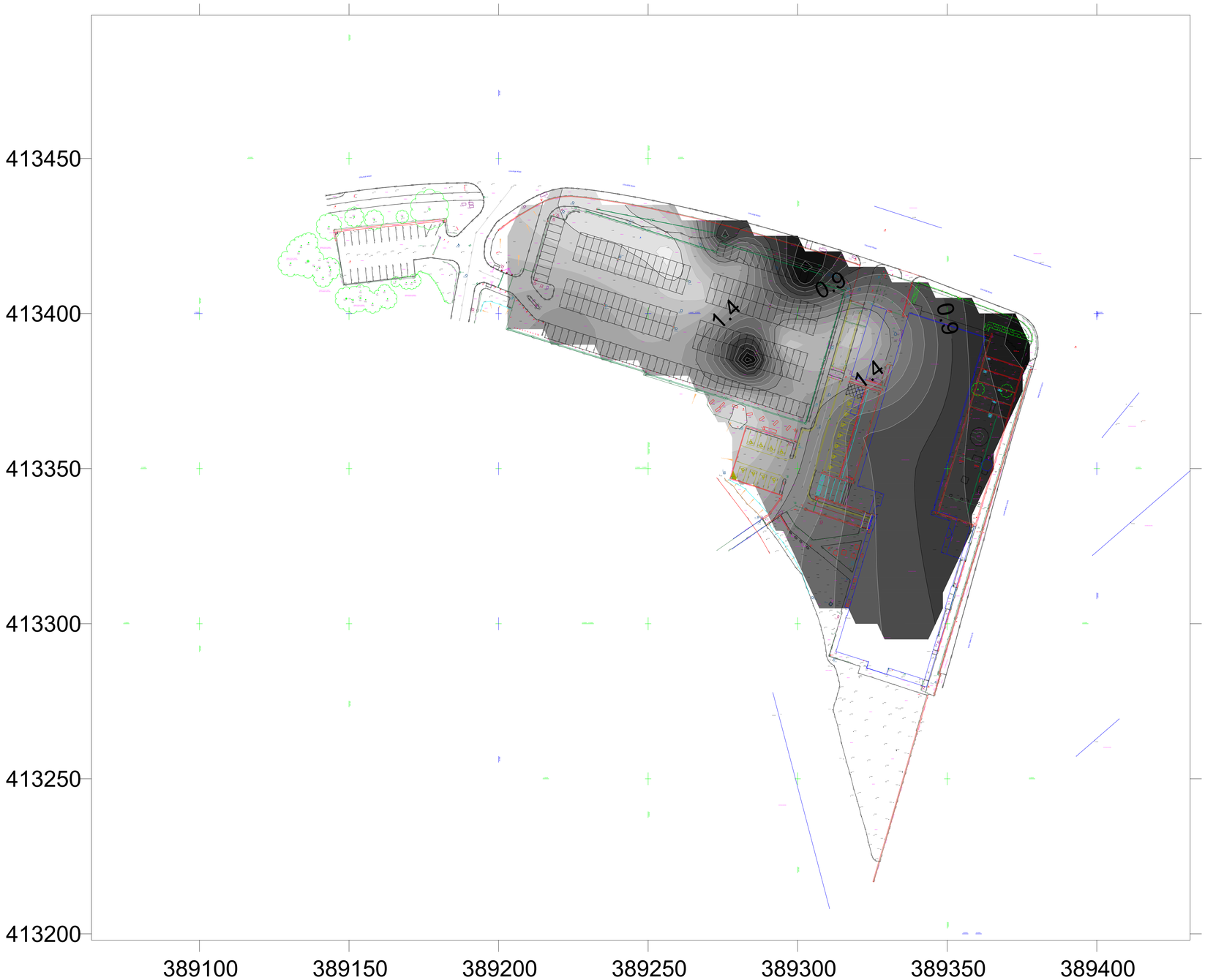
CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: GROUNDWATER CONTOURS - MONITORING VISIT 4 24.01.2025

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-022-V01	P1



DO NOT SCALE

NOTES

M
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	04.02.2025	CS	ISSUED FOR INFORMATION	AP	AP

DRAWING STATUS: INFORMATION

Tier Environmental Ltd.
Unit 5 Office Village
Sandpiper Court
Chester Business Park
Chester | CH4 9QZ

t: 01925 818 388

CLIENT: WILLMOTT DIXON

PROJECT: HOPWOOD HALL COLLEGE

TITLE: THICKNESS OF PFA

SCALE @ SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
–	CS	04/02/2025

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-023-V01	P1

APPENDIX B - EXPLORATORY HOLE LOGS

Borehole Log

Borehole No. **CP101**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389257.00 - 413418.00	Hole Type CP
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 27/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.09	119.44		MADE GROUND: Black high aggregate ASPHALT. Aggregate is medium to coarse, angular to subangular of limestone.
					0.16	119.37		MADE GROUND
		0.40	D		0.21	119.32		MADE GROUND: Grey, high aggregate CONCRETE. Aggregate is medium to coarse, subangular of limestone. Low air voids.
					0.50	119.03		MADE GROUND
		0.70	D					MADE GROUND: Bluish grey, medium aggregate CONCRETE. Aggregate is fine to medium, angular of limestone with medium air voids.
		0.70 - 1.20	B					MADE GROUND
		1.20	SPTL					MADE GROUND: Dark grey, clayey, sandy GRAVEL of fine to medium, angular to subrounded of brick, sandstone, frequent gravel sized silt pockets with white coating.
		1.20	S	50 (25 for 95mm/50 for 50mm)				MADE GROUND
								MADE GROUND: Medium dense to dense, grey slightly sandy SILT (possible PFA)
								MADE GROUND
		2.20	SPTL					
		2.20	S	N=23 (4,5/5,5,6,7)				
					2.60	116.93		MADE GROUND: Dense, brown, sandy GRAVEL of fine to coarse, angular to subangular of brick and sandstone, occasional limestone with frequent cobbles of sandstone.
		2.70 - 3.00	B					MADE GROUND
		2.70 - 3.00	ES					
	▼	3.10	SPTL					
	▼	3.10	S	N=27 (10 for 115mm/12,7,4,4)				
					3.90	115.63		Stiff, dark grey, gravelly CLAY. Gravel is fine to medium angular of mudstone.
								TILL
		4.20	SPTL		4.20	115.33		Extremely weak, dark grey MUDSTONE recovered as angular gravel.
		4.20	S	50 (25 for 115mm/50 for 115mm)				PENNINE MIDDLE COAL MEASURES
		4.50	B					
								Continued on next sheet

1 2 3 4 5

Remarks

1) Groundwater encountered at 3.50m bgl rising to 3.20m after 20mins 2) No visual or olfactory evidence of contamination 3) Installed and backfilled 4) 1hr of chiselling in bedrock 5) Cased to 4.40m bgl.

Borehole Log

Borehole No. **CP101**

Sheet 2 of 2

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389257.00 - 413418.00	Hole Type CP
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	27/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.20	B		5.35	114.18		End of borehole at 5.35 m
		5.30 5.30	SPTL S	50 (25 for 20mm/50 for 30mm)				

Remarks

1) Groundwater encountered at 3.50m bgl rising to 3.20m after 20mins 2) No visual or olfactory evidence of contamination 3) Installed and backfilled 4) 1hr of chiselling in bedrock 5) Cased to 4.40m bgl.

Borehole Log

Borehole No. **CP102**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389296.00 - 413391.00	Hole Type CP
Location: Rochdale		Level: 119.51	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.14	119.37		MADE GROUND: Black high aggregate ASPAHLT. Aggregate is fine to coarse, angular to subangular limestone. MADE GROUND
					0.25	119.26		MADE GROUND: Dark grey, high aggregate CONCRETE. Aggregate is medium to coarse, angular to subangular limestone. MADE GROUND
					0.50	119.01		MADE GROUND: Grey, medium to high aggregate CONCRETE. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
		0.70	D		0.80	118.71		MADE GROUND: Brown, gravelly SAND. Gravel is fine to coarse, angular to subangular predominantly of brick with occasional sandstone and limestone. MADE GROUND
		1.20 1.20	SPTL S	50 (7,8/50 for 180mm)				MADSE GROUND: Medium dense to dense, light grey SILT (possible PFA) MADE GROUND
		1.70	B					
		2.20 2.20	SPTL S	N=19 (4,4/4,5,5,5)				
					2.60	116.91		MADE GROUND: Medium dense, brown, sandy GRAVEL of fine to coarse, angular to subangular sandstone and brick. MADE GROUND
	▼	3.10 3.10	SPTL S	N=22 (5,5/5,6,6,5)				
		4.00 4.00	SPTL S	50 (10,14/50 for 105mm)				
					4.20	115.31		MADE GROUND: Dense, black ashy GRAVEL of fine to coarse, angular to subangular predominantly brick and sandstone with occasional limestone and fine coal fragments. MADE GROUND
								Continued on next sheet

1 2 3 4 5

Remarks

1) Groundwater encountered at 3.40m bgl 2) Ashy material between 4.20m and 5.40m bgl, no other visual or olfactory evidence of contamination. 3) Cased to 5.40m 4) Installed and backfilled 5) Chiselled for 1hr into bedrock.

Borehole Log

Borehole No. **CP102**
Sheet 2 of 2

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389296.00 - 413391.00	Hole Type CP
Location:	Rochdale		Level:	119.51	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00 5.00	SPTL S	50 (7,9/50 for 180mm)				
		5.40 5.40	SPTL S	50 (25 for 70mm/50 for 40mm)	5.40	114.11		Extremely weak, dark grey MUDSTONE. PENNINE MIDDLE COAL MEASURES
		6.20 6.20	SPTL S	50 (25 for 20mm/50 for 30mm)	6.25	113.26		End of borehole at 6.25 m

Remarks
1) Groundwater encountered at 3.40m bgl 2) Ashy material between 4.20m and 5.40m bgl, no other visual or olfactory evidence of contamination. 3) Cased to 5.40m 4) Installed and backfilled 5) Chiselled for 1hr into bedrock.

Borehole Log

Borehole No. **CP103**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389224.00 - 413397.00	Hole Type CP
Location: Rochdale		Level: 119.43	Scale 1:25
Client: Willmott Dixon		Dates: 26/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.06	119.37		MADE GROUND: Black, medium to high aggregate ASPAHLT. Aggregate is fine to coarse, angular to subangular of limestone. MADE GROUND
					0.11	119.32		
					0.33	119.10		MADE GROUND: Bluish grey, high aggregate CONCRETE. Aggregate is fine, angular to subangular of limestone. MADE GROUND
								MADE GROUND: Grey, high aggregate CONCRETE. Aggregate is fine to medium, angular to subangular of limestone. Low (approx <5%) air voids MADE GROUND
		1.20 1.20	SPTL S	N=50 (4,5/50 for 235mm)				MADE GROUND: Dense, grey slightly sandy SILT (possible PFA) MADE GROUND
		2.20 2.20	SPTL S	N=16 (3,3/3,4,4,5)	2.20	117.23		MADE GROUND: Medium dense, greyish brown, sandy, gravelly SILT. Gravel is fine to coarse, angular to subangular of brick, sandstone, rare coal /ash. MADE GROUND
		3.40 3.40	SPTL S	N=10 (4,3/3,2,2,3)	3.40	116.03		MADE GROUND: Medium dense to dense greyish brown, clayey, sandy GRAVEL. Gravel is fine to coarse, angular to subangular of brick and sandstone. MADE GROUND
		4.50 4.50	SPTL S	74 (5,5/74 for 225mm)				

Continued on next sheet

Remarks

1) Groundwater encountered at 3.40m rising to 3.20m after 20mins 2) Terminated on refusal 3) Cased to 7.00m bgl 4) Chiselled for 1hr 5) Installed and Backfilled

Borehole Log

Borehole No. **CP103** Sheet 2 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389224.00 - 413397.00	Hole Type CP
Location: Rochdale		Level: 119.43	Scale 1:25
Client: Willmott Dixon		Dates: 26/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.30 5.30	SPTL S	N=27 (12,12/10,7,5,5)	5.10	114.33		MADE GROUND: Medium dense to dense, black ashy GRAVEL. Gravel is fine to coarse, subangular to subrounded of brick, occasional sandstone, ceramic. Slight organic odour. MADE GROUND
		6.50 6.50	SPTL S	50 (10,12/50 for 125mm)	6.50	112.93		Extremely weak, dark grey MUDSTONE PENNINE MIDDLE COAL MEASURES
		7.50 7.50	SPTL S	50 (25 for 30mm/50 for 60mm)	7.59	111.84		End of borehole at 7.59 m

Remarks
1) Groundwater encountered at 3.40m rising to 3.20m after 20mins 2) Terminated on refusal 3) Cased to 7.00m bgl 4) Chiselled for 1hr 5) Installed and Backfilled

Borehole Log

Borehole No. **CP105**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords: 389281.00 - 413418.00	Hole Type CP
Location:	Rochdale		Level: 119.50	Scale 1:25
Client:	Willmott Dixon		Dates: 04/12/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.05	119.45		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is medium to coarse, angular of limestone.
					0.13	119.37		MADE GROUND
								MADE GROUND: Bluish grey, high aggregate CONCRETE. Aggregate is fine to medium, angular to subangular of limestone with low to medium air voids.
					0.65	118.85		MADE GROUND
					0.70	118.80		MADE GROUND: Grey, medium to high aggregate CONCRETE with bluish grey low aggregate concrete down approx half of core to 0.30m bgl. Aggregate is fine to coarse, angular to subangular of limestone with low air voids (fine aggregate of limestone in blue grey half)
					0.75	118.75		MADE GROUND
		1.20	SPTL					*Rebar approx 25mm diameter at 0.40m bgl.*
		1.20	S	50 (5,8/50 for 240mm)				*Plastic membrane diagonally from 0.50m to 0.70m bgl.*
								MADE GROUND: Darker grey, high aggregate CONCRETE. Aggregate is medium to coarse, angular to subangular of limestone.
								MADE GROUND
								MADE GROUND: Dark grey, 'loose fill', high aggregate CONCRETE with medium to high air voids. Aggregate is medium to coarse, subangular to subrounded of limestone.
								MADE GROUND
								MADE GROUND: Dense, compacted, grey, slightly gravelly SILT. Gravel is fine to coarse, angular to subangular of sandstone. (possible PFA)
		2.30	SPTL		2.30	117.20		MADE GROUND
		2.30	S	N=16 (3,4/4,4,4,4)				MADE GROUND: Medium dense, brownish grey, clayey SAND and GRAVEL. Gravel is fine to medium, subangular to subrounded of sandstone, occasional mudstone and rare brick. Sand is fine to medium grained.
								MADE GROUND
		3.20	SPTL					
		3.20	S	N=60 (3,4/60 for 255mm)				
					3.40	116.10		Extremely weak, dark grey, occasional weathered brown MUDSTONE recovered as clayey gravel to approx 3.50m bgl. PENNINE MIDDLE COAL MEASURES
					4.20	115.30		End of borehole at 4.20 m

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.40m bgl rising to 3.00m bgl after 20mins 3) No visual or olfactory evidence of contamination 4) Cased to 3.40m 5) Chiselled for 1hr. 6) Installed and backfilled.

Borehole Log

Borehole No. **HDP101**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389251.00 - 413436.00	Hole Type WS
Location:	Rochdale		Level:	119.40	Scale 1:25
Client:	Willmott Dixon		Dates:	27/11/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.13	119.27		MADE GROUND: Black ASPHALT MADE GROUND
					0.54	118.86		MADE GROUND; Dark greyish brown, fine to coarse, angular to subangular, sandy, slightly ashy GRAVEL of mixed lithologies including brick, sandstone, concrete and limestone. MADE GROUND *Concrete footing of retaining wall from 0.32m to 0.62m bgl North face of pit.*
	▼				0.86	118.54		MADE GROUND: Soft to firm, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine to medium, angular to subangular of brick. MADE GROUND End of borehole at 0.86 m

1 2 3 4 5

Remarks

1) Groundwater encountered as slow seepage at base of pit 2) Slightly ashy between 0.13m and 0.54m bgl, no further sign of contamination 3) Backfilled with arisings 4) Excavated for foundation inspection.

Borehole Log

Borehole No. **HDP102**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389320.00 - 413418.00	Hole Type WS
Location:	Rochdale		Level:	119.99	Scale 1:25
Client:	Willmott Dixon		Dates:	27/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	119.84		MADE GROUND: Black ASPHALT MADE GROUND
					0.45	119.54		MADE GROUND; Dark greyish brown, fine to coarse, angular to subangular, sandy, slightly ashy GRAVEL of mixed lithologies including brick, sandstone, concrete and limestone. MADE GROUND
								MADE GROUND: Soft to firm, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine to medium, angular to subangular of brick. MADE GROUND *Concrete footing of retaining wall from 0.60m to 0.87m in north face of pit*
					1.13	118.86		End of borehole at 1.13 m

Remarks

1) No groundwater encountered 2) Slightly ashy between 0.15m and 0.45m bgl, no further sign of visual or olfactory contamination. 3) Backfilled with arisings 4) Excavated for foundation inspection.

Borehole Log

Borehole No. **HDP104**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389284.00 - 413367.00	Hole Type WS
Location:	Rochdale		Level:	119.86	Scale 1:25
Client:	Willmott Dixon		Dates:	27/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.05	119.81		MADE GROUND: Black ASPHALT MADE GROUND
					0.22	119.64		MADE GROUND: Grey CONCRETE MADE GROUND *Concrete from 0.05m to base of pit in southern pit wall*
								MADE GROUND: Fine to coarse, angular to subangular sandy GRAVEL of mixed lithologies including brick, concrete and sandstone. MADE GROUND
					0.67	119.19		MADE GROUND: Grey CONCRETE. Hand drilled through to base of concrete slab at 1.07m. MADE GROUND
					1.07	118.79		End of borehole at 1.07 m

1
2
3
4
5

Remarks

1) No groundwater encountered 2)No visual or olfactory evidence of contamination 3) Backfilled with arisings 4) Excavated for foundation inspection

Borehole Log

Borehole No. **HDP105**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389332.00 - 413401.00	Hole Type WS
Location:	Rochdale		Level:	119.29	Scale 1:25
Client:	Willmott Dixon		Dates:	27/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	119.17		MADE GROUND: Black ASPAHLT MADE GROUND
					0.21	119.08		MADE GROUND: Grey CONCRETE MADE GROUND
								MADE GROUND: Brown, sandy, gravelly COBBLES of occasional sandstone and concrete. Gravel is fine to coarse, angular to subangular of brick, sandstone, concrete and limestone. MADE GROUND
					0.83	118.46		*Concrete foundation of brick wall encountered from 0.82 to 1.52m bgl. Hand dug pit terminated at 1.20m bgl, hand drilled through concrete find base of slab at 1.52m bgl*
								POSSIBLE MADE GROUND: Soft to firm, brown CLAY POSSIBLE MADE GROUND
					1.52	117.77		End of borehole at 1.52 m

1
2
3
4
5

Remarks

1) No groundwater encountered 2) Terminated at target depth 3) No visual or olfactory evidence of contamination 4) Backfilled with arisings 5) Excavated for foundation inspection.

Rotary Core Log

Borehole No. **RH101**

Sheet 1 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389230.00 - 413433.00	Hole Type RO
Location: Rochdale		Level: 119.52	Scale 1:25
Client: Willmott Dixon		Dates: 18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		0.05	ES				0.12	119.40		MADE GROUND: Black, medium aggregate ASPHALT. Aggregate is medium to coarse, angular to subangular of limestone and occasional granite. MADE GROUND
							0.50	119.02		MADE GROUND: Grey, medium to high aggregate CONCRETE. Aggregate is medium to coarse, angular ti subangular of limestone. Low (<5%) air voids MADE GROUND
							0.70	118.82		MADE GROUND: Red BRICK MADE GROUND
		1.10 - 2.20	B							MADE GROUND: Dense, grey, sandy SILT with occasional medium, angular gravel of brick and rare clinker. (Possible PFA) MADE GROUND
							2.20	117.32		MADE GROUND: Friable brownish grey, gravelly CLAY with frequent cobbles of brick. Gravel is fine to coarse, angular to subangular of brick. MADE GROUND
	▼	3.00 3.00	D SPTL S							
		3.30 - 4.00	B				3.30	116.22		POSSIBLE MADE GROUND: Firm to stiff, reddish brown, silty CLAY with occasional cobbles of sandstone. MADE GROUND
		4.00 4.00	D SPTL S				4.00	115.52		Stiff, reddish brown, silty CLAY. TILL *Switch from dynamic sampling to rotary coring.*
							4.50	115.02		Extremely weak to very weak, highly fractured, grey MUDSTONE recovered as clay coated gravel and cobbles. 70% flush return. TILL
		4.77 - 4.80	C				4.80	114.72		Very weak, thinly laminated grey MUDSTONE. Discontinuities are horizontal to 20°, very closely

Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No. **RH101**

Sheet 2 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389230.00 - 413433.00	Hole Type RO
Location: Rochdale		Level: 119.52	Scale 1:25
Client: Willmott Dixon		Dates: 18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										spaced, planar smooth to planar rough, wall strength very weak clay infilled. PENNINE MIDDLE COAL MEASURES *60% flush return.*
							5.35	114.17		Soft to firm, dark grey, gravelly CLAY. Gravel is fine to medium, subangular to subrounded of MUDSTONE TILL
							5.66	113.86		*95% flush return between 5.35m to 6.35m bgl*
		6.28 - 6.35	C							Very weak, thinly laminated, dark grey MUDSTONE. Discontinuities are horizontal to 20°, very closely spaced, planar smooth, wall strength very weak, clean clay infill. PENNINE LOWER COAL MEASURES *discontinuities are 90°, stepped smooth, wall strength very weak, stained reddish brown between 5.93m to 6.08m bgl.*
		6.71 - 6.78	C							*0% flush return between 6.35m and 7.85m bgl due to suspected highly fractured band. Drilling polymer added.*
										Becoming extremely weak and clay coated between 7.25m and 7.40m bgl.
							7.40	112.12		Extremely weak to very weak, thinly laminated to thickly laminated, greyish brown, interbedded SANDSTONE and SILTSTONE. Discontinuities are horizontal to 10°, extremely closely to very closely spaced, planar smooth, wall strength extremely weak, clean infill. PENNINE LOWER COAL MEASURES
		7.71 - 7.75	C							
							7.90	111.62		Extremely weak to very weak, thinly laminated, grey occasionally stained reddish brown SILTSTONE. Discontinuities are horizontal to 10° and occasional 90°, very closely to closely spaced, wall strength, extremely weak, undulating smooth slightly silty infill. PENNINE LOWER COAL MEASURES
							8.35	111.17		Very weak, very thinly to thinly bedded, greyish brown occasionally stained reddish brown, fine grained SANDSTONE. Discontinuities are horizontal to 10° and 110° to 130° very closely spaced, planar rough to undulating striated, wall strength very weak, clean infill. Becoming extremely weak from 9.00m bgl PENNINE LOWER COAL MEASURES *Loss of flush due to suspected highly fractured rock. Casing extended to 9.00m bgl.*
		9.02 - 9.15	C							
							9.40	110.12		Extremely weak, very narrow to thinly laminated, grey to dark grey, interbedded SILTSTONE and SANDSTONE. Discontinuities are horizontal to 10°, extremely closely spaced, planar rough, wall strength extremely weak, clean infill to silt/clay infill. PENNINE LOWER COAL MEASURES
		9.56 - 9.61	C							

Continued on next sheet

6 7 8 9 10

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No. **RH101**

Sheet 3 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389230.00 - 413433.00	Hole Type RO
Location: Rochdale		Level: 119.52	Scale 1:25
Client: Willmott Dixon		Dates: 18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		10.15 - 10.40	C				10.10	109.42		Medium strong, thinly bedded, light grey SANDSTONE. Discontinuities are horizontal 10°, very closely to closely spaced, planar smooth to rough stepped, wall strength very weak, clean to sand / silt infill. PENNINE LOWER COAL MEASURES
		10.77 - 10.80	C							
		11.71 - 11.74	C							*only 0.75m run due to cleaning out settled polymar as first run of the day. 40% flush return between 12.15m to 12.90m bgl.*
		12.84 - 12.90	C							*no flush return, likely due to highly fractured rock around 12.00m bgl.*
		13.42 - 13.50	C				13.28	106.24		Extremely weak, very narrow to thinly laminated, grey to dark grey SILTSTONE. Discontinuities are horizontal to 10° occasional 40° very closely to closely spaced, stepped rough, wall strength extremely weak, clean to occasional clay infill. PENNINE LOWER COAL MEASURES
		14.22 - 14.26	C				14.30	105.22		Medium strong, thinly bedded, dark grey SILTSTONE. Discontinuities are horizontal to 20°, closely becoming very closely spaced, stepped rough, wall strength weak, clean infill. PENNINE LOWER COAL MEASURES

Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No. **RH101**

Sheet 4 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389230.00 - 413433.00	Hole Type RO
Location: Rochdale		Level: 119.52	Scale 1:25
Client: Willmott Dixon		Dates: 18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		15.12 - 15.16	C							*weathered to coarse, angular gravel between 15.30m and 15.45m bgl.*
										10% flush return between 15.50m and 17.50m bgl. Drillers suspected increased flush loss around 6.00-8.00m bgl so cased to 10.50m bgl and drilling polymer added, 100% flush return from 17.50m to 18.30m bgl.
							17.20	102.32		Very weak, thinly bedded, dark grey SILTSTONE. Discontinuities are horizontal to 10° very closely spaced, stepped rough, wall strength extremely weak, clean to slightly clayey infill.
		17.30 - 17.39	C							PENNINE LOWER COAL MEASURES
							17.50	102.02		Medium strong, thinly bedded, dark grey SILTSTONE. Discontinuities are horizontal to 20°, closely becoming very closely spaced, stepped rough, wall strength weak, clean infill. PENNINE LOWER COAL MEASURES
		18.30 - 18.42	C							*60% flush return between 18.30m and 19.80m bgl.*
		19.23 - 19.30	C							
							19.30	100.22		Very weak, very thinly bedded to narrowly bedded, dark grey SILTSTONE. Discontinuities are horizontal to 60° very closely spaced, planar rough to stepped rough, wall strength extremely weak, clean occasional sand and clay infill. PENNINE LOWER COAL MEASURES
							19.80	99.72		*weathered to gravel between 19.45m to 19.55m bgl and 19.60m to 19.65m bgl*
							20.00	99.52		Weak Flush, assumed to be SILTSTONE

Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No.
RH101
Sheet 5 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389230.00 - 413433.00	Hole Type RO
Location:	Rochdale		Level:	119.52	Scale 1:25
Client:	Willmott Dixon		Dates:	18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										PENNINE MIDDLE COAL MEASURES *coring stopped at 19.80m bgl continued with rotary open hole.* Hard grey fractured MUDSTONE, with bands of of sandstone. Full flush PENNINE MIDDLE COAL MEASURES

21
22
23
24
25

Continued on next sheet

Remarks
1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No.
RH101
Sheet 6 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389230.00 - 413433.00	Hole Type RO
Location:	Rochdale		Level:	119.52	Scale 1:25
Client:	Willmott Dixon		Dates:	18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							29.00	90.52		Coal flash in MUDSTONE PENNINE MIDDLE COAL MEASURES
										Continued on next sheet

26
27
28
29
30

Remarks
1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No.
RH101
Sheet 7 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389230.00 - 413433.00	Hole Type RO
Location:	Rochdale		Level:	119.52	Scale 1:25
Client:	Willmott Dixon		Dates:	18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							30.30	89.22		Hard COAL COAL
							30.80	88.72		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
							32.00	87.52		Hard grey SANDSTONE PENNINE MIDDLE COAL MEASURES
							34.50	85.02		Hard grey fractured SANDSTONE - lost flush (partial flush) PENNINE MIDDLE COAL MEASURES
							35.00	84.52		Continued on next sheet

31
32
33
34
35

Remarks
1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No. **RH101**

Sheet 8 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389230.00 - 413433.00	Hole Type RO
Location: Rochdale		Level: 119.52	Scale 1:25
Client: Willmott Dixon		Dates: 18/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Hard drilling, possible fractured SANDSTONE PENNINE MIDDLE COAL MEASURES
							39.70	79.82		Weak drilling, partial flush. Assumed to be fractured SANDSTONE. PENNINE MIDDLE COAL MEASURES
							40.00	79.52		End of borehole at 40.00 m

36 37 38 39 40

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 3.20m bgl. 3) No visual or olfactory evidence of contamination. 4) Cased to 10.50m bgl. 5) Installed and backfilled.

Rotary Core Log

Borehole No. **RH101A**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389230.00 - 413433.00	Hole Type RO
Location:	Rochdale		Level:	119.52	Scale 1:25
Client:	Willmott Dixon		Dates:	18/11/2024 -	Logged By SE

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.12	119.40		MADE GROUND: Black, medium aggregate ASPAHLT. Aggregate is medium to coarse, angular to subangular of gravel and limestone. MADE GROUND
		0.50	B				0.45 0.54	119.07 118.98		MADE GROUND: Grey, medium to high aggregate CONCRETE. Aggregate is medium to coarse, angular to subangular of limestone. Low (0%) air voids. MADE GROUND
		1.10 1.10	D SPTL S							MADE GROUND: Red BRICK MADE GROUND
		2.00	SPTL S							MADE GROUND: Grey, sandy SILT with occasional medium angular gravel of brick and rare clinker. (possible PFA) Dense becoming wet from 2.00m bgl. MADE GROUND
							2.20 2.21	117.32 117.31		MADE GROUND: Possible metal, drill bit slipping, cant grip to cut through. SPT refusal, no progress. Terminated on suspected metal obstruction. MADE GROUND
										End of borehole at 2.21 m

Remarks

1) Hand dug pit to 1.20m bgl. 2) No groundwater encountered 3) No visual or olfactory evidence of contamination 4) Cased to 2.00m bgl 5) Terminated due to obstruction, moved west approx 0.50m and redrilled (see RH101).

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 1 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		0.05	ES				0.35	119.29		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is fine to coarse, subangular to angular of limestone. MADE GROUND
		0.70	D				0.80	118.84		MADE GROUND; Dense becoming medium dense, dark grey clayey, sandy GRAVEL of fine to medium, angular to subrounded of brick, sandstone, frequent gravel sized silt pockets with white coating. MADE GROUND
		1.20	SPTL S							MADE GROUND: Dense, dark grey, slightly gravelly SILT. Gravel is fine to coarse, angular to subangular of brick and sandstone (possible PFA) MADE GROUND
		1.70 - 2.00	B							
		2.00	SPTL S							*Lenses of fine to medium grained sand at 2.20m*
		3.00	SPTL S				2.65	116.99		MADE GROUND: Dense, brown, sandy GRAVEL of fine to coarse, angular to subangular of brick and sandstone, occasional limestone with frequent cobbles of sandstone. MADE GROUND
		4.00	SPTL S							
		5.00								Continued on next sheet

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 2 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
			SPTL S				5.10	114.54		Stiff, dark grey, gravelly CLAY. Gravel is fine to medium angular of mudstone. TILL
		5.40	SPTL S				5.30	114.34		Extremely weak, dark grey MUDSTONE recovered as angular gravel. PENNINE MIDDLE COAL MEASURES
							6.05	113.59		Extremely weak, dark grey MUDSTONE weathered to clayey gravel PENNINE MIDDLE COAL MEASURES
		6.20	SPTL S				6.20	113.44		Strong, dark grey, fine grained SANDSTONE. Discontinuities are 10° to 20° occasional 80°, very closely to closely spaced, stepped rough to stepped smooth, wall strength strong, clean infill. PENNINE MIDDLE COAL MEASURES
		6.00 - 7.50	5	100	35	29				*Becoming light grey from 6.70m bgl.*
							6.84	112.80		Weak, narrowly laminated grey interbedded MUDSTONE and SANDSTONE. Discontinuities are horizontal to 30°, very closely spaced, undulating rough to undulating smooth, wall strength extremely weak to weak, clean to clayey infill. Occasional bands of mudstone weathered to brown, extremely weak. PENNINE MIDDLE COAL MEASURES
		7.50 - 9.00	36	96	44	45	8.00	111.64		Strong grey, narrowly laminated grey fine grained SANDSTONE. Discontinuities are horizontal to 10°, very closely to closely spaced, planar rough to planar smooth, wall strength medium strong to strong, clean infill. PENNINE MIDDLE COAL MEASURES
										Weathered to gravel between 8.19m to 8.25m
										50% flush return between 9.00m to 10.50m bgl. Limited recovery between 10.20m and 10.40m bgl.
		9.00 - 10.50	32	96	23	23	9.19	110.45		Very weak, dark grey, thinly laminated MUDSTONE. Discontinuities are 10° to 80°, very closely to closely spaced, undulating rough to undulating smooth, wall strength very weak, clean, occasional weathered brown infill. PENNINE MIDDLE COAL MEASURES
							9.66	109.98		Strong to very strong, grey becoming stained . weathered brown inbands, fine grained SANDSTONE with coal flashes Discontinuities 10° to 80° closely spaced to medium spaced,
										Continued on next sheet

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 3 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										undulating striated, wall strength strong, clean infill. PENNINE MIDDLE COAL MEASURES
										assumed weathered to gravel. Becoming strong from 10.40m bgl.
		10.50 - 12.00	24	96	51	45				*95% flush returns between 10.50m and 13.50m bgl, 85% between 13.50m and 15.00m bgl.*
		12.00 - 13.50	30	100	16	10				*Weathered to subangular gravel between 12.11m to 12.28m bgl.*
							12.94	106.70		Weak, thinly laminated dark grey MUDSTONE with occasional black flashes. Discontinuities are 10° to 40° occasional 80° very closely spaced, undulating rough to planar smooth, wall strength very weak, clean infill with slight weathered / brown staining. PENNINE MIDDLE COAL MEASURES
		13.50 - 15.00	29	100	30	30				*Weathered to subangular, fine to medium gravel bands between 12.72m to 13.30m bgl and 14.83m to 14.84m bgl.*
										Continued on next sheet

11 12 13 14 15

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 4 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										50% flush returns
		15.00 - 16.50	61	100	24	24	15.50	104.14		Weak, thinly laminated highly fractured, dark grey MUDSTONE. Discontinuities are 10° to 80°, extremely closely becoming very closely to closely spaced from 16.10m bgl. Stepped smooth to undulating smooth, wall strength very weak to weak, clean infill. PENNINE MIDDLE COAL MEASURES
							16.50	103.14		Greyish brown SANDSTONE and MUDSTONE PENNINE MIDDLE COAL MEASURES *Coring stopped at 16.50m bgl continued with rotary openhole.*

16
17
18
19
20

Continued on next sheet

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 5 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description
				TCR	SCR	RQD				

21
22
23
24
25

Continued on next sheet

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 6 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							27.00	92.64		Hard greyish brown SANDSTONE PENNINE MIDDLE COAL MEASURES
							28.40	91.24		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
							30.00	89.64		Continued on next sheet

26
27
28
29
30

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 7 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Hard, greyish brown MUDSTONE and SANDSTONE PENNINE MIDDLE COAL MEASURES
							31.50	88.14		Hard, grey SANDSTONE PENNINE MIDDLE COAL MEASURES
							33.00	86.64		Hard grey MUDSTONE with some fractures. PENNINE MIDDLE COAL MEASURES
							34.20	85.44		Possible COAL / SHALE COAL
							34.40	85.24		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
										Continued on next sheet

31
32
33
34
35

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH102 / CP104
Sheet 8 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							37.00	82.64		Weak, grey fractured SANDSTONE PENNINE MIDDLE COAL MEASURES
							37.50	82.14		Hard, grey MUDSTONE and SANDTONE PENNINE MIDDLE COAL MEASURES
							40.00	79.64		End of borehole at 40.00 m

36
37
38
39
40

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH102 / CP104**

Sheet 1 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES					MADE GROUND: Black, high aggregate ASPHALT. Aggregate is fine to coarse, subangular to angular of limestone. MADE GROUND
					0.35	119.29		
		0.70	D					MADE GROUND; Dense becoming medium dense, dark grey clayey, sandy GRAVEL of fine to medium, angular to subrounded of brick, sandstone, frequent gravel sized silt pockets with white coating. MADE GROUND
					0.80	118.84		
		1.20 1.20	SPTL S	50 (7,8/50 for 180mm)				MADE GROUND: Dense, dark grey, slightly gravelly SILT. Gravel is fine to coarse, angular to subangular of brick and sandstone (possible PFA) MADE GROUND
		1.70 - 2.00	B					
		2.00 2.00	SPTL S	N=19 (4,4/4,5,5,5)				*Lenses of fine to medium grained sand at 2.20m*
					2.65	116.99		
		3.00 3.00	SPTL S	N=22 (5,5/5,6,6,5)				MADE GROUND: Dense, brown, sandy GRAVEL of fine to coarse, angular to subangular of brick and sandstone, occasional limestone with frequent cobbles of sandstone. MADE GROUND
		4.00 4.00	SPTL S	50 (10,14/50 for 105mm)				
								Continued on next sheet

Remarks

1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH102 / CP104**

Sheet 2 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389269.00 - 413406.00	Hole Type CP+RC
Location: Rochdale		Level: 119.64	Scale 1:25
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00 5.00	SPTL S	50 (7,9/50 for 180mm)	5.10	114.54		Stiff, dark grey, gravelly CLAY. Gravel is fine to medium angular of mudstone. TILL
					5.30	114.34		Extremely weak, dark grey MUDSTONE recovered as angular gravel. PENNINE MIDDLE COAL MEASURES
		5.40 5.40	SPTL S	50 (25 for 70mm/50 for 40mm)				
					6.05	113.59		Extremely weak, dark grey MUDSTONE weathered to clayey gravel PENNINE MIDDLE COAL MEASURES
		6.20 6.20	SPTL S	50 (25 for 20mm/50 for 30mm)	6.20	113.44		Strong, dark grey, fine grained SANDSTONE. Discontinuities are 10° to 20° occasional 80°, very closely to closely spaced, stepped rough to stepped smooth, wall strength strong, clean infill. PENNINE MIDDLE COAL MEASURES
								Becoming light grey from 6.70m bgl.
					6.84	112.80		Weak, narrowly laminated grey interbedded MUDSTONE and SANDSTONE. Discontinuities are horizontal to 30°, very closely spaced, undulating rough to undulating smooth, wall strength extremely weak to weak, clean to clayey infill. Occasional bands of mudstone weathered to brown, extremely weak. PENNINE MIDDLE COAL MEASURES
					8.00	111.64		Strong grey, narrowly laminated grey fine grained SANDSTONE. Discontinuities are horizontal to 10°, very closely to closely spaced, planar rough to planar smooth, wall strength medium strong to strong, clean infill. PENNINE MIDDLE COAL MEASURES
								Weathered to gravel between 8.19m to 8.25m
								50% flush return between 9.00m to 10.50m bgl. Limited recovery between 10.20m and 10.40m bgl.
					9.19	110.45		Very weak, dark grey, thinly laminated MUDSTONE. Discontinuities are 10° to 80°, very closely to closely spaced, undulating rough to undulating smooth, wall strength very weak, clean, occasional weathered brown infill. PENNINE MIDDLE COAL MEASURES
					9.66	109.98		Strong to very strong, grey becoming stained . weathered brown inbands, fine grained SANDSTONE with coal flashes Discontinuities 10° to 80° closely spaced to medium spaced,
								Continued on next sheet

Remarks

1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH102 / CP104**

Sheet 3 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								undulating striated, wall strength strong, clean infill. PENNINE MIDDLE COAL MEASURES
								assumed weathered to gravel. Becoming strong from 10.40m bgl.
								95% flush returns between 10.50m and 13.50m bgl, 85% between 13.50m and 15.00m bgl.
								Weathered to subangular gravel between 12.11m to 12.28m bgl.
					12.94	106.70		Weak, thinly laminated dark grey MUDSTONE with occasional black flashes. Discontinuities are 10° to 40° occasional 80° very closely spaced, undulating rough to planar smooth, wall strength very weak, clean infill with slight weathered / brown staining. PENNINE MIDDLE COAL MEASURES
								Weathered to subangular, fine to medium gravel bands between 12.72m to 13.30m bgl and 14.83m to 14.84m bgl.
								Continued on next sheet

11 12 13 14 15

Remarks

1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH102 / CP104**

Sheet 4 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								50% flush returns
					15.50	104.14		Weak, thinly laminated highly fractured, dark grey MUDSTONE. Discontinuities are 10° to 80°, extremely closely becoming very closely to closely spaced from 16.10m bgl. Stepped smooth to undulating smooth, wall strength very weak to weak, clean infill. PENNINE MIDDLE COAL MEASURES
					16.50	103.14		Greyish brown SANDSTONE and MUDSTONE PENNINE MIDDLE COAL MEASURES *Coring stopped at 16.50m bgl continued with rotary openhole.*
								Continued on next sheet

16 17 18 19 20

Remarks

1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No.
RH102 / CP104
Sheet 5 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				

21
22
23
24
25

Continued on next sheet

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No.
RH102 / CP104
Sheet 6 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					27.00	92.64		Hard greyish brown SANDSTONE PENNINE MIDDLE COAL MEASURES
					28.40	91.24		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
					30.00	89.64		Continued on next sheet

26
27
28
29
30

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH102 / CP104**

Sheet 7 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Hard, greyish brown MUDSTONE and SANDSTONE PENNINE MIDDLE COAL MEASURES
					31.50	88.14		Hard, grey SANDSTONE PENNINE MIDDLE COAL MEASURES
					33.00	86.64		Hard grey MUDSTONE with some fractures. PENNINE MIDDLE COAL MEASURES
					34.20	85.44		Possible COAL / SHALE COAL
					34.40	85.24		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
								Continued on next sheet

31 32 33 34 35

Remarks

1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Borehole Log

Borehole No.
RH102 / CP104
Sheet 8 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389269.00 - 413406.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.64	Scale 1:25
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					37.00	82.64		Weak, grey fractured SANDSTONE PENNINE MIDDLE COAL MEASURES
					37.50	82.14		Hard, grey MUDSTONE and SANDTONE PENNINE MIDDLE COAL MEASURES
					40.00	79.64		End of borehole at 40.00 m

36
37
38
39
40

Remarks
1) Groundwater encountered at 4.20m rising to 4.35m bgl during rotary set up and rising to 1.70m bgl overnight 2) Rotary open hole follow on from CP104 3) Black ashy material encountered from 0.48 to 0.80m and 4.20m to 5.40m bgl. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: -	Hole Type RO
Location: Rochdale		Level:	Scale 1:25
Client: Willmott Dixon		Dates: 26/11/2024 -	Logged By SE

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.07			MADE GROUND: Black, medium to high aggregate ASPHALT. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
							0.27			MADE GROUND: Grey, high aggregate CONCRETE. Aggregate is fine to coarse, subangular of limestone with 2mm rebar. Plastic / rubber sheet at base. Low air voids (<5%) MADE GROUND
		1.00 1.00 - 2.00	SPTL S B							MADE GROUND: Dense, compacted grey, slightly gravelly SILT. Gravel is fine to medium, angular of brick. (possible PFA) MADE GROUND
		2.00 2.00 - 3.00	SPTL S B				2.10			MADE GROUND: Medium dense, greyish brown, sandy, fine to coarse, angular to subangular GRAVEL of brick with occasional cobbles of brick. MADE GROUND
							2.50			POSSIBLE MADE GROUND: Medium dense, brown, SAND and GRAVEL Gravel is fine to coarse subangular to subrounded of sandstone. POSSIBLE MADE GROUND
		3.00	SPTL S				3.00			POSSIBLE MADE GROUND: Stiff, brownish grey, slightly gravelly, silty CLAY. Gravel is fine to medium, subangular to subrounded of sandstone and mudstone. POSSIBLE MADE GROUND
							3.30			*Gravel band between 3.16m and 3.25m. Gravel is fine to coarse, subangular to subrounded of sandstone.* Very weak, thinly laminated, dark grey MUDSTONE. Discontinuities are horizontal 20°, very closely to closely spaced, stepped rough, wall strength very weak, clean to clayey infill. PENNINE LOWER COAL MEASURES
							4.06			Medium strong, grey weathered, reddish brown, fine grained SANDSTONE. Discontinuities are 45-60° closely spaced, smooth stepped, wall strength weak to medium strong, clay infill weathered to orangish brown. PENNINE LOWER COAL MEASURES
										100% flush return but easy drilling from 4.50m to 6.00m bgl
							4.70			Medium strong, grey, fine grained SANDSTONE. Discontinuities are horizontal, closely spaced, wall strength medium to strong, clean infill,

Continued on next sheet

Remarks

1) Groundwater encountered at 3.00m bgl. rising to 1.80m after 20mins 2) Moved back 0.30m (see RH103A) 3) No visual or olfactory evidence of contamination 4) Backfilled with bentonite. 5) Cased to 3.00m bgl

Rotary Core Log

Borehole No. **RH103**

Sheet 2 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: -	Hole Type RO
Location: Rochdale		Level:	Scale 1:25
Client: Willmott Dixon		Dates: 26/11/2024 -	Logged By SE

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
			15							stained reddish brown. PENNINE LOWER COAL MEASURES *Weathered to gravel between 4.90m and 5.25m bgl.* *Fracture 45° to 80° between 5.40m to 5.50m bgl.*
			3				6.00			Brownish grey, fine to coarse, angular GRAVEL of sandstone. Lost flush. GLACIOFLUVIAL DEPOSITS
							6.25			Medium strong, grey, thickly laminated to thinly bedded fine grained SANDSTONE. PENNINE MIDDLE COAL MEASURES
							6.50 6.51			Loss of flush. Core barrel stuck and loss of drill bit (possible cast iron obstruction) MADE GROUND End of borehole at 6.51 m

6 7 8 9 10

Remarks

1) Groundwater encountered at 3.00m bgl. rising to 1.80m after 20mins 2) Moved back 0.30m (see RH103A) 3) No visual or olfactory evidence of contamination 4) Backfilled with bentonite. 5) Cased to 3.00m bgl

Borehole Log

Borehole No. **RH103A**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389311.00 - 413403.00	Hole Type RO
Location:	Rochdale		Level:	119.22	Scale 1:50
Client:	Willmott Dixon		Dates:	26/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.07	119.15		MADE GROUND: Black, medium to high aggregate ASPAHLT. Aggregate is fine to coarse, angular to subangular of limestone. MADE GROUND
					0.27	118.95		MADE GROUND: Grey, high aggregate CONCRETE. Aggregate is fine to medium, subangular of limestone. Low air voids (<5%) MADE GROUND
								MADE GROUND: Compacted grey slightly gravelly SILT. Gravel is fine to medium, angular to subangular of brick. (possible PFA) MADE GROUND
					2.10	117.12		MADE GROUND: Dense, greyish brown, sandy GRAVEL of fine to coarse, angular to subangular brick with occasional cobbles of brick. MADE GROUND
					4.50	114.72		Hard grey SANDSTONE with clayey, weak mudstone bands. PENNINE MIDDLE COAL MEASURES
					6.00	113.22		Loss of flush, drilling rods dropped to 6.50m bgl, core barrel sticking on possible cast iron. MADE GROUND
					6.50	112.72		End of borehole at 6.50 m

Remarks

1) Groundwater encountered at 3.00m bgl rising to 1.80m overnight 2) Terminated on possible metal obstruction 3) Backfilled with bentonite 4) No visual or olfactory evidence of contamination

Rotary Core Log

Borehole No.
RH103B
Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389305.00 - 413406.00	Hole Type RO
Location:	Rochdale		Level:	119.56	Scale 1:25
Client:	Willmott Dixon		Dates:	26/11/2024 -	Logged By SE

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.07	119.49		MADE GROUND: Black, medium to high aggregate ASPAHLT. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
							0.28	119.28		MADE GROUND: Grey, medium to high aggregate CONCRETE. Aggregate is fine to coarse, subangular of limestone. Low air voids (<5%) MADE GROUND
							0.30	119.26		MADE GROUND: Red BRICK (possible footing) MADE GROUND
										End of borehole at 0.30 m

1
2
3
4
5

Remarks
1) No groundwater encountered 2) Terminated due to obstruction 3) No visual or olfactory evidence of contamination 4) Core reinstated.

Rotary Core Log

Borehole No. **RH103C**

Sheet 1 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.13	119.40		MADE GROUND: Black, medium to high aggregate ASPHALT. Aggregate is fine to coarse, angular to subangular of limestone MADE GROUND
							0.29	119.24		
							0.30	119.23		MADE GROUND: Dark grey, medium to high aggregate CONCRETE. Aggregate is fine to medium, angular to subangular limestone. Low <5% air voids. MADE GROUND
		0.50	B				0.50	119.03		MADE GROUND: Grey, medium to coarse aggregate CONCRETE. Aggregate is fine to coarse, angular to subangular of limestone. MADE GROUND
		1.20 - 1.65	D							MADE GROUND: Compacted, brownish grey sandy GRAVEL of fine to coarse, angular to subangular brick with occasional sandstone. Occasional cobbles of brick. MADE GROUND
		1.20 - 2.00	B							MADE GROUND: Dense grey SILT becoming loose at base. (possible PFA) MADE GROUND
		2.00 - 2.45	D							
		2.00 - 2.50	B				2.10	117.43		MADE GROUND: Medium dense becoming brownish grey, sandy gravelly SILT. Gravel is fine to medium, angular to subangular predominantly of brick occasional sandstone. (possible PFA) MADE GROUND
		2.50 - 3.00	B				2.50	117.03		MADE GROUND: Brown clayey, sandy GRAVEL of fine to coarse, subangular to subrounded brick and sandstone. MADE GROUND
		3.00 - 3.45	D				3.00	116.53		Soft quickly becoming firm to stiff, reddish brown CLAY, becoming gravelly from 3.75m bgl. Gravel is medium to coarse angular of mudstone. TILL
							3.90	115.63		Weak to medium strong, narrowly laminated MUDSTONE. Discontinuities are 10° to 50° very closely to closely spaced planar striated to undulating striated, wall strength weak to medium strong, clean to slight clay infill. PENNINE MIDDLE COAL MEASURES
		4.21 - 4.29	C							*Switched from dynamic sampling to rotary coring from 3.90m bgl.*
		3.90 - 4.70	30	100	0	0				
							4.65	114.88		Medium strong, greyish brown, fine grained SANDSTONE. Discontinuities are horizontal to 20°, closely to very closely spaced, smooth stepped, wall strength strong, clean infill.
		4.95 - 5.00	C							

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103C**

Sheet 2 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		4.70 - 5.80	42	100	19	19				PENNINE MIDDLE COAL MEASURES *90% flush return between 4.70m o 5.80m bgl. 20% flush return between 5.80m to 7.00m bgl. 50% flush return between 7.00m to 8.50m bgl. 90% flush return 8.50m to 9.00m bgl.*
		5.75 - 5.80	C							
		6.14 - 6.23	C							*Fractured to gravel sized pieces between 5.95m to 6.20m bgl, 6.50m to 6.65m bgl and 6.84m to 7.30m bgl.*
		5.80 - 7.00	78	100	19	11				
		7.41 - 7.48	C							*Coal flashes between 7.50m to 8.00m bgl.*
		7.00 - 8.50	14	82	8	8	7.78	111.75		
		7.93 - 8.00	C							Medium strong, dark grey, narrowly laminated MUDSTONE. Discontinuities are horizontal to 10°, very closely spaced, planar rough to planar striated wall strength very weak clean to clayey infill. PENNINE MIDDLE COAL MEASURES *no recovery between 8.20m to 8.40m bgl presumed to be highly fractured / weathered to clayey gravel.*
		8.23 - 8.30	C							
		8.50 - 9.00	4	100	40	40	8.50	111.03		Medium strong to strong, grey, fine grained SANDSTONE. Discontinuities are horizontal to 10° occasionally 80°, closely spaced, planar rough to undulating smooth, wall strength medium strong, clean (clay infill between 8.50 and 8.65m bgl.) PENNINE MIDDLE COAL MEASURES *Drill bit stuck in suspected fracture, partial loss of flush, regained soon after.* *50% to 60% flush returns from 9.00m to 15.00m bgl.*
		9.42 - 9.71 9.00 - 10.50	U 40	100	82	76				*Partial core weathered / stained brown ironstone between 9.33m to 9.39m bgl, 9.69m to 9.73m bgl, 10.10m to 10.35m bgl and 10.45m to 10.50m bgl.*

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103C**

Sheet 3 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		10.11 - 10.19	C							
							10.80	108.73		Weak brown IRONSTONE. Discontinuities are 60°, very closely to closely spaced, undulating rough to undulating striated, wall strength weak, clean infill
		11.14 - 11.21	C				11.15	108.38		PENNINE MIDDLE COAL MEASURES
		10.50 - 12.00	64	100	14	14	11.26	108.27		Medium strong to strong, grey, fine grained SANDSTONE. Discontinuities are horizontal to 10° occasionally 80°, closely spaced, planar rough to undulating smooth, wall strength medium strong, clean infill.
							11.50	108.03		PENNINE MIDDLE COAL MEASURES
							11.83	107.70		Medium strong, fine grained brown SANDSTONE with ironstone inclusions / staining. Highly fractured. Discontinuities are horizontal to 75° very closely spaced, undulating smooth , slight clay infill.
										PENNINE MIDDLE COAL MEASURES
		12.26 - 12.32	C							Very strong, grey, fine grained SANDSTONE. Discontinuities are 70° to 90° closely spaced, undulating smooth to undulating striated stained brown, clean infill.
										PENNINE MIDDLE COAL MEASURES
		12.00 - 13.50	64	100	43	37				Strong to very strong, grey MUDSTONE. Discontinuities are horizontal to 20° closely, occasionally very closely spaced, undulating rough to undulating smooth, wall strength medium strong, clean infill stained brown.
		12.89 - 13.03	U							PENNINE MIDDLE COAL MEASURES
										Highly fractured between 12.50m to 12.80m bgl and 13.60m to 13.73m bgl.
		13.80 - 13.88	C							
		13.50 - 15.00	64	100	24	6				
		14.62 - 14.70	C							*Fractured bands typically 50mm thick between 14.50m to 15.00m bgl. 50% to 60% flush return.*
							15.00	104.53		

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103C**

Sheet 4 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Hard grey fractured MUDSTONE PENNINE MIDDLE COAL MEASURES *Coring stopped at 15.00m bgl continued with rotary open hole.*
							16.80	102.73		COAL Flash COAL
							17.00	102.53		Hard grey SANDSTONE PENNINE MIDDLE COAL MEASURES
							18.30	101.23		Hard grey MUDSTONE with coal flashes and sandstone bands. PENNINE MIDDLE COAL MEASURES
										Continued on next sheet

16 17 18 19 20

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH103C
Sheet 5 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description
				TCR	SCR	RQD				

21
22
23
24
25

Continued on next sheet

Remarks
1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103C**

Sheet 6 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							28.50	91.03		Hard brown SANDSTONE PENNINE MIDDLE COAL MEASURES
							29.00	90.53		Hard COAL COAL
							29.30	90.23		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
							29.70	89.83		Lost flush. Easy drilling, possibly very weak fractured MUDSTONE PENNINE MIDDLE COAL MEASURES
										Continued on next sheet

26 27 28 29 30

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No.
RH103C
Sheet 7 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							30.80	88.73		Hard brown, fractured SANDSTONE (flush returned) PENNINE MIDDLE COAL MEASURES
							31.20	88.33		Hard grey fractured MUDSTONE PENNINE MIDDLE COAL MEASURES
										Continued on next sheet

31
32
33
34
35

Remarks
1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Rotary Core Log

Borehole No. **RH103C**

Sheet 8 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							38.00	81.53		Hard grey MUDSTONE and sandstone bands very fractured PENNINE MIDDLE COAL MEASURES
							38.40	81.13		Large fracture
							38.50	81.03		MADE GROUND Hard greyish brown SANDSTONE with some fractures and coal dust. PENNINE MIDDLE COAL MEASURES
							40.00	79.53		End of borehole at 40.00 m

36
37
38
39
40

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 1 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.13	119.40		MADE GROUND: Black, medium to high aggregate ASPHALT. Aggregate is fine to coarse, angular to subangular of limestone MADE GROUND
					0.29	119.24		
					0.30	119.23		MADE GROUND: Dark grey, medium to high aggregate CONCRETE. Aggregate is fine to medium, angular to subangular limestone. Low <5% air voids. MADE GROUND
		0.50	B		0.50	119.03		
								MADE GROUND: Grey, medium to coarse aggregate CONCRETE. Aggregate is fine to coarse, angular to subangular of limestone. MADE GROUND
								MADE GROUND: Compacted, brownish grey sandy GRAVEL of fine to coarse, angular to subangular brick with occasional sandstone. Occasional cobbles of brick. MADE GROUND
		1.20 - 1.65	D					
		1.20 - 2.00	B					
								MADE GROUND: Dense grey SILT becoming loose at base. (possible PFA) MADE GROUND
		2.00 - 2.45	D					
		2.00 - 2.50	B		2.10	117.43		MADE GROUND: Medium dense becoming brownish grey, sandy gravelly SILT. Gravel is fine to medium, angular to subangular predominantly of brick occasional sandstone. (possible PFA) MADE GROUND
		2.50 - 3.00	B		2.50	117.03		MADE GROUND: Brown clayey, sandy GRAVEL of fine to coarse, subangular to subrounded brick and sandstone. MADE GROUND
		3.00 - 3.45	D		3.00	116.53		Soft quickly becoming firm to stiff, reddish brown CLAY, becoming gravelly from 3.75m bgl. Gravel is medium to coarse angular of mudstone. TILL
					3.90	115.63		Weak to medium strong, narrowly laminated MUDSTONE. Discontinuities are 10° to 50° very closely to closely spaced planar striated to undulating striated, wall strength weak to medium strong, clean to slight clay infill. PENNINE MIDDLE COAL MEASURES *Switched from dynamic sampling to rotary coring from 3.90m bgl.*
		4.21 - 4.29	C					
					4.65	114.88		Medium strong, greyish brown, fine grained SANDSTONE. Discontinuities are horizontal to 20°, closely to very closely spaced, smooth stepped, wall strength strong, clean infill.
		4.95 - 5.00	C					

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 2 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.75 - 5.80	C					PENNINE MIDDLE COAL MEASURES *90% flush return between 4.70m o 5.80m bgl. 20% flush return between 5.80m to 7.00m bgl. 50% flush return between 7.00m to 8.50m bgl. 90% flush return 8.50m to 9.00m bgl.*
		6.14 - 6.23	C					*Fractured to gravel sized pieces between 5.95m to 6.20m bgl, 6.50m to 6.65m bgl and 6.84m to 7.30m bgl.*
		7.41 - 7.48	C					*Coal flashes between 7.50m to 8.00m bgl.*
					7.78	111.75		Medium strong, dark grey, narrowly laminated MUDSTONE. Discontinuities are horizontal to 10°, very closely spaced, planar rough to planar striated wall strength very weak clean to clayey infill.
		7.93 - 8.00	C					PENNINE MIDDLE COAL MEASURES *no recovery between 8.20m to 8.40m bgl presumed to be highly fractured / weathered to clayey gravel.*
		8.23 - 8.30	C					
					8.50	111.03		Medium strong to strong, grey, fine grained SANDSTONE. Discontinuities are horizontal to 10° occasionally 80°, closely spaced, planar rough to undulating smooth, wall strength medium strong, clean (clay infill between 8.50 and 8.65m bgl.)
								PENNINE MIDDLE COAL MEASURES *Drill bit stuck in suspected fracture, partial loss of flush, regained soon after.* *50% to 60% flush returns from 9.00m to 15.00m bgl.*
		9.42 - 9.71	U					*Partial core weathered / stained brown ironstone between 9.33m to 9.39m bgl, 9.69m to 9.73m bgl, 10.10m to 10.35m bgl and 10.45m to 10.50m bgl.*

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 3 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.11 - 10.19	C					
					10.80	108.73		Weak brown IRONSTONE. Discontinuities are 60°, very closely to closely spaced, undulating rough to undulating striated, wall strength weak, clean infill PENNINE MIDDLE COAL MEASURES
		11.14 - 11.21	C		11.15	108.38		Medium strong to strong, grey, fine grained SANDSTONE. Discontinuities are horizontal to 10° occasionally 80°, closely spaced, planar rough to undulating smooth, wall strength medium strong, clean infill. PENNINE MIDDLE COAL MEASURES
					11.26	108.27		
					11.50	108.03		Medium strong, fine grained brown SANDSTONE with ironstone inclusions / staining. Highly fractured. Discontinuities are horizontal to 75° very closely spaced, undulating smooth , slight clay infill. PENNINE MIDDLE COAL MEASURES
					11.83	107.70		Very strong, grey, fine grained SANDSTONE. Discontinuities are 70° to 90° closely spaced, undulating smooth to undulating striated stained brown, clean infill. PENNINE MIDDLE COAL MEASURES
		12.26 - 12.32	C					Strong to very strong, grey MUDSTONE. Discontinuities are horizontal to 20° closely, occasionally very closely spaced, undulating rough to undulating smooth, wall strength medium strong, clean infill stained brown. PENNINE MIDDLE COAL MEASURES
		12.89 - 13.03	U					*Highly fractured between 12.50m to 12.80m bgl and 13.60m to 13.73m bgl.*
		13.80 - 13.88	C					
		14.62 - 14.70	C					*Fractured bands typically 50mm thick between 14.50m to 15.00m bgl. 50% to 60% flush return.*
					15.00	104.53		

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 4 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		15.00		50 (25 for 70mm/50 for 40mm)				Hard grey fractured MUDSTONE PENNINE MIDDLE COAL MEASURES *Coring stopped at 15.00m bgl continued with rotary open hole.*
					16.80	102.73		COAL Flash COAL
					17.00	102.53		Hard grey SANDSTONE PENNINE MIDDLE COAL MEASURES
					18.30	101.23		Hard grey MUDSTONE with coal flashes and sandstone bands. PENNINE MIDDLE COAL MEASURES
		19.50		50 (25 for 115mm/50 for 30mm)				

16 17 18 19 20

Continued on next sheet

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No.
RH103C
Sheet 5 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				

21
22
23
24
25

Continued on next sheet

Remarks
1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 6 of 8

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389308.00 - 413394.00	Hole Type CP+RC
Location: Rochdale		Level: 119.53	Scale 1:25
Client: Willmott Dixon		Dates: 28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					28.50	91.03		Hard brown SANDSTONE PENNINE MIDDLE COAL MEASURES
					29.00	90.53		Hard COAL COAL
					29.30	90.23		Hard grey MUDSTONE PENNINE MIDDLE COAL MEASURES
					29.70	89.83		Lost flush. Easy drilling, possibly very weak fractured MUDSTONE PENNINE MIDDLE COAL MEASURES

Continued on next sheet

26 27 28 29 30

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 7 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					30.80	88.73		Hard brown, fractured SANDSTONE (flush returned) PENNINE MIDDLE COAL MEASURES
					31.20	88.33		Hard grey fractured MUDSTONE PENNINE MIDDLE COAL MEASURES
								Continued on next sheet

31
32
33
34
35

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Borehole Log

Borehole No. **RH103C**

Sheet 8 of 8

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389308.00 - 413394.00	Hole Type CP+RC
Location:	Rochdale		Level:	119.53	Scale 1:25
Client:	Willmott Dixon		Dates:	28/11/2024 -	Logged By SE AND DRILLERS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					38.00	81.53		Hard grey MUDSTONE and sandstone bands very fractured PENNINE MIDDLE COAL MEASURES
					38.40	81.13		Large fracture
					38.50	81.03		MADE GROUND Hard greyish brown SANDSTONE with some fractures and coal dust. PENNINE MIDDLE COAL MEASURES
					40.00	79.53		End of borehole at 40.00 m

36
37
38
39
40

Remarks

1) No groundwater strike but groundwater rise to 1.10m overnight but drained when drilling started. (Possible flush returning to borehole). 2) Installed and backfilled 3) No visual or olfactory evidence of contamination. 4) Cased to 6.00m

Trial Pit Log

Trialpit No **SA01**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389209.00 - 413430.00 Level: 119.43	Date 26/11/2024
Location: Rochdale		Dimensions (m): 2.2 × 0.75, Depth 1.98	Scale 1:25
Client: Willmott Dixon			Logged SE

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND TOPSOIL: Grass over brown, sandy LOAM with frequent rootlets. TOPSOIL
				0.32	119.11		MADE GROUND: Dark brown, sandy gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick, sandstone, concrete, occasional plastic and metal. rare electrical wiring. Frequent cobbles of brick, concrete, sandstone rare kerbstone, occasional boulders of sandstone. MADE GROUND
				1.98	117.45		MADE GROUND: Possible cobbles and boulders at base. Cannot excavate further due to restricted working room. MADE GROUND
				1.98	117.45		End of pit at 1.98 m

1 2 3 4 5

Remarks: 1) No groundwater encountered 2) No visual or olfactory evidence of contamination. 3) Possible obstruction at base (cobbles / boulders) 4) Excavated for soakaway testing. 5) Backfilled with arisings.

Stability: Stable

Borehole Log

Borehole No. **WS102**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389209.00 - 413433.00	Hole Type WS
Location: Rochdale		Level: 119.43	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.17	119.26		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional gravel of brick, sandstone and timber TOPSOIL
								MADE GROUND: Dark greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional glass and timber. MADE GROUND
					0.61	118.82		MADE GROUND: Brick COBBLES MADE GROUND
					0.82	118.61		End of borehole at 0.82 m

1
2
3
4

Remarks

1) Hand dug pit 2) Not able to progress with window sampling due to obstructions at base. 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No. **WS102A**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389206.00 - 413427.00	Hole Type WS
Location: Rochdale		Level: 119.68	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.24	119.44		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional gravel of brick, sandstone and timber TOPSOIL
					0.67	119.01		MADE GROUND: Dark greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional glass and timber. MADE GROUND
					0.69	118.99		MADE GROUND Brick COBBLES MADE GROUND
								End of borehole at 0.69 m

Remarks

1) Hand dug pit 2) Not able to progress with window sampling due to obstructions at base. 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No. **WS103**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389206.00 - 413419.00	Hole Type WS
Location: Rochdale		Level: 119.52	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.19	119.33		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional gravel of brick, sandstone and timber TOPSOIL
					0.52	119.00		MADE GROUND: Dark greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional glass and timber. MADE GROUND
					0.61	118.91		MADE GROUND: Sandstone COBBLES MADE GROUND End of borehole at 0.61 m

Remarks

1) Hand dug pit 2) Not able to progress with window sampling due to obstructions at base. 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No.
WS103A
Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389212.00 - 413412.00	Hole Type WS
Location:	Rochdale		Level:	119.43	Scale 1:20
Client:	Willmott Dixon		Dates:	19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.22	119.21		MADE GROUND TOPSOIL: Grass over dark brown, silty, sandy LOAM with occasional gravel of brick and timber fragments TOPSOIL
					0.80	118.63		MADE GROUND: Greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional concrete, timber and rare glass. MADE GROUND
					0.85	118.58		MADE GROUND: Sandstone COBBLES MADE GROUND End of borehole at 0.85 m

1
2
3
4

Remarks
1) Hand dug pit 2) Not able to progress with window sampling due to obstructions at base. 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No. **WS103B**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389209.00 - 413419.00	Hole Type WS
Location: Rochdale		Level: 119.43	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	119.23		MADE GROUND TOPSOIL: Grass over dark brown, silty, sandy LOAM with occasional gravel of brick and timber fragments TOPSOIL Greyish brown, clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, sandstone, occasional concrete and timber. MADE GROUND
					0.80 0.82	118.63 118.61		MADE GROUNF: Brick COBBLES MADE GROUND End of borehole at 0.82 m

Remarks

1) Hand dug pit 2) Not able to progress with window sampling due to obstructions at base. 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No. **WS104**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389230.00 - 413418.00	Hole Type WS
Location:	Rochdale		Level:	119.69	Scale 1:20
Client:	Willmott Dixon		Dates:	19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.11	119.58		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is medium to coarse, subangular of limestone. MADE GROUND
		0.40	ES		0.38	119.31		MADE GROUND: Grey, medium aggregate CONCRETE. Gravel is angular to subangular of limestone. Low air voids (<5%) content MADE GROUND
					0.47	119.22		MADE GROUND: Grey, fine to coarse, subangular to subrounded GRAVEL of loose concrete and limestone. MADE GROUND
					0.62	119.07		MADE GROUND: Grey, medium aggregate CONCRETE with brick. Aggregates are medium to coarse, subangular of limestone with occasional brick. Low air void (<5%) content. MADE GROUND
		1.00	SPTL					
		1.00	S	50 (25 for 80mm/50 for 125mm)				MADE GROUND: Dense, light grey, slightly sandy, slightly gravelly SILT. Gravel is fine, subangular of brick. (possible PFA) MADE GROUND
					1.21	118.48		*Core barrel refusing at 0.96m bgl.* End of borehole at 1.21 m

1 2 3 4

Remarks

1) hand dug pit to 0.96m bgl, difficult to dig beyond, refusal of core barrel at 0.96m bgl 2) Terminated due to refusal of SPT 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Installed.

Borehole Log

Borehole No. **WS105**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389251.00 - 413412.00	Hole Type WS
Location:	Rochdale		Level:	119.60	Scale 1:20
Client:	Willmott Dixon		Dates:	19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.07	119.53		MADE GROUND: Black, high aggregate ASPAHLT. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
					0.44	119.16		MADE GROUND: Grey, medium to high aggregate of CONCRETE. Aggregate is medium to coarse angular of limestone. Low air void content (<5%) MADE GROUND
		0.60	ES		0.65	118.95		MADE GROUND: Reddish brown, sandy GRAVEL of fine to coarse, angular to subangular crushed brick and rare concrete. MADE GROUND
		0.75	ES					MADE GROUND: Dense, very compacted, light grey, sandy SILT with occasional fine brick fragments. (possible PFA) MADE GROUND
								Casing bowing from 0.80m bgl so SPT put on. SPT rod stuck from 1.21m bgl
		1.20 1.20	SPTL S	50 (25 for 95mm/50 for 155mm)	1.21	118.39		End of borehole at 1.21 m

Remarks

1) No groundwater encountered 2) Backfilled with arisings. 3) No visual or olfactory evidence of contamination 4) No install 5) Hand dug pit to 0.80m bgl, difficult to progress beyond. Core barrel put down from 0.80m bgl refused to progress so SPT taken. SPT rod stuck at 1.21m bgl preventing further progress.

Borehole Log

Borehole No. **WS106**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389263.00 - 413427.00	Hole Type WS
Location: Rochdale		Level: 119.52	Scale 1:20
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.35	119.17		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is fine to coarse, subangular to angular of limestone. MADE GROUND
		1.00	ES					MADE GROUND: Greyish brown, slightly sandy, clayey GRAVEL with medium cobble content. Sand is fine to medium, gravel is fine to coarse, subangular to angular of brick, sandstone, slate and limestone and slag. Cobbles are angular of brick and concrete MADE GROUND
	▼	1.20 1.20	SPTL S	N=6 (3,3/3,2,1,0)				*Poor recovery due to cobble.*
		2.00 2.00	SPTL S	N=9 (1,1/2,2,2,3)	2.10	117.42		MADE GROUND: Dark brown to dark grey, gravelly SILT. Gravel is fine to medium, subangular to subrounded of sandstone and brick. Lenses of black anthracite coal and fine to coarse sand. (possible PFA) MADE GROUND
		3.00 3.00	SPTL S	N=21 (3,3/4,4,5,8)				
		3.80 3.80	SPTL S	50 (10,13/50 for 220mm)	3.80	115.72		MADE GROUND: No recovery, assumed MADE GROUND COBBLES. MADE GROUND

Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 1.50m bgl 3) Terminated on refusal 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No.
WS106
Sheet 2 of 2

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389263.00 - 413427.00	Hole Type WS
Location:	Rochdale		Level:	119.52	Scale 1:20
Client:	Willmott Dixon		Dates:	29/11/2024 -	Logged By AM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					4.10	115.42		End of borehole at 4.10 m

Remarks
1) Hand dug pit to 1.20m bgl 2) Groundwater encountered at 1.50m bgl 3) Terminated on refusal 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings.

Borehole Log

Borehole No. **WS107**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389275.00 - 413424.00	Hole Type WS
Location:	Rochdale		Level:	119.51	Scale 1:20
Client:	Willmott Dixon		Dates:	19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.06	119.45		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is fine to coarse, subangular to angular of limestone.
					0.12	119.39		MADE GROUND
					0.20	119.31		MADE GROUND: Grey, high aggregate CONCRETE. Gravel is medium to coarse, angular to subangular of limestone. Low air voids (<5%)
		0.40	ES					MADE GROUND
		0.65	ES		0.60	118.91		MADE GROUND: Grey, medium to high aggregate CONCRETE. Gravel is medium, angular to subrounded of limestone. Low air voids (<5%)
								MADE GROUND
								MADE GROUND: Reddish brown, fine to coarse, angular GRAVEL of crushed brick.
								MADE GROUND
								MADE GROUND: Light grey, friable SILT/SAND (possible PFA)
								MADE GROUND
		1.20	SPTL					
		1.20	S	50 (7,13/50 for 145mm)	1.34	118.17		*Obstruction at 1.33m bgl possible brick or concrete*
								End of borehole at 1.54 m

1 2 3 4

Remarks

1) Hand dug pit to 1.20m 2) Terminated due to possible brick or concrete 3) No visual or olfactory evidence of contamination 4) Cased to 1.00m bgl.

Borehole Log

Borehole No. **WS108**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389287.00 - 413403.00	Hole Type WS
Location:	Rochdale		Level:	119.61	Scale 1:20
Client:	Willmott Dixon		Dates:	21/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.02	ES		0.10	119.51		MADE GROUND: Black high aggregate ASPAHLT. Aggregate is medium to coarse, angular of limestone. MADE GROUND
					0.42	119.19		MADE GROUND: Grey, medium to high aggregate CONCRETE. Aggregate is medium to coarse, angular of limestone with plastic layer at base. MADE GROUND
		0.60	SPTLS	22 (53 for 155mm/22 for 65mm)				MADE GROUND: Dark greyish black, slightly clayey, sandy GRAVEL of fine to coarse, angular to subangular of mixed lithologies including brick, sandstone, rare plastic and metal MADE GROUND
		0.60						*Refusal of core barrel at 0.60m bgl, SPT undertaken.*
		0.70	ES		0.79	118.82		End of borehole at 0.79 m

Remarks

1) Hand dug pit to 0.50m bgl due to difficulty progressing though made ground. 2) Core barrel refusal at 0.60m bgl 3) No groundwater encountered 4) Terminated on refusal - possible obstruction. 6) No visual or olfactory evidence of contamination.

Borehole Log

Borehole No. **WS109**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389302.00 - 413412.00	Hole Type WS
Location:	Rochdale		Level:	119.56	Scale 1:20
Client:	Willmott Dixon		Dates:	21/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.07	119.49		MADE GROUND: Black, medium to high aggregate of ASPHALT. Aggregate is medium to coarse, subangular of limestone. MADE GROUND
					0.28	119.28		MADE GROUND: Grey, medium to coarse aggregate CONCRETE. Aggregate is fine to coarse, angular to subangular of limestone, plastic layer at base. Low air void content (<5%) MADE GROUND
		0.40 - 0.60	ES		0.34	119.22		MADE GROUND: Grey, medium to coarse aggregate CONCRETE. Aggregate is fine to coarse, angular to subangular of limestone, plastic layer at base. Low air void content (<5%) MADE GROUND
		0.60	SPTLS					MADE GROUND: Very stiff, light grey, slightly gravelly SILT. Gravel is fine to medium, angular of brick. (possible PFA) MADE GROUND
		0.60		50 (25 for 145mm/50 for 155mm)	0.70	118.86		End of borehole at 0.70 m

1
2
3
4

Remarks

1) Hand dug pit to 0.30m bgl due to difficult digging. 2) No groundwater encountered 3) No visual or olfactory evidence of contamination. 4) Terminated due to refusal.

Borehole Log

Borehole No. **WS110**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389257.00 - 413397.00	Hole Type WS
Location:	Rochdale		Level:	119.69	Scale 1:20
Client:	Willmott Dixon		Dates:	19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.11	119.58		MADE GROUND: Black ASPHALT. Aggregate is fine to coarse, angular to subangular of limestone.
					0.11	119.58		MADE GROUND
								MADE GROUND: Greyish brown, sandy, fine to coarse, angular to subangular GRAVEL of brick, limestone and sandstone.
								MADE GROUND
								MADE GROUND: CONCRETE
								MADE GROUND
		0.61	ES		0.60	119.09		MADE GROUND: Greyish brown, sandy, fine to coarse, angular to subangular GRAVEL of brick, limestone and sandstone.
					0.65	119.04		MADE GROUND
					0.66	119.03		MADE GROUND: Brick obstruction
								MADE GROUND
								End of borehole at 0.66 m

1
2
3
4

Remarks

1) Hand dug pit to 0.66m bgl 2) Terminated due to obstruction 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) No install, backfilled with arisings.

Borehole Log

Borehole No. **WS111**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389284.00 - 413385.00	Hole Type WS
Location:	Rochdale		Level:	119.74	Scale 1:20
Client:	Willmott Dixon		Dates:	21/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.15	119.59		MADE GROUND: Black, medium to high aggregate ASPHALT. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
		0.60	ES		0.50	119.24		MADE GROUND: Grey, medium aggregate content CONCRETE. Plastic at base. Aggregate is fine to coarse, angular to subangular of limestone. Low air void content (<5%) MADE GROUND
		0.60	SPTL		0.65	119.09		MADE GROUND: Compacted, grey sandy, fine to medium angular to subangular, ashy GRAVEL of sandstone, concrete and brick. MADE GROUND
		0.60	S	50 (25 for 125mm/50 for 175mm)	0.73	119.01		MADE GROUND: COBBLE of brick. MADE GROUND
		0.80	ES		1.05	118.69		MADE GROUND: Very stiff, light grey, slightly sandy, slightly gravelly SILT. Gravel is medium to coarse, angular to subangular of brick. Refusal of core barrel at 0.80m bgl. (possible PFA) MADE GROUND
								End of borehole at 1.05 m

1 2 3 4

Remarks

1) Hand dug pit to 0.70m bgl due to difficulty progressing through made ground 2) No groundwater encountered 3) Ashy gravel encountered at 0.50m to 0.65m bgl. 4) Terminated due to obstruction.

Borehole Log

Borehole No. **WS112**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389281.00 - 413370.00	Hole Type WS
Location: Rochdale		Level: 118.86	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.08	118.78		MADE GROUND: Black, low to medium aggregate of ASPHALT. Aggregate is fine to medium, angular of limestone. MADE GROUND
					0.48	118.38		MADE GROUND: Dark grey, gravelly, medium grained SAND. Gravel is fine to coarse, angular to subangular of brick and occasional limestone. Boulder of brick 0.2m to 0.41m bgl. MADE GROUND
					0.60	118.26		MADE GROUND: Grey, high aggregate CONCRETE. Aggregate is medium to coarse, subangular to subrounded of limestone. MADE GROUND
		0.80	ES					MADE GROUND: Dark grey, sandy, slightly ashy GRAVEL of fine to coarse, angular to subangular mixed lithologies including brick, concrete, limestone and occasional clinker. MADE GROUND
					1.10	117.76		MADE GROUND: Medium dense, light grey, friable, silty, slightly gravelly SAND. Gravel is fine to medium, angular of brick. Cobble of brick at 1.50m to 1.60m bgl and 1.90 to 1.92m bgl. (possible PFA) MADE GROUND
		1.20 1.20 1.20	ES SPTL S	N=16 (6,4/6,4,3,3)				*Occasional medium to coarse, angular gravel of sandstone at 1.30m to 1.50m bgl.*
		2.00 2.00	SPTL S	N=31 (4,7/12,13,4,2)				*Fine to coarse, angular to subangular gravel of brick, ash, possible clinker at 2.15m to 2.40m bgl.*
		3.00 3.00	SPTL S	N=1 (1,0/0,1,0,0)	3.10	115.76		POSSIBLE MADE GROUND: Very loose, grey, mottled dark grey, clayey, silty SAND POSSIBLE MADE GROUND
		3.50	ES		3.40	115.46		Very loose to loose, greyish brown, silty, fine grained SAND GLACIOFLUVIAL DEPOSITS
								Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) No groundwater encountered 3) Terminated at target depth 4) Slightly ashy and occasional clinker at 0.60m to 3.10m bgl 5) Cased to 4.00m bgl 6) Collapse of borehole 4.00-5.00m bgl

Borehole Log

Borehole No. **WS112**

Sheet 2 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389281.00 - 413370.00	Hole Type WS
Location: Rochdale		Level: 118.86	Scale 1:20
Client: Willmott Dixon		Dates: 19/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		4.00 4.00	SPTL S	N=1 (1,0/0,0,1,0)				
		5.00 5.00	SPTL S	N=6 (1,2/1,2,2,1)				
					5.45	113.41		End of borehole at 5.45 m

5

6

7

8

Remarks

1) Hand dug pit to 1.20m bgl 2) No groundwater encountered 3) Terminated at target depth 4) Slightly ashy and occasional clinker at 0.60m to 3.10m bgl 5) Cased to 4.00m bgl 6) Collapse of borehole 4.00-5.00m bgl

Borehole Log

Borehole No. **WS113**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389347.00 - 413403.00	Hole Type WS
Location: Rochdale		Level: 119.59	Scale 1:20
Client: Willmott Dixon		Dates: 20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	119.47		MADE GROUND TOPSOIL: Grass over, dark brown, slightly silty, sandy LOAM with occasional rootlets. TOPSOIL
								MADE GROUND: Dark brown, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick and concrete. MADE GROUND
					0.55	119.04		
					0.61	118.98		MADE GROUND: COBBLES of brick and occasional concrete. MADE GROUND
								End of borehole at 0.61 m

Remarks

1) Hand dug pit to 0.61m bgl 2) Terminated due to obstruction 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) No install, backfilled with arisings.

Borehole Log

Borehole No. **WS113B**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389350.00 - 413403.00	Hole Type WS
Location: Rochdale		Level: 119.59	Scale 1:20
Client: Willmott Dixon		Dates: 20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.35	ES		0.14	119.45		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional rootlets. TOPSOIL
								MADE GROUND: Dark brown, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick, concrete, sandstone. Occasional cobbles of brick and sandstone. Cobble content increasing from 0.50m bgl. MADE GROUND
					0.67	118.92		MADE GROUND: COBBLES of concrete and brick. MADE GROUND
					0.71	118.88		End of borehole at 0.71 m

Remarks

1) Hand dug pit to 0.61m bgl 2) Terminated due to obstruction 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) No install, backfilled with arisings.

Borehole Log

Borehole No. **WS114**

Sheet 1 of 1

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389320.00 - 413394.00	Hole Type WS
Location: Rochdale		Level: 118.43	Scale 1:20
Client: Willmott Dixon		Dates: 29/11/2024 -	Logged By AM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	118.13		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is fine to coarse, subangular to angular of limestone. MADE GROUND
		0.50	ES					MADE GROUND: Greyish brown, slightly sandy, clayey GRAVEL with medium cobble content. Sand is fine to medium, gravel is fine to coarse, subangular to angular of brick, sandstone, slate and limestone of slag. Cobbles are angular of brick and concrete MADE GROUND
					1.10	117.33		
		1.20 1.20	SPTLS	N=5 (1,1/1,2,1,1)				MADE GROUND: Soft to firm, dark brown to dark grey, gravelly SILT. Gravel is fine to medium, subangular of sandstone and brick lenses of black anthracite coal. Sand is fine to coarse. (possible PFA) MADE GROUND
		2.00 2.00	SPTLS	N=22 (4,4/5,5,6,6)				
					2.90	115.53		
		3.00 3.00	SPTLS	N=18 (4,4/5,5,4,4)				POSSIBLE MADE GROUND: Firm, reddish brown, mottled grey, gravelly SILT. Gravel is fine to coarse, subangular to subrounded of mudstone and sandstone. POSSIBLE MADE GROUND
		3.60 3.60	SPTLS	50 (25 for 30mm/50 for 65mm)				
					3.80	114.63		End of borehole at 3.80 m

1 2 3 4

Remarks

1) Hand dug pit to 1.20m bgl 2) No groundwater encountered 3) Terminated on refusal 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings. 6) No install

Borehole Log

Borehole No. **WS115**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389368.00 - 413394.00	Hole Type WS
Location:	Rochdale		Level:	120.41	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.15	120.26		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional rootlets. Cobbles of sandstone and brick. TOPSOIL
								MADE GROUND: Dark brown, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick and occasional sandstone. MADE GROUND
					0.60	119.81		
					0.62	119.79		MADE GROUND: COBBLES, possibly concrete and brick. MADE GROUND
								End of borehole at 0.62 m
		1.20	SPTL					
		1.20	S	50 (9,11/50 for 210mm)				

1 2 3 4

Remarks

Hand dug pit to 0.62m bgl 2) Terminated due to obstruction 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) Backfilled with arisings no install.

Borehole Log

Borehole No. **WS115B**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389368.00 - 413394.00	Hole Type WS
Location:	Rochdale		Level:	120.41	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.16	120.25		MADE GROUND TOPSOIL: Grass over dark brown, slightly silty, sandy LOAM with occasional rootlets. TOPSOIL
								MADE GROUND: Dark brown, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick and occasional sandstone. MADE GROUND
								Cobbles of sandstone from 0.45m bgl.
					0.80	119.61		
		0.90	ES					MADE GROUND: Grey, stiff, gravelly SILT. Gravel is fine to medium, angular to subangular of brick, occasional concrete. Gravel content increasing around 1.05m bgl. (possible PFA) MADE GROUND
					1.40	119.01		
					1.46	118.95		MADE GROUND: COBBLES of sandstone and concrete. MADE GROUND
								End of borehole at 1.46 m

1 2 3 4

Remarks

1) Hand dug pit to 1.20m bgl 2) Terminated on refusal - obstruction 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) No install, backfilled with arisings.

Borehole Log

Borehole No. **WS116**

Sheet 1 of 2

Project Name: Hopwood Hall College	Project No. TE1880	Co-ords: 389320.00 - 413364.00	Hole Type WS
Location: Rochdale		Level: 119.14	Scale 1:20
Client: Willmott Dixon		Dates: 21/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.05	ES		0.07	119.07		MADE GROUND: Black, high aggregate ASPHALT. Aggregate is medium to coarse, angular to subangular of limestone. MADE GROUND
		0.10 - 0.40	B					MADE GROUND: Greyish dark brown SAND AND GRAVEL. Gravel is fine to coarse, angular to subangular of brick, sandstone, limestone, concrete and rare plastic. Sand is fine to meidum. MADE GROUND
		0.20	ES					
					0.90	118.24		MADE GROUND: Red brick COBBLES MADE GROUND
					1.10	118.04		MADE GROUND: Medium dense, reddish brown and dark brownish grey, slightly ashy, slightly clayey, fine to coarse, angular to subangular GRAVEL of brick, concrete, occasional clinker / asphalt. Occasional cobbles of concrete and limestone. MADE GROUND
		1.20	ES					*Clayey pocket between 1.50m and 1.60m bgl*
		1.20	SPTL					
		1.20	S	N=22 (5,5/4,6,6,6)				
		1.90	ES		1.85	117.29		MADE GROUND: Firm, dark grey, gravelly CLAY/SILT. Gravel is fine to coarse, angular to subangular of brick. (possible PFA) MADE GROUND
		2.00	D					
		2.00	SPTL					
		2.00	S	N=14 (4,5/5,3,3,3)				
					2.60	116.54		MADE GROUND: Red brick COBBLES MADE GROUND
		2.70	ES					
		3.00	SPTL		3.00	116.14		MADE GROUND: Very loose, grey mottled greyish brown, silty SAND with rare fine gravel of brick. MADE GROUND
		3.00	S	N=4 (2,1/0,1,1,2)				
		3.10	ES					
					3.30	115.84		Loose, brownish grey silty SAND. Wet material between 3.30m and 3.50m bgl. GLACIOFLUVIAL DEPOSITS
		3.40	ES					
								Continued on next sheet

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered as wet material at 3.30m bgl and water strike at 4.00m bgl. 3) Terminated at target depth 4) Slightly ashy material between 1.10m and 1.85m bgl.

Borehole Log

Borehole No. **WS116**

Sheet 2 of 2

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389320.00 - 413364.00	Hole Type WS
Location:	Rochdale		Level:	119.14	Scale 1:20
Client:	Willmott Dixon		Dates:	21/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		4.00 4.00	SPTL S	N=8 (2,3/2,2,2,2)				
		5.00 5.00	SPTL S	50 (8,8/50 for 165mm)				
					5.45	113.69		End of borehole at 5.45 m

5

6

7

8

Remarks

1) Hand dug pit to 1.20m bgl 2) Groundwater encountered as wet material at 3.30m bgl and water strike at 4.00m bgl. 3) Terminated at target depth 4) Slightly ashy material between 1.10m and 1.85m bgl.

Borehole Log

Borehole No. **WS117**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389302.00 - 413325.00	Hole Type WS
Location:	Rochdale		Level:	119.77	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.14	119.63		MADE GROUND TOPSOIL: Grass over, dark brown, slightly silty, sandy LOAM with occasional rootlets. TOPSOIL
		0.40	ES					MADE GROUND: Dark brown, slightly clayey, sandy GRAVEL of fine to coarse, angular to subangular of brick, concrete, sandstone, limestone and occasional clinker. MADE GROUND
		1.00	D		0.95	118.82		MADE GROUND: Firm, light grey, sandy SILT. (possible PFA) MADE GROUND
		1.10	ES					*Gravel and cobbles of brick, limestone, rare plastic ??*
		1.20		N=12 (7,5/4,4,2,2)				
		2.00		N=9 (4,4/3,3,2,1)				
					2.10	117.67		MADE GROUND: Red crushed BRICK MADE GROUND
		2.20	ES					
		2.40	ES		2.38	117.39		MADE GROUND: Dense, dark grey, slightly clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, occasional concrete, limestone and sandstone. MADE GROUND
		2.60		13 (63 for 135mm/13 for 85mm)				*Refusal of core barrel at 2.60m*
					2.89	116.88		MADE GROUND: Obstruction, suspected brick. MADE GROUND
					2.90	116.87		End of borehole at 2.90 m

Remarks

1) Hand dug pit to 1.20m bgl 2) No groundwater encountered. 3) No visual or olfactory evidence of contamination 4) Terminated on refusal, possible obstruction.

Borehole Log

Borehole No. **WS118**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389326.00 - 413274.00	Hole Type WS
Location:	Rochdale		Level:	120.75	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES					MADE GROUND TOPSOIL: Grass over, dark brown, slightly silty, sandy LOAM with occasional rootlets. TOPSOIL
					0.42	120.33		MADE GROUND: Concrete COBBLES MADE GROUND
					0.43	120.32		End of borehole at 0.43 m

Remarks

1) Hand dug pit to 0.43m bgl 2) Terminated due to obstruction 3) Moved 1.00m south se WS118a 3) No groundwater encountered 4) No visual or olfactory evidence of contamination. 5) No install, backfilled with arisings.

Borehole Log

Borehole No.
WS118A
Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389326.00 - 413274.00	Hole Type WS
Location:	Rochdale		Level:	120.75	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				MADE GROUND: Grass over, dark brown, slightly silty, sandy LOAM with occasional rootlets. (TOPSOIL) MADE GROUND
					0.56	120.19		MADE GROUND: Concrete COBBLES MADE GROUND
					0.57	120.18		End of borehole at 0.57 m

Remarks
1) Hand dug pit to 0.43m bgl 2) Terminated due to obstruction 3) Moved 2.00m east see WS118b 3) No groundwater encountered 4) No visual or olfactory evidence of contamination. 5) No install, backfilled with arisings.

Borehole Log

Borehole No. **WS118B**

Sheet 1 of 1

Project Name:	Hopwood Hall College	Project No. TE1880	Co-ords:	389329.00 - 413277.00	Hole Type WS
Location:	Rochdale		Level:	120.75	Scale 1:20
Client:	Willmott Dixon		Dates:	20/11/2024 -	Logged By SE

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.19	120.56		MADE GROUND TOPSOIL: Grass over, dark brown, slightly silty, sandy loam with occasional rootlets. MADE GROUND
					0.52	120.23		MADE GROUND: Dark brown, slightly clayey, gravelly SAND. Gravel is fine to coarse, angular to subangular of brick, concrete and limestone. MADE GROUND
					0.56	120.19		MADE GROUND: COBBLES of sandstone, brick and concrete at base. MADE GROUND
								End of borehole at 0.56 m

1 2 3 4

Remarks

1) Hand dug pit to 0.56m bgl 2) Terminated due to obstructions 3) No groundwater encountered 4) No visual or olfactory evidence of contamination 5) No install, backfilled with arisings.

APPENDIX C - GEOENVIRONMENTAL SOIL LABORATORY RESULTS

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Stefani Ellis
Date :	11th December, 2024
Your reference :	TE1880
Our reference :	Test Report 24/19867 Batch 1
Location :	Hopwood Hall, Rochdale
Date samples received :	22nd November, 2024
Status :	Final report
Issue :	202412111630

Nineteen samples were received for analysis on 22nd November, 2024 of which seventeen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 69.214 kg of CO2

Scope 1&2&3 emissions - 163.572 kg of CO2

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	41-43	LOD/LOR	Units	Method No.
Sample ID	WS103A	WS105	WS105	WS107	WS107	WS110	WS112	WS112	WS113B	WS115			
Depth	0.40	0.60	0.75	0.40	0.65	0.61	1.20	3.35	0.35	0.10			
COC No / misc													
Containers	V J T	V J T B	V J T B	V J T	V J T	V J T	V J T	V J T	V J T B	V J B			
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024			
Arsenic #	46.7	23.2	100.9	25.5	-	-	95.0	5.5	8.7	10.6	<0.5	mg/kg	TM30/PM15
Cadmium #	0.1	0.2	<0.1	<0.1	-	-	<0.1	<0.1	0.4	0.3	<0.1	mg/kg	TM30/PM15
Chromium #	28.0	66.2	46.0	43.6	-	-	49.2	17.3	56.1	50.5	<0.5	mg/kg	TM30/PM15
Copper #	107	75	65	28	-	-	107	25	46	50	<1	mg/kg	TM30/PM15
Lead #	203	454	117	106	-	-	165	46	106	155	<5	mg/kg	TM30/PM15
Mercury #	0.2	0.1	0.1	<0.1	-	-	0.1	0.3	<0.1	0.1	<0.1	mg/kg	TM30/PM15
Nickel #	27.4	22.4	39.5	13.4	-	-	45.3	23.2	20.4	18.6	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	2	<1	-	-	2	<1	<1	<1	<1	mg/kg	TM30/PM15
Sulphur as S	-	-	0.04	-	-	-	-	0.03	-	-	<0.01	%	TM30/PM15
Total Sulphate as SO4 #	652	1772	630	588	-	-	641	234	326	404	<50	mg/kg	TM50/PM29
Total Sulphate as SO4 BRE	-	-	0.06	-	-	-	-	0.02	-	-	<0.01	%	TM50/PM29
Zinc #	122	103	53	36	-	-	87	50	105	146	<5	mg/kg	TM30/PM15
Magnesium	-	-	0.0019	-	-	-	-	0.0007	-	-	<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	0.10	0.16	<0.04	<0.04	-	-	<0.04	<0.04	3.72	1.71	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.05	<0.03	<0.03	<0.03	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.34	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	3.63	2.28	<0.05	mg/kg	TM4/PM8
Fluorene #	0.23	<0.04	<0.04	<0.04	-	-	<0.04	<0.04	2.22	1.54	<0.04	mg/kg	TM4/PM8
Phenanthrene #	3.27	0.48	<0.03	0.10	-	-	0.25	0.07	16.44	9.56	<0.03	mg/kg	TM4/PM8
Anthracene #	0.73	0.07	<0.04	<0.04	-	-	<0.04	<0.04	3.37	1.81	<0.04	mg/kg	TM4/PM8
Fluoranthene #	5.51	0.43	<0.03	0.22	-	-	0.49	<0.03	25.99	13.19	<0.03	mg/kg	TM4/PM8
Pyrene #	4.41	0.50	<0.03	0.19	-	-	0.43	<0.03	22.73	10.82	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	2.31	0.40	<0.06	0.15	-	-	0.29	<0.06	11.89	5.88	<0.06	mg/kg	TM4/PM8
Chrysene #	2.21	0.45	<0.02	0.13	-	-	0.33	0.05	11.41	5.92	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	3.13	0.53	<0.07	0.17	-	-	0.37	<0.07	19.47	8.82	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	1.88	0.34	<0.04	0.07	-	-	0.14	<0.04	13.24	5.84	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	1.04	0.20	<0.04	0.07	-	-	0.12	<0.04	7.36	3.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.22	0.07	<0.04	<0.04	-	-	<0.04	<0.04	1.23	0.55	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	1.04	0.23	<0.04	0.08	-	-	0.13	<0.04	7.06	2.81	<0.04	mg/kg	TM4/PM8
Coronene	-	0.05	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	26.5	3.9	<0.6	1.2	-	-	2.6	<0.6	149.8	73.8	<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	3.91	<0.64	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	2.25	0.38	<0.05	0.12	-	-	0.27	<0.05	14.02	6.35	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.88	0.15	<0.02	0.05	-	-	0.10	<0.02	5.45	2.47	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	91	94	95	101	-	-	95	96	90	94	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2	<2	-	-	<2 SV	-	<2 SV	-	<2	-	<2	ug/kg	TM15/PM10
Benzene #	<3	<3	-	-	<3 SV	-	5 SV	-	<3	-	<3	ug/kg	TM15/PM10
Toluene #	<3	27	-	-	<3 SV	-	<3 SV	-	<3	-	<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	-	-	<3 SV	-	<3 SV	-	<3	-	<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	7	-	-	<5 SV	-	<5 SV	-	<5	-	<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	-	-	<3 SV	-	<3 SV	-	<3	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	52	64	-	-	52 SV	-	47 SV	-	68	-	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	41-43	LOD/LOR	Units	Method No.
Sample ID	WS103A	WS105	WS105	WS107	WS107	WS110	WS112	WS112	WS113B	WS115			
Depth	0.40	0.60	0.75	0.40	0.65	0.61	1.20	3.35	0.35	0.10			
COC No / misc													
Containers	V J T	V J T B	V J T B	V J T	V J T	V J T	V J T	V J T	V J T B	V J B			
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024			
Surrogate Recovery 4-Bromofluorobenzene	52	73	-	-	43 SV	-	43 SV	-	78	-	<0	%	TM15/PM10
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	247	<30	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	<4	-	<4	-	<4	-	13	-	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	34	<7	-	<7	-	<7	-	25	-	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7	180	<7	-	<7	-	<7	-	100	-	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	33	<7	-	<7	-	<7	-	9	-	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	<26	247	<26	-	<26	-	<26	-	147	-	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1	<0.1 SV	-	<0.1 SV	-	<0.1 SV	-	<0.1	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	-	2.6	-	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	20	<4	-	<4	-	<4	-	25	-	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	16	221	<7	-	<7	-	<7	-	158	-	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	12	977	<7	-	<7	-	<7	-	456	-	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7	127	<7	-	<7	-	<7	-	36	-	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	28	1345	<26	-	<26	-	<26	-	678	-	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<52	1592	<52	-	<52	-	<52	-	825	-	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
Benzene #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
Toluene #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
Ethylbenzene #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
m/p-Xylene #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
o-Xylene #	-	-	<5 SV	-	-	-	-	-	-	-	<5	ug/kg	TM36/PM12
PCB 28 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	<35	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	-	-	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21B

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	41-43	LOD/LOR	Units	Method No.
Sample ID	WS103A	WS105	WS105	WS107	WS107	WS110	WS112	WS112	WS113B	WS115			
Depth	0.40	0.60	0.75	0.40	0.65	0.61	1.20	3.35	0.35	0.10			
COC No / misc													
Containers	V J T	V J T B	V J T B	V J T	V J T	V J T	V J T	V J T	V J T B	V J B			
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024			
Monoethylene glycol	-	-	<50	-	-	<50	-	-	-	-	<50	ug/kg	TM179/PM8
Propylene glycol	-	-	<50	-	-	<50	-	-	-	-	<50	ug/kg	TM179/PM8
Diethylene glycol	-	-	<50	-	-	<50	-	-	-	-	<50	ug/kg	TM179/PM8
Triethylene glycol	-	-	<50	-	-	<50	-	-	-	-	<50	ug/kg	TM179/PM8
Thiodiglycol	-	-	<50	-	-	<50	-	-	-	-	<50	ug/kg	TM179/PM8
Natural Moisture Content	22.9	16.3	40.1	21.4	39.6	16.0	31.5	22.2	18.5	40.0	<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4	-	-	<0.6	-	-	-	-	6.6	-	-	<0.6	mg/kg	TM38/PM20
Chloride (2:1 Ext BRE) #	-	-	0.026	-	-	-	-	0.015	-	-	<0.002	g/l	TM38/PM20
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	-	-	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE)	-	-	<0.0025	-	-	-	-	<0.0025	-	-	<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0204	0.0382	0.0473	0.0426	-	-	0.0852	0.0193	0.0219	0.0132	<0.0015	g/l	TM38/PM20
Free Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Cyanide #	<0.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Complex Cyanide	<0.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	3.07	3.44	3.04	0.87	-	-	4.84	3.29	3.10	3.44	<0.02	%	TM21/PM24
ANC at pH4	-	1.41	0.73	-	-	-	-	-	-	-	<0.03	mol/kg	TM77/PM0
ANC at pH7	-	0.14	0.07	-	-	-	-	-	-	-	<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	5.3	5.0	-	-	-	-	-	-	-	<1.0	%	TM22/PM0
pH #	8.21	10.93	9.88	9.37	-	-	8.60	7.10	8.09	7.85	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	44-47	48-51	52-55	56-59	60-63	64-67					LOD/LOR	Units	Method No.
Sample ID	WS115B	WS117	WS117	WS117	WS117	WS118							
Depth	0.90	1.10	0.40	2.40	2.20	0.20							
COC No / misc													
Containers	V J B	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024							
Arsenic #	9.7	-	6.0	29.0	9.8	16.2					<0.5	mg/kg	TM30/PM15
Cadmium #	0.7	-	0.4	1.8	0.3	0.8					<0.1	mg/kg	TM30/PM15
Chromium #	48.2	-	23.9	201.0	58.8	47.9					<0.5	mg/kg	TM30/PM15
Copper #	38	-	36	238_{AA}	97	61					<1	mg/kg	TM30/PM15
Lead #	110	-	88	397	155	173					<5	mg/kg	TM30/PM15
Mercury #	0.1	-	<0.1	0.4	<0.1	0.4					<0.1	mg/kg	TM30/PM15
Nickel #	16.2	-	12.2	48.5	20.4	17.5					<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	<1	1	<1	<1					<1	mg/kg	TM30/PM15
Sulphur as S	-	-	-	-	-	-					<0.01	%	TM30/PM15
Total Sulphate as SO4 #	528	-	1602	1069	550	373					<50	mg/kg	TM50/PM29
Total Sulphate as SO4 BRE	-	-	-	-	-	-					<0.01	%	TM50/PM29
Zinc #	294	-	89	589	149	194					<5	mg/kg	TM30/PM15
Magnesium	-	-	-	-	-	-					<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	0.08	-	0.34	0.28	0.14	0.10					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	0.14	0.11	<0.03	0.19					<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.10	-	0.95	0.09	0.08	0.11					<0.05	mg/kg	TM4/PM8
Fluorene #	0.07	-	0.72	0.08	0.06	0.12					<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.78	-	5.97	0.97	0.61	1.54					<0.03	mg/kg	TM4/PM8
Anthracene #	0.18	-	1.63	0.25	0.10	0.39					<0.04	mg/kg	TM4/PM8
Fluoranthene #	1.53	-	9.19	1.86	0.90	3.56					<0.03	mg/kg	TM4/PM8
Pyrene #	1.30	-	8.14	1.62	0.80	3.32					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.81	-	4.38	1.04	0.50	2.01					<0.06	mg/kg	TM4/PM8
Chrysene #	0.82	-	4.01	1.04	0.52	1.88					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	1.32	-	7.03	1.89	0.85	3.29					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.80	-	5.02	1.20	0.49	2.28					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.50	-	2.78	0.83	0.35	1.24					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.08	-	0.49	0.16	0.08	0.23					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.45	-	2.52	0.77	0.35	1.22					<0.04	mg/kg	TM4/PM8
Coronene	0.08	-	-	-	-	-					<0.04	mg/kg	TM4/PM8
PAH 16 Total	8.8	-	53.3	12.2	5.8	21.5					<0.6	mg/kg	TM4/PM8
PAH 17 Total	8.90	-	-	-	-	-					<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.95	-	5.06	1.36	0.61	2.37					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.37	-	1.97	0.53	0.24	0.92					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	95	-	95	92	97	96					<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	<2	-	-	-					<2	ug/kg	TM15/PM10
Benzene #	-	-	<3	-	-	-					<3	ug/kg	TM15/PM10
Toluene #	-	-	<3	-	-	-					<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	<3	-	-	-					<3	ug/kg	TM15/PM10
m/p-Xylene #	-	-	<5	-	-	-					<5	ug/kg	TM15/PM10
o-Xylene #	-	-	<3	-	-	-					<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	57	-	-	-					<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	44-47	48-51	52-55	56-59	60-63	64-67	LOD/LOR	Units	Method No.
Sample ID	WS115B	WS117	WS117	WS117	WS117	WS118			
Depth	0.90	1.10	0.40	2.40	2.20	0.20			
COC No / misc									
Containers	V J B	V J T B	V J T B	V J T B	V J T B	V J T B			
Sample Date	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1			
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024			
Surrogate Recovery 4-Bromofluorobenzene	-	-	71	-	-	-	<0	%	TM15/PM10
Mineral Oil (C10-C40) (EH_CU_1D_AL)	165	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16
TPH CWG									
Aliphatics									
>C5-C6 (HS_1D_AL) #	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	-	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	-	<4	-	-	-	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	-	14	-	-	-	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	-	408	-	-	-	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	-	-	50	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	-	-	472	-	-	-	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics									
>C5-EC7 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	-	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	-	19	-	-	-	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	-	149	-	-	-	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	-	985	-	-	-	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	-	-	144	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	-	-	1297	-	-	-	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	-	-	1769	-	-	-	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
Benzene #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
Toluene #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
o-Xylene #	<5	-	-	-	-	-	<5	ug/kg	TM36/PM12
PCB 28 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<50 AB	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<350 AB	-	-	-	-	<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	-	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21B

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	44-47	48-51	52-55	56-59	60-63	64-67					LOD/LOR	Units	Method No.
Sample ID	WS115B	WS117	WS117	WS117	WS117	WS118							
Depth	0.90	1.10	0.40	2.40	2.20	0.20							
COC No / misc													
Containers	V J B	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024							
Monoethylene glycol	-	-	-	-	-	-					<50	ug/kg	TM179/PM8
Propylene glycol	-	-	-	-	-	-					<50	ug/kg	TM179/PM8
Diethylene glycol	-	-	-	-	-	-					<50	ug/kg	TM179/PM8
Triethylene glycol	-	-	-	-	-	-					<50	ug/kg	TM179/PM8
Thiodiglycol	-	-	-	-	-	-					<50	ug/kg	TM179/PM8
Natural Moisture Content	19.3	19.0	10.6	26.3	16.6	19.6					<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4	-	-	-	-	-	-					<0.6	mg/kg	TM38/PM20
Chloride (2:1 Ext BRE) #	-	-	-	-	-	-					<0.002	g/l	TM38/PM20
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE)	-	-	-	-	-	-					<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0168	-	0.2146	0.0533	0.0277	0.0130					<0.0015	g/l	TM38/PM20
Free Cyanide	<0.5	-	<0.5	<0.5	<0.5	<0.5					<0.5	mg/kg	TM89/PM45
Total Cyanide #	<0.5	-	<0.5	1.0	<0.5	<0.5					<0.5	mg/kg	TM89/PM45
Complex Cyanide	<0.5	-	<0.5	1.0	<0.5	<0.5					<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	3.04	-	6.88	4.81	2.02	3.44					<0.02	%	TM21/PM24
ANC at pH4	0.49	-	-	-	-	-					<0.03	mol/kg	TM77/PM0
ANC at pH7	NDP	-	-	-	-	-					<0.03	mol/kg	TM77/PM0
Loss on Ignition #	6.2	-	-	-	-	-					<1.0	%	TM22/PM0
pH #	8.18	-	10.24	8.39	8.52	8.30					<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	9-12	13-16	21-24	25-28	37-40	44-47	68-71				LOD/LOR	Units	Method No.
Sample ID	WS105	WS105	WS107	WS110	WS113B	WS115B	WS118						
Depth	0.60	0.75	0.65	0.61	0.35	0.90	0.30						
COC No / misc													
Containers	V J T B	V J T B	V J T	V J T	V J T B	V J B	V J T B						
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024	20/11/2024						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024						
Dissolved Arsenic #	4.5	-	166.8	25.3	2.7	-	3.7				<2.5	ug/l	TM30/PM14
Dissolved Boron #	<12	-	31	71	<12	-	<12				<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	-	<0.5	<0.5	<0.5	-	<0.5				<0.5	ug/l	TM30/PM14
Dissolved Chromium #	10.5	-	<1.5	5.9	<1.5	-	2.1				<1.5	ug/l	TM30/PM14
Dissolved Copper #	11	-	<7	<7	<7	-	<7				<7	ug/l	TM30/PM14
Dissolved Lead #	10	-	<5	<5	<5	-	<5				<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	-	<1	<1	<1	-	<1				<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	-	<2	<2	<2	-	<2				<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	-	<3	<3	<3	-	<3				<3	ug/l	TM30/PM14
Dissolved Zinc #	<3	-	<3	<3	<3	-	<3				<3	ug/l	TM30/PM14
PAH MS													
Naphthalene	<2.0 AC	-	<0.1	<0.1	0.3	-	<0.1				<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.100 AC	-	<0.005	0.009	0.022	-	0.013				<0.005	ug/l	TM4/PM30
Acenaphthene	<0.100 AC	-	<0.005	0.007	0.124	-	0.027				<0.005	ug/l	TM4/PM30
Fluorene	<0.100 AC	-	0.006	<0.005	0.059	-	0.019				<0.005	ug/l	TM4/PM30
Phenanthrene	0.346 AC	-	0.012	0.033	0.269	-	0.130				<0.005	ug/l	TM4/PM30
Anthracene	0.102 AC	-	<0.005	0.016	0.088	-	0.039				<0.005	ug/l	TM4/PM30
Fluoranthene	0.826 AC	-	<0.005	0.130	0.551	-	0.231				<0.005	ug/l	TM4/PM30
Pyrene	0.966 AC	-	0.005	0.133	0.566	-	0.199				<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	0.715 AC	-	<0.005	0.100	0.365	-	0.131				<0.005	ug/l	TM4/PM30
Chrysene	0.759 AC	-	<0.005	0.106	0.498	-	0.147				<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene	1.085 AC	-	<0.008	0.210	1.227	-	0.229				<0.008	ug/l	TM4/PM30
Benzo(a)pyrene	0.606 AC	-	<0.005	0.115	0.650	-	0.107				<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene	0.456 AC	-	<0.005	0.098	0.720	-	0.086				<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene	0.164 AC	-	<0.005	0.025	0.158	-	0.019				<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene	0.452 AC	-	<0.005	0.090	0.746	-	0.089				<0.005	ug/l	TM4/PM30
PAH 16 Total	6.477 AC	-	<0.173	1.072	6.343	-	1.466				<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.781 AC	-	<0.008	0.151	0.883	-	0.165				<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.304 AC	-	<0.008	0.059	0.344	-	0.064				<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	107 AC	-	70	68 SV	106	-	73				<0	%	TM4/PM30
Total Phenols HPLC	<0.05	-	<0.05	<0.05	<0.05	-	<0.05				<0.05	mg/l	TM26/PM0
Mass of raw test portion	0.1033	0.11	0.113	0.1063	0.1066	0.1037	0.1043					kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09					kg	NONE/PM17
pH	11.47	-	7.59	9.53	8.33	-	7.67				<0.01	pH units	TM73/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

SVOC Report : **Solid**

EMT Sample No.	5-8	9-12	21-24	25-28	29-32	37-40	52-55				LOD/LOR	Units	Method No.
Sample ID	WS103A	WS105	WS107	WS110	WS112	WS113B	WS117						
Depth	0.40	0.60	0.65	0.61	1.20	0.35	0.40						
COC No / misc													
Containers	V J T	V J T B	V J T	V J T	V J T	V J T B	V J T B						
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024						
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10	<10	<10	81	<10				<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10	<10	<10	88	<10				<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10	<10	<10	166	<10				<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Phenol #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	97	174	<10	27	<10	525	105				<10	ug/kg	TM16/PM8
Naphthalene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Acenaphthylene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Acenaphthene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Fluorene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Phenanthrene #	-	-	<10	82	-	-	-				<10	ug/kg	TM16/PM8
Anthracene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Fluoranthene #	-	-	<10	104	-	-	-				<10	ug/kg	TM16/PM8
Pyrene #	-	-	<10	115	-	-	-				<10	ug/kg	TM16/PM8
Benzo(a)anthracene	-	-	<10	99	-	-	-				<10	ug/kg	TM16/PM8
Chrysene	-	-	<10	81	-	-	-				<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	-	-	<10	137	-	-	-				<10	ug/kg	TM16/PM8
Benzo(a)pyrene	-	-	<10	70	-	-	-				<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	-	-	<10	52	-	-	-				<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	-	-	<10	<10	-	-	-				<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	-	-	<10	53	-	-	-				<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	-	-	<10	99	-	-	-				<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	-	-	<10	38	-	-	-				<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100	<100	<100	<100	<100	300				<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

SVOC Report : **Solid**

EMT Sample No.	5-8	9-12	21-24	25-28	29-32	37-40	52-55					
Sample ID	WS103A	WS105	WS107	WS110	WS112	WS113B	WS117					
Depth	0.40	0.60	0.65	0.61	1.20	0.35	0.40					
COC No / misc												
Containers	V J T	V J T B	V J T	V J T	V J T	V J T B	V J T B					
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1					
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024					
SVOC MS												
Other SVOCs												
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
1,2,4-Trichlorobenzene #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
2-Nitroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
3-Nitroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
4-Bromophenylphenylether #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
4-Chloroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
4-Chlorophenylphenylether	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
4-Nitroaniline	<10	<10	<10	23	<10	<10	<10				<10	ug/kg
Azobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Carbazole	22	14	<10	<10	<10	427	155				<10	ug/kg
Dibenzofuran #	59	44	<10	12	<10	431	206				<10	ug/kg
Hexachlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Hexachlorobutadiene #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Hexachloroethane	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Isophorone #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
N-nitrosodi-n-propylamine #	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg
Nitrobenzene #	<10	<10	<10	28	<10	<10	<10				<10	ug/kg
Surrogate Recovery 2-Fluorobiphenyl	111	116	109	114	111	113	116				<0	%
Surrogate Recovery p-Terphenyl-d14	108	113	109	111	110	118	121				<0	%

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/19867

VOC Report : **Solid**

EMT Sample No.	5-8	9-12	21-24	25-28	29-32	37-40	52-55				LOD/LOR	Units	Method No.
Sample ID	WS103A	WS105	WS107	WS110	WS112	WS113B	WS117						
Depth	0.40	0.60	0.65	0.61	1.20	0.35	0.40						
COC No / misc													
Containers	V J T	V J T B	V J T	V J T	V J T	V J T B	V J T B						
Sample Date	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024	20/11/2024	20/11/2024						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024						
VOC MS													
Dichlorodifluoromethane	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15/PM10
Chloromethane #	60	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1 SV	<1	<1 SV	<1	<1				<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6 SV	<6	<6 SV	<6	<6				<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	87	<7 SV	<7	13 SV	51	19				<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3 SV	<3	5 SV	<3	<3				<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6 SV	<6	<6 SV	<6	<6				<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
Toluene #	<3	27	<3 SV	6	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	5	<3 SV	3	5 SV	<3	<3				<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3 +	<3 +	<3 +	<3 +	<3 +				<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	5	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	7	<5 SV	<5	<5 SV	<5	<5				<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2 SV	<2	<2 SV	<2	<2				<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3 SV	<3	<3 SV	<3	<3				<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5 SV	<5	<5 SV	<5	<5				<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6 SV	<6	<6 SV	<6	<6				<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
n-Butylbenzene	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7	<7	<7 SV	<7	<7 SV	<7	<7				<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4 SV	<4	<4 SV	<4	<4				<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27 SV	<27	<27 SV	<27	<27				<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene	<7	<7	<7 SV	<7	<7 SV	<7	<7				<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	52	64	52 SV	68	47 SV	68	57				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	52	73	43 SV	69	43 SV	78	71				<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1033	Moisture Content Ratio (%) =	14.8
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	87.1
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**24/19867**			
Sample No	**11**			
Client Sample No	**WS105**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.60**			
Sample Date	**19/11/2024**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	3.44	3	5	6
Loss on Ignition (%)	5.3	-	-	10
Sum of BTEX (mg/kg)	0.034	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	247	500	-	-
PAH Sum of 17(mg/kg)	3.91	100	-	-
pH (pH Units)	10.93	-	>6	-
ANC to pH 7 (mol/kg)	0.14	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	1.41	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0073	0.073	0.5	2	25
Barium	0.103	1.03	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	0.0111	0.111	0.5	10	70
Copper	0.011	0.11	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.003	0.03	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	0.008	0.08	0.5	10	50
Antimony	0.003	0.03	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	0.8	8	800	15000	25000
Fluoride	<0.3	<3	10	150	500
Sulphate as SO4	8.2	82	1000	20000	50000
Total Dissolved Solids	228	2281	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	2	20	500	800	1000

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.11	Moisture Content Ratio (%) =	22.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	81.9
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**24/19867**			
Sample No	**15**			
Client Sample No	**WS105**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.75**			
Sample Date	**19/11/2024**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	3.04	3	5	6
Loss on Ignition (%)	5.0	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	9.88	-	>6	-
ANC to pH 7 (mol/kg)	0.07	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.73	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.1987	1.987	0.5	2	25
Barium	0.015	0.15	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	0.0043	0.043	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.002	<0.02	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.005	0.05	0.06	0.7	5
Selenium	0.006	0.06	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	3.5	35	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	5.5	55	1000	20000	50000
Total Dissolved Solids	70	700	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	<2	<20	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1037	Moisture Content Ratio (%) =	15.4
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	86.7
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**24/19867**			
Sample No	**46**			
Client Sample No	**WS115B**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.90**			
Sample Date	**20/11/2024**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	3.04	3	5	6
Loss on Ignition (%)	6.2	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	165	500	-	-
PAH Sum of 17(mg/kg)	8.90	100	-	-
pH (pH Units)	8.18	-	>6	-
ANC to pH 7 (mol/kg)	NDP	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.49	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	<0.0025	<0.025	0.5	2	25
Barium	0.017	0.17	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.004	0.04	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	0.4	4	800	15000	25000
Fluoride	1.0	10	10	150	500
Sulphate as SO4	2.7	27	1000	20000	50000
Total Dissolved Solids	89	890	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	3	30	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/19867	1	WS103A	0.40	8	Charlotte Taylor	04/12/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos ACM (2)**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos Type**	Chrysotile
					Charlotte Taylor	04/12/2024	**Asbestos Type (2)**	Amosite
					Simon Postlewhite	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
24/19867	1	WS105	0.60	12	Simon Postlewhite	05/12/2024	**General Description (Bulk Analysis)**	Brown soil/stones
					Simon Postlewhite	05/12/2024	**Asbestos Fibres**	Fibre Bundles
					Simon Postlewhite	05/12/2024	**Asbestos ACM**	Bitumen Products
					Simon Postlewhite	05/12/2024	**Asbestos Type**	Chrysotile
					Simon Postlewhite	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Simon Postlewhite	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	0.019 (mass %)
					Simon Postlewhite	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.019 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	0.019 (mass %)
24/19867	1	WS105	0.75	16	Emily Smith	03/12/2024	**General Description (Bulk Analysis)**	Brown soil
					Emily Smith	03/12/2024	**Asbestos Fibres**	NAD
					Emily Smith	03/12/2024	**Asbestos ACM**	NAD
					Emily Smith	03/12/2024	**Asbestos Type**	NAD
24/19867	1	WS107	0.40	20	Charlotte Taylor	04/12/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/12/2024	**Asbestos Fibres**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos Type**	NAD
24/19867	1	WS112	1.20	31	Anthony Carman	04/12/2024	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	04/12/2024	**Asbestos Fibres**	NAD
					Anthony Carman	04/12/2024	**Asbestos ACM**	NAD
					Anthony Carman	04/12/2024	**Asbestos Type**	NAD

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/19867	1	WS113B	0.35	40	Catherine Coles	04/12/2024	**General Description (Bulk Analysis)**	brown soil,stone, debris
					Catherine Coles	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	04/12/2024	**Asbestos Fibres (2)**	Free Fibres
					Catherine Coles	04/12/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/12/2024	**Asbestos ACM (2)**	NAD
					Catherine Coles	04/12/2024	**Asbestos Type**	Chrysotile
					Catherine Coles	04/12/2024	**Asbestos Type (2)**	Amosite
					Catherine Coles	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
24/19867	1	WS115	0.10	43	Anthony Carman	04/12/2024	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	04/12/2024	**Asbestos Fibres**	NAD
					Anthony Carman	04/12/2024	**Asbestos ACM**	NAD
					Anthony Carman	04/12/2024	**Asbestos Type**	NAD
24/19867	1	WS115B	0.90	47	Charlotte Taylor	04/12/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos ACM (2)**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos Type**	Chrysotile
					Charlotte Taylor	04/12/2024	**Asbestos Type (2)**	Amosite
					Charlotte Taylor	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	0.002 (mass %)
					Charlotte Taylor	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.002 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	0.002 (mass %)
24/19867	1	WS117	0.40	55	Catherine Coles	04/12/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/12/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/12/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/12/2024	**Asbestos Type**	NAD
24/19867	1	WS117	2.40	58	Charlotte Taylor	04/12/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Charlotte Taylor	04/12/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos ACM (2)**	NAD
					Charlotte Taylor	04/12/2024	**Asbestos Type**	Chrysotile
					Charlotte Taylor	04/12/2024	**Asbestos Type (2)**	Amosite
					Charlotte Taylor	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	11/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	11/12/2024	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
24/19867	1	WS117	2.20	62	Charlotte Taylor	03/12/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	03/12/2024	**Asbestos Fibres**	Fibre Bundles
					Charlotte Taylor	03/12/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	03/12/2024	**Asbestos Type**	Amosite

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/19867	1	WS117	2.20	62	Charlotte Taylor	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Charlotte Taylor	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	11/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	11/12/2024	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
24/19867	1	WS118	0.20	66	Catherine Coles	04/12/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/12/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/12/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/12/2024	**Asbestos Type**	NAD

Client Name: Tier Environmental

Reference: TE1880

Location: Hopwood Hall, Rochdale

Contact: Stefani Ellis

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
24/19867	1	WS115B	0.90	44-47	TM77/PM0	Sample received is below pH7

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/19867						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/19867

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution
AC	x20 Dilution

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/19867

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

EMT Job No: 24/19867

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.	Yes		AD	Yes

EMT Job No: 24/19867

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.			AD	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes

EMT Job No: 24/19867

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes

EMT Job No: 24/19867

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Sean Lee
Date :	12th December, 2024
Your reference :	TE1880
Our reference :	Test Report 24/20208 Batch 1
Location :	Hopwood Hall, Rochdale
Date samples received :	28th November, 2024
Status :	Final Report
Issue :	202412121531

Ten samples were received for analysis on 28th November, 2024 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 24.326 kg of CO2

Scope 1&2&3 emissions - 57.49 kg of CO2

Authorised By:



Sean Anglish
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	12-14	23-26	33-35						LOD/LOR	Units	Method No.
Sample ID	WS108	WS109	WS111	WS116	WS116								
Depth	0.70	0.40-0.60	0.80	1.90	3.40								
COC No / misc													
Containers	V J T B	V J T B	V J B	V J B	V J B								
Sample Date	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	28/11/2024	28/11/2024	28/11/2024	28/11/2024	28/11/2024								
Arsenic #	34.7	-	76.9	13.3	3.1						<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	<0.1	0.4	0.2						<0.1	mg/kg	TM30/PM15
Chromium #	55.2	-	47.2	46.1	47.4						<0.5	mg/kg	TM30/PM15
Copper #	55	-	57	73	19						<1	mg/kg	TM30/PM15
Lead #	213	-	157	312	16						<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	<0.1	0.2	<0.1						<0.1	mg/kg	TM30/PM15
Nickel #	18.2	-	30.7	22.7	21.4						<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	1	<1	<1						<1	mg/kg	TM30/PM15
Sulphur as S	-	-	0.06	0.08	0.04						<0.01	%	TM30/PM15
Total Sulphate as SO4 #	1204	-	1254	1544	239						<50	mg/kg	TM50/PM29
Total Sulphate as SO4 BRE	-	-	0.13	0.15	0.02						<0.01	%	TM50/PM29
Zinc #	60	-	67	164	52						<5	mg/kg	TM30/PM15
Magnesium	-	-	0.0051	0.0048	0.0030						<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	<0.04	-	<0.04	0.63	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	<0.03	0.32	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	1.23	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	<0.04	0.83	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.28	-	0.06	8.29	<0.03						<0.03	mg/kg	TM4/PM8
Anthracene #	0.05	-	<0.04	1.89	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.39	-	0.11	12.25	<0.03						<0.03	mg/kg	TM4/PM8
Pyrene #	0.38	-	0.11	10.16	<0.03						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.31	-	0.09	4.76	<0.06						<0.06	mg/kg	TM4/PM8
Chrysene #	0.30	-	0.09	5.02	<0.02						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.49	-	0.11	8.00	<0.07						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.33	-	0.06	4.72	<0.04						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.25	-	0.05	3.06	<0.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.06	-	<0.04	0.60	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.26	-	0.05	3.12	<0.04						<0.04	mg/kg	TM4/PM8
Coronene	-	-	<0.04	0.44	-						<0.04	mg/kg	TM4/PM8
PAH 16 Total	3.1	-	0.7	64.9	<0.6						<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	-	0.73	65.32	-						<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.35	-	0.08	5.76	<0.05						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.14	-	0.03	2.24	<0.02						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	91	-	96	87	96						<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	<2	<2	-						<2	ug/kg	TM15/PM10
Benzene #	-	-	<3	<3	-						<3	ug/kg	TM15/PM10
Toluene #	-	-	6	8	-						<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	<3	<3	-						<3	ug/kg	TM15/PM10
m/p-Xylene #	-	-	<5	7	-						<5	ug/kg	TM15/PM10
o-Xylene #	-	-	<3	<3	-						<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	79	68	-						<0	%	TM15/PM10

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	12-14	23-26	33-35						LOD/LOR	Units	Method No.
Sample ID	WS108	WS109	WS111	WS116	WS116								
Depth	0.70	0.40-0.60	0.80	1.90	3.40								
COC No / misc													
Containers	V J T B	V J T B	V J B	V J B	V J B								
Sample Date	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	28/11/2024	28/11/2024	28/11/2024	28/11/2024	28/11/2024								
Surrogate Recovery 4-Bromofluorobenzene	-	-	70	71	-						<0	%	TM15/PM10
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	-	<30	165	-						<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	-	-	<0.2	<0.2	-						<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	-	-	<4	<4	-						<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	-	-	<7	22	-						<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	-	-	<7	131	-						<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	-	-	<7	12	-						<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	-	-	<26	165	-						<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	-	-	<0.1 SV	<0.1 SV	-						<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	-	-	<0.2	1.3	-						<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	-	-	<4	20	-						<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	-	-	<7	116	-						<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	-	-	<7	413	-						<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	-	-	<7	40	-						<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	-	-	<26	590	-						<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	-	-	<52	755	-						<52	mg/kg	TM5/TM36/PM8/PM12/PM16
PCB 28#	-	-	<5	<5	-						<5	ug/kg	TM17/PM8
PCB 52#	-	-	<5	<5	-						<5	ug/kg	TM17/PM8
PCB 101#	-	-	<5	7	-						<5	ug/kg	TM17/PM8
PCB 118#	-	-	<5	<5	-						<5	ug/kg	TM17/PM8
PCB 138#	-	-	<5	8	-						<5	ug/kg	TM17/PM8
PCB 153#	-	-	<5	<5	-						<5	ug/kg	TM17/PM8
PCB 180#	-	-	<5	<5	-						<5	ug/kg	TM17/PM8
Total 7 PCBs#	-	-	<35	<35	-						<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	-	<0.15	<0.15	<0.15						<0.15	mg/kg	TM26/PM21B
Monoethylene glycol	-	<50	-	-	-						<50	ug/kg	TM179/PM8
Propylene glycol	-	<50	-	-	-						<50	ug/kg	TM179/PM8
Diethylene glycol	-	<50	-	-	-						<50	ug/kg	TM179/PM8
Triethylene glycol	-	<50	-	-	-						<50	ug/kg	TM179/PM8
Thiodiglycol	-	<50	-	-	-						<50	ug/kg	TM179/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	12-14	23-26	33-35						LOD/LOR	Units	Method No.
Sample ID	WS108	WS109	WS111	WS116	WS116								
Depth	0.70	0.40-0.60	0.80	1.90	3.40								
COC No / misc													
Containers	V J T B	V J T B	V J B	V J B	V J B								
Sample Date	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	28/11/2024	28/11/2024	28/11/2024	28/11/2024	28/11/2024								
Natural Moisture Content	18.7	21.4	24.2	16.9	29.7						<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4	-	-	<0.6	<0.6	<0.6						<0.6	mg/kg	TM38/PM20
Chloride (2:1 Ext BRE) #	-	-	0.017	0.042	0.046						<0.002	g/l	TM38/PM20
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE)	-	-	0.0118	0.0206	0.0937						<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.1085	-	0.1401	0.3916	0.0994						<0.0015	g/l	TM38/PM20
Free Cyanide	<0.5	-	<0.5	<0.5	-						<0.5	mg/kg	TM89/PM45
Total Cyanide #	<0.5	-	<0.5	<0.5	-						<0.5	mg/kg	TM89/PM45
Complex Cyanide	<0.5	-	<0.5	<0.5	-						<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	5.61	-	0.39	4.84	1.16						<0.02	%	TM21/PM24
ANC at pH4	-	-	0.77	0.68	-						<0.03	mol/kg	TM77/PM0
ANC at pH7	-	-	0.06	0.05	-						<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	-	4.5	6.1	-						<1.0	%	TM22/PM0
pH #	10.40	-	8.97	8.42	7.71						<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	12-14	23-26									LOD/LOR	Units	Method No.
Sample ID	WS111	WS116											
Depth	0.80	1.90											
COC No / misc													
Containers	V J B	V J B											
Sample Date	21/11/2024	21/11/2024											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	28/11/2024	28/11/2024											
Mass of raw test portion	0.1179	0.1096										kg	NONE/PM17
Mass of dried test portion	0.09	0.09										kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

SVOC Report : **Solid**

EMT Sample No.	12-14	23-26											
Sample ID	WS111	WS116											
Depth	0.80	1.90									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J B	V J B											
Sample Date	21/11/2024	21/11/2024											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	28/11/2024	28/11/2024									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<100 AA									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<100 AA									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<100 AA									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<100 AA									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<100 AA									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<100 AA									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<100 AA									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<100 AA									<10	ug/kg	TM16/PM8
Phenol #	<10	<100 AA									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<100 AA									<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10	182 AA									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	1274	1201 AA									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<1000 AA									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<1000 AA									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<1000 AA									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<1000 AA									<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<1000 AA									<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10	<100 AA									<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<100 AA									<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<100 AA									<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<100 AA									<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<100 AA									<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<100 AA									<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<100 AA									<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<100 AA									<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<100 AA									<10	ug/kg	TM16/PM8
Azobenzene	<10	<100 AA									<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<100 AA									<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<100 AA									<10	ug/kg	TM16/PM8
Carbazole	<10	299 AA									<10	ug/kg	TM16/PM8
Dibenzofuran #	<10	516 AA									<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<100 AA									<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<100 AA									<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<100 AA									<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<100 AA									<10	ug/kg	TM16/PM8
Isophorone #	<10	<100 AA									<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<100 AA									<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<100 AA									<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	115	114 AA									<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	120	119 AA									<0	%	TM16/PM8

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee
EMT Job No: 24/20208

VOC Report : **Solid**

EMT Sample No.	12-14	23-26									LOD/LOR	Units	Method No.
Sample ID	WS111	WS116											
Depth	0.80	1.90											
COC No / misc													
Containers	V J B	V J B											
Sample Date	21/11/2024	21/11/2024											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	28/11/2024	28/11/2024											
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2									<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2									<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1									<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2									<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2									<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6									<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7									<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4									<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Chloroform #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4									<4	ug/kg	TM15/PM10
Benzene #	<3	<3									<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6									<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4									<4	ug/kg	TM15/PM10
Toluene #	6	8									<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3									<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3									<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3									<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	7									<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3									<3	ug/kg	TM15/PM10
Styrene	<3	<3									<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3									<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2									<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4									<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5									<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6									<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4	<4									<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
n-Butylbenzene	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4	<4									<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7	<7									<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4									<4	ug/kg	TM15/PM10
Naphthalene	<27	<27									<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene	<7	<7									<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	79	68									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	70	71									<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1179	Moisture Content Ratio (%) =	31.7
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	76.0
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**24/20208**			
Sample No	**14**			
Client Sample No	**WS111**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.80**			
Sample Date	**21/11/2024**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	0.39	3	5	6
Loss on Ignition (%)	4.5	-	-	10
Sum of BTEX (mg/kg)	<0.017	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	0.73	100	-	-
pH (pH Units)	8.97	-	>6	-
ANC to pH 7 (mol/kg)	0.06	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.77	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.1228	1.227	0.5	2	25
Barium	0.029	0.29	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	0.0045	0.045	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.008	0.08	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.003	0.03	0.06	0.7	5
Selenium	0.011	0.11	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	2.8	28	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	17.5	175	1000	20000	50000
Total Dissolved Solids	83	830	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	<2	<20	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1096	Moisture Content Ratio (%) =	22.1
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	81.9
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**24/20208**			
Sample No	**25**			
Client Sample No	**WS116**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**1.90**			
Sample Date	**21/11/2024**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	4.84	3	5	6
Loss on Ignition (%)	6.1	-	-	10
Sum of BTEX (mg/kg)	<0.017	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	165	500	-	-
PAH Sum of 17(mg/kg)	65.32	100	-	-
pH (pH Units)	8.42	-	>6	-
ANC to pH 7 (mol/kg)	0.05	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.68	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0044	0.044	0.5	2	25
Barium	0.032	0.32	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	0.0023	0.023	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.015	0.15	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.004	0.04	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	7.6	76	800	15000	25000
Fluoride	0.4	4	10	150	500
Sulphate as SO4	116.2	1162	1000	20000	50000
Total Dissolved Solids	259	2590	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	2	<20	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/20208	1	WS108	0.70	4	Catherine Coles	04/12/2024	**General Description (Bulk Analysis)**	brown soil,stone, building debris
					Catherine Coles	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	04/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Catherine Coles	04/12/2024	**Asbestos ACM**	ACM Debris
					Catherine Coles	04/12/2024	**Asbestos ACM (2)**	ACM Debris
					Catherine Coles	04/12/2024	**Asbestos Type**	Chrysotile
					Catherine Coles	04/12/2024	**Asbestos Type (2)**	Amosite
					Catherine Coles	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	0.017 (mass %)
					Catherine Coles	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.017 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	0.017 (mass %)
24/20208	1	WS111	0.80	14	Remigiusz Blichowski	04/12/2024	**General Description (Bulk Analysis)**	Brown powedey soil with rock
					Remigiusz Blichowski	04/12/2024	**Asbestos Fibres**	NAD
					Remigiusz Blichowski	04/12/2024	**Asbestos ACM**	NAD
					Remigiusz Blichowski	04/12/2024	**Asbestos Type**	NAD
24/20208	1	WS116	1.20	21	Remigiusz Blichowski	04/12/2024	**General Description (Bulk Analysis)**	Brown powdery soil with rocks
					Remigiusz Blichowski	04/12/2024	**Asbestos Fibres**	NAD
					Remigiusz Blichowski	04/12/2024	**Asbestos ACM**	NAD
					Remigiusz Blichowski	04/12/2024	**Asbestos Type**	NAD
24/20208	1	WS116	1.90	26	Remigiusz Blichowski	04/12/2024	**General Description (Bulk Analysis)**	Brown powdery sand
					Remigiusz Blichowski	04/12/2024	**Asbestos Fibres**	Fibre Bundles
					Remigiusz Blichowski	04/12/2024	**Asbestos ACM**	NAD
					Remigiusz Blichowski	04/12/2024	**Asbestos Type**	Chrysotile
					Remigiusz Blichowski	10/12/2024	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	10/12/2024	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)

Element Materials Technology

Notification of Deviating Samples

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Sean Lee

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/20208						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/20208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 24/20208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

EMT Job No: 24/20208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.			AD	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

EMT Job No: 24/20208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

EMT Job No: 24/20208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Please include all sections of this report if it is reproduced

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Adrian Read
Date :	19th December, 2024
Your reference :	TEI880
Our reference :	Test Report 24/20419 Batch 1
Location :	Hopewood Hall, Rochdale
Date samples received :	30th November, 2024
Status :	Final Report
Issue :	202412191616

Thirteen samples were received for analysis on 30th November, 2024 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 3.982 kg of CO2

Scope 1&2&3 emissions - 9.411 kg of CO2

Authorised By:



Sean Anglish
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TEI880
Location: Hopewood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20419

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	8	12	13	18-19						LOD/LOR	Units	Method No.
Sample ID	RH101	WS105	WS112	WS116	RH103								
Depth	0.05	0.05	0.05	0.05	0.05								
COC No / misc													
Containers	J	J	J	J	V								
Sample Date	27/11/2024	27/11/2024	27/11/2024	27/11/2024	27/11/2024								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	30/11/2024	30/11/2024	30/11/2024	30/11/2024	30/11/2024								
SEM #	48310	63816	65914	50475	27497						<110	mg/kg	TM7/PM6
Saturates (Aliphatics)	11.24	9.48	11.26	10.40	8.38						<0.01	%	TM13/PM6
Aromatics	23.02	18.95	16.67	35.38	26.28						<0.01	%	TM13/PM6
Resins (Heterocyclics)	51.92	55.78	58.45	43.55	58.02						<0.01	%	TM13/PM6
Asphaltenes	13.82	15.79	13.61	10.67	7.32						<0.01	%	TM13/PM6
Natural Moisture Content	0.9	1.9	2.5	1.4	4.7						<0.1	%	PM4/PM0
Triterpanes 191m/z	Present	Present	Present	Present	Present							None	TM16/PM6
Triaromatic Steranes 231m/z	Present	Present	Present	Present	Present							None	TM16/PM6
Coal Tar	0.3	0.2	0.3	0.3	0.2						<0.1	%	TM16/PM6

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TEI880
Location: Hopewood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20419

SVOC Report : **Solid**

EMT Sample No.	1	8	12	13	18-19							
Sample ID	RH101	WS105	WS112	WS116	RH103							
Depth	0.05	0.05	0.05	0.05	0.05							
COC No / misc												
Containers	J	J	J	J	V							
Sample Date	27/11/2024	27/11/2024	27/11/2024	27/11/2024	27/11/2024							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1							
Date of Receipt	30/11/2024	30/11/2024	30/11/2024	30/11/2024	30/11/2024							
SVOC MS												
PAHs												
Naphthalene	37	245	32	87	<10						<10	ug/kg	TM16/PM6
Acenaphthylene	365	208	203	129	89						<10	ug/kg	TM16/PM6
Acenaphthene	66	320	<10	78	<10						<10	ug/kg	TM16/PM6
Fluorene	<10	228	<10	90	24						<10	ug/kg	TM16/PM6
Phenanthrene	98	1048	792	387	63						<10	ug/kg	TM16/PM6
Anthracene	67	226	99	115	19						<10	ug/kg	TM16/PM6
Fluoranthene	159	839	742	539	59						<10	ug/kg	TM16/PM6
Pyrene	334	995	874	502	86						<10	ug/kg	TM16/PM6
Benzo(a)anthracene	<10	485	555	330	<10						<10	ug/kg	TM16/PM6
Chrysene	<10	466	587	244	<10						<10	ug/kg	TM16/PM6
Benzo(bk)fluoranthene	<10	835	912	570	<10						<10	ug/kg	TM16/PM6
Benzo(a)pyrene	<10	497	533	309	48						<10	ug/kg	TM16/PM6
Indeno(123cd)pyrene	<10	360	312	245	<10						<10	ug/kg	TM16/PM6
Dibenzo(ah)anthracene	<10	127	134	68	<10						<10	ug/kg	TM16/PM6
Benzo(ghi)perylene	<10	466	525	285	63						<10	ug/kg	TM16/PM6

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Notification of Deviating Samples

Client Name: Tier Environmental
Reference: TEI880
Location: Hopewood Hall, Rochdale
Contact: Adrian Read

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/20419						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/20419

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/20419

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM7	Modified USEPA 3540C:1996 and 9071B:1998 for oily wastes. In house method for the gravimetric determination of a sample following solvent extraction.	PM6	Samples are extracted using Soxtec apparatus and solvent.	Yes		AR	Yes
TM13	Determination of Saturates, Aromatics, Resins and Asphaltenes by Thin Layer Chromatography with Flame Ionisation Detection.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Adrian Read
Date :	11th December, 2024
Your reference :	TE1880
Our reference :	Test Report 24/20727 Batch 1
Location :	Hopwood Hall, Rochdale
Date samples received :	5th December, 2024
Status :	Final Report
Issue :	202412110927

Two samples were received for analysis on 5th December, 2024 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.996 kg of CO2

Scope 1&2&3 emissions - 11.806 kg of CO2

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20727

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4										LOD/LOR	Units	Method No.
Sample ID	WS114												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	29/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	05/12/2024												
Arsenic #	7.1										<0.5	mg/kg	TM30/PM15
Cadmium #	0.3										<0.1	mg/kg	TM30/PM15
Chromium #	38.6										<0.5	mg/kg	TM30/PM15
Copper #	46										<1	mg/kg	TM30/PM15
Lead #	168										<5	mg/kg	TM30/PM15
Mercury #	0.2										<0.1	mg/kg	TM30/PM15
Nickel #	14.4										<0.7	mg/kg	TM30/PM15
Selenium #	<1										<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	600										<50	mg/kg	TM50/PM29
Zinc #	97										<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	1.23										<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.14										<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.77										<0.05	mg/kg	TM4/PM8
Fluorene #	0.47										<0.04	mg/kg	TM4/PM8
Phenanthrene #	4.99										<0.03	mg/kg	TM4/PM8
Anthracene #	1.47										<0.04	mg/kg	TM4/PM8
Fluoranthene #	11.44										<0.03	mg/kg	TM4/PM8
Pyrene #	10.28										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	4.69										<0.06	mg/kg	TM4/PM8
Chrysene #	4.93										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	7.40										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	4.54										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	2.67										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.67										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	2.73										<0.04	mg/kg	TM4/PM8
PAH 16 Total	58.4										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	5.33										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	2.07										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93										<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Toluene #	14										<3	ug/kg	TM15/PM10
Ethylbenzene #	6										<3	ug/kg	TM15/PM10
m/p-Xylene #	10										<5	ug/kg	TM15/PM10
o-Xylene #	6										<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	75										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90										<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20727

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4												
Sample ID	WS114												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	29/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	05/12/2024												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1										<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	<0.1										<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1										<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<0.2										<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4										<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7										<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	24										<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7										<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	<26										<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	3.3										<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	17										<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	62										<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	237										<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	31										<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	350										<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	350										<52	mg/kg	TM5/TM36/PM8/PM12/PM16
PCB 28#	<5										<5	ug/kg	TM17/PM8
PCB 52#	<5										<5	ug/kg	TM17/PM8
PCB 101#	<5										<5	ug/kg	TM17/PM8
PCB 118#	<5										<5	ug/kg	TM17/PM8
PCB 138#	<5										<5	ug/kg	TM17/PM8
PCB 153#	<5										<5	ug/kg	TM17/PM8
PCB 180#	<5										<5	ug/kg	TM17/PM8
Total 7 PCBs#	<35										<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15										<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	14.9										<0.1	%	PM4/PM0
Hexavalent Chromium#	<0.3										<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext)#	0.0869										<0.0015	g/l	TM38/PM20
Free Cyanide	<0.5										<0.5	mg/kg	TM89/PM45
Total Cyanide#	<0.5										<0.5	mg/kg	TM89/PM45
Complex Cyanide	<0.5										<0.5	mg/kg	TM89/PM45
Total Organic Carbon#	2.27										<0.02	%	TM21/PM24

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20727

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4												
Sample ID	WS114												
Depth	0.50										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J T												
Sample Date	29/11/2024												
Sample Type	Soil												
Batch Number	1										LOD/LOR	Units	Method No.
Date of Receipt	05/12/2024												
pH #	9.44										<0.01	pH units	TM73/PM11

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20727

SVOC Report : **Solid**

EMT Sample No.	1-4												
Sample ID	WS114												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	29/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	05/12/2024												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	322										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	245										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	182										<10	ug/kg	TM16/PM8
Dibenzofuran #	241										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	108										<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	119										<0	%	TM16/PM8

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20727

VOC Report : **Solid**

EMT Sample No.	1-4												
Sample ID	WS114												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	29/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	05/12/2024												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Chloromethane #	<3										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15_A/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane #	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6										<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	10										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane #	<3										<3	ug/kg	TM15/PM10
Chloroform #	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4										<4	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6										<6	ug/kg	TM15/PM10
Dibromomethane #	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene #	14										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3										<3	ug/kg	TM15/PM10
Chlorobenzene #	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	6										<3	ug/kg	TM15/PM10
m/p-Xylene #	10										<5	ug/kg	TM15/PM10
o-Xylene #	6										<3	ug/kg	TM15/PM10
Styrene	<3										<3	ug/kg	TM15_A/PM10
Bromoform	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4										<4	ug/kg	TM15/PM10
Propylbenzene #	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6										<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	240										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene	<7										<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	75										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90										<0	%	TM15/PM10

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/20727	1	WS114	0.50	3	Anthony Carman	10/12/2024	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	10/12/2024	**Asbestos Fibres**	Fibre Bundles
					Anthony Carman	10/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Anthony Carman	10/12/2024	**Asbestos ACM**	NAD
					Anthony Carman	10/12/2024	**Asbestos ACM (2)**	ACM Debris
					Anthony Carman	10/12/2024	**Asbestos Type**	Chrysotile
					Anthony Carman	10/12/2024	**Asbestos Type (2)**	Amosite
24/20727	1	WS106	1.00	7	Anthony Carman	10/12/2024	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	10/12/2024	**Asbestos Fibres**	Fibre Bundles
					Anthony Carman	10/12/2024	**Asbestos Fibres (2)**	Fibre Bundles
					Anthony Carman	10/12/2024	**Asbestos ACM**	NAD
					Anthony Carman	10/12/2024	**Asbestos ACM (2)**	NAD
					Anthony Carman	10/12/2024	**Asbestos Type**	Chrysotile
					Anthony Carman	10/12/2024	**Asbestos Type (2)**	Amosite

Element Materials Technology

Notification of Deviating Samples

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/20727						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/20727

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 24/20727

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

EMT Job No: 24/20727

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

YFRBY-FAGNY-ABTYQ

Report is invalid if pages are removed.

Job name

EMT-24-19867-Batch-1-202412111631

Description/Comments

Project

TE1880

Site

Hopwood Hall College, Rochdale

Classified by

Name:
Adrian Read
Date:
04 Feb 2025 17:55 GMT
Telephone:
01925 818388

Company:
Tier Environmental
Suite 414
Chadwick House
Warrington
WA3 6AE

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	03 Dec 2020
Most recent 3 year Refresher	05 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Hopwood Hall College **Post Code** OL12 6RY

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Proposed redevelopment of land

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavation of soils during development

Description of the waste

Made ground and/or natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS103A-19/11/2024-0.40m		Potentially Hazardous	HP 3(iv)	3
2	WS105-19/11/2024-0.60m		Hazardous	HP 3(i), HP 7, HP 11	9
3	WS105-19/11/2024-0.75m		Non Hazardous		15
4	WS107-19/11/2024-0.40m		Non Hazardous		18
5	WS107-19/11/2024-0.65m		Non Hazardous		20
6	WS110-19/11/2024-0.61m		Potentially Hazardous	HP 3(i)	25
7	WS112-19/11/2024-1.20m		Potentially Hazardous	HP 3(i)	30
8	WS112-19/11/2024-3.35m		Non Hazardous		36
9	WS113B-20/11/2024-0.35m		Potentially Hazardous	HP 3(i)	38
10	WS115-20/11/2024-0.10m		Non Hazardous		44
11	WS115B-20/11/2024-0.90m		Non Hazardous		46
12	WS117-20/11/2024-1.10m		Non Hazardous		48
13	WS117-20/11/2024-0.40m		Hazardous	HP 3(i), HP 7, HP 11	49
14	WS117-20/11/2024-2.40m		Non Hazardous		55
15	WS117-20/11/2024-2.20m		Non Hazardous		57
16	WS118-20/11/2024-0.20m		Non Hazardous		59

Related documents

#	Name	Description
1	EMT-24-19867-Batch-1-202412111631.HWOL	Element .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Adrian Read

Created date: 04 Feb 2025 17:55 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	61
Appendix B: Rationale for selection of metal species	65
Appendix C: Version	65

Classification of sample: WS103A-19/11/2024-0.40m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS103A-19/11/2024-0.40m
Moisture content:
22.9%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(iv): Flammable "flammable gaseous waste: gaseous waste which is flammable in air at 20°C and a standard pressure of 101.3 kPa"

Hazard Statements hit:

Flam. Gas 1; H220 "Extremely flammable gas."

Because of determinand:

chloromethane; methyl chloride (conc.: 4.88e-06%)

Determinands

Moisture content: 22.9% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		46.7 mg/kg	1.32	50.17 mg/kg	0.00502 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1 mg/kg	1.142	0.0929 mg/kg	0.00000929 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				28 mg/kg	2.27	51.717 mg/kg	0.00517 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		107 mg/kg	1.126	98.023 mg/kg	0.0098 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	203 mg/kg	1.56	257.642 mg/kg	0.0165 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.22 mg/kg	0.000022 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27.4 mg/kg	2.976	66.354 mg/kg	0.00664 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		122 mg/kg	4.398	436.572 mg/kg	0.0437 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<**LOD**
11	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<**LOD**
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
13		toluene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
14		ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
15		xylene				<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
17		pH				8.21	pH		8.21	pH	8.21 pH		
				PH									
18		naphthalene				0.1	mg/kg		0.0814	mg/kg	0.00000814 %	✓	
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				0.05	mg/kg		0.0407	mg/kg	0.00000407 %	✓	
			205-917-1	208-96-8									
20		acenaphthene				0.34	mg/kg		0.277	mg/kg	0.0000277 %	✓	
			201-469-6	83-32-9									
21		fluorene				0.23	mg/kg		0.187	mg/kg	0.0000187 %	✓	
			201-695-5	86-73-7									
22		phenanthrene				3.27	mg/kg		2.661	mg/kg	0.000266 %	✓	
			201-581-5	85-01-8									
23		anthracene				0.73	mg/kg		0.594	mg/kg	0.0000594 %	✓	
			204-371-1	120-12-7									
24		fluoranthene				5.51	mg/kg		4.483	mg/kg	0.000448 %	✓	
			205-912-4	206-44-0									
25		pyrene				4.41	mg/kg		3.588	mg/kg	0.000359 %	✓	
			204-927-3	129-00-0									
26		benzo[a]anthracene				2.31	mg/kg		1.88	mg/kg	0.000188 %	✓	
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				2.21	mg/kg		1.798	mg/kg	0.00018 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				2.25	mg/kg		1.831	mg/kg	0.000183 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				0.88	mg/kg		0.716	mg/kg	0.0000716 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				1.88	mg/kg		1.53	mg/kg	0.000153 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				1.04	mg/kg		0.846	mg/kg	0.0000846 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				0.22	mg/kg		0.179	mg/kg	0.0000179 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				1.04	mg/kg		0.846	mg/kg	0.0000846 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
41		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
42		chloromethane; methyl chloride				0.06	mg/kg		0.0488	mg/kg	0.00000488 %	✓	
		602-001-00-7	200-817-4	74-87-3									
43		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
44		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
45		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
46		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
47		dichloromethane; methylene chloride				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-004-00-3	200-838-9	75-09-2									
48		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
49		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
50		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
51		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
52		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
53		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
54		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
55		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
56		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
57		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
58		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
59		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
60		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
61		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
62		chlorobenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-033-00-1	203-628-5	108-90-7									
63		1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6									
64		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2									
65		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8									
66		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
67		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
68		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
69		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
70		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
71		tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
72		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
73		sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
74		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
75		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
76		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
77		n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
78		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
79		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
80		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
81		hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
82		1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
83		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
84		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
85		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
86		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
87		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
88		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
89		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
90		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
91		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-015-00-2	202-811-7	100-02-7									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
92		pentachlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
93		2-chloronaphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			202-079-9	91-58-7									
94		2-methyl naphthalene				0.097	mg/kg		0.0789	mg/kg	0.00000789 %	✓	
			202-078-3	91-57-6									
95		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
96		BBP; benzyl butyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
97		dibutyl phthalate; DBP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
98		di-n-octyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-214-7	117-84-0									
99		diethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-550-6	84-66-2									
100		dimethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-011-6	131-11-3									
101		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
102		2,6-dinitrotoluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
103		4-bromophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			202-952-4	101-55-3									
104		4-chloroaniline				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
105		4-chlorophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			230-281-7	7005-72-3									
106		azobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
107		bis(2-chloroethoxy)methane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			203-920-2	111-91-1									
108		bis(2-chloroethyl) ether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
109		carbazole				0.022	mg/kg		0.0179	mg/kg	0.00000179 %	✓	
			201-696-0	86-74-8									
110		dibenzofuran				0.059	mg/kg		0.048	mg/kg	0.0000048 %	✓	
			205-071-3	132-64-9									
111		hexachlorocyclopentadiene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
112		hexachloroethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			200-666-4	67-72-1									
113		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
114		nitrosodipropylamine				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
115		nitrobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
116		asbestos				<0.001	%		<0.001	%	<0.001 %		<LOD
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
117		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
118		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
119		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
120		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.0957 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS105-19/11/2024-0.60m

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS105-19/11/2024-0.60m
Moisture content:
16.3%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.137%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.137%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 2.32e-06%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 0.137%)
xylene (conc.: 6.02e-07%)
chlorobenzene (conc.: 4.3e-07%)

Determinands

Moisture content: 16.3% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		arsenic { arsenic trioxide }				23.2 mg/kg	1.32	26.338 mg/kg	0.00263 %	✓	
		033-003-00-0	215-481-4	1327-53-3							

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.196	mg/kg	0.0000196 %	✓	
3		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				66.2	mg/kg	2.27	129.212	mg/kg	0.0129 %	✓	
4		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		75	mg/kg	1.126	72.607	mg/kg	0.00726 %	✓	
5		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	454	mg/kg	1.56	608.905	mg/kg	0.039 %	✓	
6		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1	mg/kg	1.353	0.116	mg/kg	0.0000116 %	✓	
7		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22.4	mg/kg	2.976	57.324	mg/kg	0.00573 %	✓	
8		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
9		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		103	mg/kg	4.398	389.498	mg/kg	0.0389 %	✓	
10		TPH (C6 to C40) petroleum group			TPH		1592	mg/kg		1368.874	mg/kg	0.137 %	✓	
11		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
12		benzene	601-020-00-8	200-753-7	71-43-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
13		toluene	601-021-00-3	203-625-9	108-88-3		0.027	mg/kg		0.0232	mg/kg	0.00000232 %	✓	
14		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
15		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		0.007	mg/kg		0.006	mg/kg	0.000000602 %	✓	
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				1	mg/kg	1.884	1.62	mg/kg	0.000162 %	✓	
17		pH			PH		10.93	pH		10.93	pH	10.93 pH		
18		naphthalene	601-052-00-2	202-049-5	91-20-3		0.16	mg/kg		0.138	mg/kg	0.0000138 %	✓	
19		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
20		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
22		phenanthrene		201-581-5	85-01-8		0.48	mg/kg		0.413	mg/kg	0.0000413 %	✓	
23		anthracene		204-371-1	120-12-7		0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
24		fluoranthene		205-912-4	206-44-0		0.43	mg/kg		0.37	mg/kg	0.000037 %	✓	
25		pyrene		204-927-3	129-00-0		0.5	mg/kg		0.43	mg/kg	0.000043 %	✓	
26		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.4	mg/kg		0.344	mg/kg	0.0000344 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
27		chrysene				0.45	mg/kg		0.387	mg/kg	0.0000387 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				0.38	mg/kg		0.327	mg/kg	0.0000327 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				0.34	mg/kg		0.292	mg/kg	0.0000292 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31	●	indeno[123-cd]pyrene				0.2	mg/kg		0.172	mg/kg	0.0000172 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33	●	benzo[ghi]perylene				0.23	mg/kg		0.198	mg/kg	0.0000198 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
35	●	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				0.005	mg/kg		0.0043	mg/kg	0.00000043 %	✓	
		602-028-00-4	204-825-9	127-18-4									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
41	●	polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
42	●	dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
			200-893-9	75-71-8									
43		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-001-00-7	200-817-4	74-87-3									
44		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-002-00-2	200-813-2	74-83-9									
45		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		602-009-00-0	200-830-5	75-00-3									
46	●	trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
			200-892-3	75-69-4									
47		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-025-00-8	200-864-0	75-35-4									
48		dichloromethane; methylene chloride				0.087	mg/kg		0.0748	mg/kg	0.00000748 %	✓	
		602-004-00-3	200-838-9	75-09-2									
49	●	2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
			209-832-0	594-20-7									
50	●	bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			200-826-3	74-97-5									
51		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-006-00-4	200-663-8	67-66-3									
52		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-013-00-2	200-756-3	71-55-6									
53		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-031-00-0	209-253-3	563-58-6									
54		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-020-00-0	201-152-2	78-87-5									
55		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-003-00-8	200-824-2	74-95-3									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
56		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
57		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
58		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
59		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
60		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
61		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
62		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
63		chlorobenzene				0.005	mg/kg		0.0043	mg/kg	0.00000043 %	✓	
		602-033-00-1	203-628-5	108-90-7									
64		1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6									
65		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2									
66		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8									
67		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
68		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
69		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
70		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
71		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
72		tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
73		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
74		sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
75		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
76		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
78		n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
79		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
80		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
81		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
82		hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
83		1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
84		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
85		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
86		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-857-5	88-75-5									
87		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-011-00-7	204-429-6	120-83-2									
88		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
89		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-017-00-X	202-467-8	95-95-4									
90		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-018-00-5	201-795-9	88-06-2									
91		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-014-00-3	200-431-6	59-50-7									
92		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-015-00-2	202-811-7	100-02-7									
93		pentachlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-002-00-8	201-778-6	87-86-5									
94		2-chloronaphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-079-9	91-58-7									
95		2-methyl naphthalene				0.174	mg/kg		0.15	mg/kg	0.000015 %	✓	
			202-078-3	91-57-6									
96		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-317-00-9	204-211-0	117-81-7									
97		BBP; benzyl butyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-430-00-3	201-622-7	85-68-7									
98		dibutyl phthalate; DBP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-318-00-4	201-557-4	84-74-2									
99		di-n-octyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-214-7	117-84-0									
100		diethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-550-6	84-66-2									
101		dimethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-011-6	131-11-3									
102		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
103		2,6-dinitrotoluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-049-00-8	210-106-0	606-20-2									
104		4-bromophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-952-4	101-55-3									
105		4-chloroaniline				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-137-00-9	203-401-0	106-47-8									
106		4-chlorophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			230-281-7	7005-72-3									
107		azobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		611-001-00-6	203-102-5	103-33-3									
108		bis(2-chloroethoxy)methane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			203-920-2	111-91-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
109		bis(2-chloroethyl) ether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-029-00-2	203-870-1	111-44-4									
110	●	carbazole				0.014	mg/kg		0.012	mg/kg	0.0000012 %	✓	
			201-696-0	86-74-8									
111	●	dibenzofuran				0.044	mg/kg		0.0378	mg/kg	0.00000378 %	✓	
			205-071-3	132-64-9									
112		hexachlorocyclopentadiene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-078-00-7	201-029-3	77-47-4									
113	●	hexachloroethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			200-666-4	67-72-1									
114		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		606-012-00-8	201-126-0	78-59-1									
115		nitrosodipropylamine				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-098-00-8	210-698-0	621-64-7									
116		nitrobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
117		asbestos				0.019	%		0.0163	%	0.0163 %	✓	
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
118	●	coronene				0.05	mg/kg		0.043	mg/kg	0.0000043 %	✓	
			205-881-7	191-07-1									
119		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
120		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
121		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
122		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.261 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS105-19/11/2024-0.75m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS105-19/11/2024-0.75m
Moisture content:
40.1%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 40.1% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		100.9 mg/kg	1.32	95.09 mg/kg	0.00951 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				46 mg/kg	2.27	74.532 mg/kg	0.00745 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		65 mg/kg	1.126	52.236 mg/kg	0.00522 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	117 mg/kg	1.56	130.263 mg/kg	0.00835 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.0966 mg/kg	0.00000966 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39.5 mg/kg	2.976	83.913 mg/kg	0.00839 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	3.646 mg/kg	0.000365 %	✓	
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		53 mg/kg	4.398	166.374 mg/kg	0.0166 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
11	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5									
17		pH				9.88 pH		9.88 pH	9.88 pH		
				PH							
18		naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3							
19		acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8							
20		acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9							
21		fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7							
22		phenanthrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8							
23		anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			204-371-1	120-12-7							
24		fluoranthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0							
25		pyrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0							
26		benzo[a]anthracene				<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3							
27		chrysene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9							
28		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2							
29		benzo[k]fluoranthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9							
30		benzo[a]pyrene; benzo[def]chrysene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8							
31		indeno[123-cd]pyrene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			205-893-2	193-39-5							
32		dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3							
33		benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2							
34		polychlorobiphenyls; PCB				<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3							
35		coronene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			205-881-7	191-07-1							
36		ethanediol; ethylene glycol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
		603-027-00-1	203-473-3	107-21-1							
37		2,2' -oxybisethanol; diethylene glycol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
		603-140-00-6	203-872-2	111-46-6							
38		2,2'-thiodiethanol; thiodiglycol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
		603-081-00-6	203-874-3	111-48-8							
39		sulfur { sulfur }				0.04 %		0.0286 %	0.0286 %	✓	
		016-094-00-1	231-722-6	7704-34-9							
								Total:	0.0899 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS107-19/11/2024-0.40m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS107-19/11/2024-0.40m
Moisture content:
21.4%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21.4% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		25.5 mg/kg	1.32	27.733 mg/kg	0.00277 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				43.6 mg/kg	2.27	81.526 mg/kg	0.00815 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28 mg/kg	1.126	25.968 mg/kg	0.0026 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	106 mg/kg	1.56	136.195 mg/kg	0.00873 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13.4 mg/kg	2.976	32.852 mg/kg	0.00329 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		36 mg/kg	4.398	130.416 mg/kg	0.013 %	✓	
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
11	pH			PH		9.37 pH		9.37 pH	9.37 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
13	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
14	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
15	fluorene		201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				0.1	mg/kg		0.0824	mg/kg	0.00000824 %	✓	
			201-581-5	85-01-8									
17		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		**<LOD**
			204-371-1	120-12-7									
18		fluoranthene				0.22	mg/kg		0.181	mg/kg	0.0000181 %	✓	
			205-912-4	206-44-0									
19		pyrene				0.19	mg/kg		0.157	mg/kg	0.0000157 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.15	mg/kg		0.124	mg/kg	0.0000124 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.13	mg/kg		0.107	mg/kg	0.0000107 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				0.12	mg/kg		0.0988	mg/kg	0.00000988 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.05	mg/kg		0.0412	mg/kg	0.00000412 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				0.07	mg/kg		0.0577	mg/kg	0.00000577 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.07	mg/kg		0.0577	mg/kg	0.00000577 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				0.08	mg/kg		0.0659	mg/kg	0.00000659 %	✓	
			205-883-8	191-24-2									
										Total:	0.0391 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS107-19/11/2024-0.65m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS107-19/11/2024-0.65m
Moisture content:
39.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 39.6% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
2		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
3		benzene	601-020-00-8	200-753-7	71-43-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
4		toluene	601-021-00-3	203-625-9	108-88-3		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
5		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
6		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<LOD
7		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
8		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
9		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
10		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
11		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
12		phenanthrene		201-581-5	85-01-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
13		anthracene		204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
14		fluoranthene		205-912-4	206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
15		pyrene		204-927-3	129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
17		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
18		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
19		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
20		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
21		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
22		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
23		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
24		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
25		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
26		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
27		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
28		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
29		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
30		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
31		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
32		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
33		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
34		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
35		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
36		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
37		dichloromethane; methylene chloride				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-004-00-3	200-838-9	75-09-2									
38		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
39		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
40		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
41		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
42		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
43		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
44		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
45	●	bromodichloromethane		200-856-7	75-27-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
46		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
47	●	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
48		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
49	●	1,3-dichloropropane		205-531-3	142-28-9		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
50	●	dibromochloromethane		204-704-0	124-48-1		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
51		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
52		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
53	●	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
54		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
55		cumene	601-024-00-X	202-704-5	98-82-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
56		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
57		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
58		1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
59		propylbenzene	601-097-00-8	203-132-9	103-65-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
60		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
61	●	tert-butylbenzene		202-632-4	98-06-6		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
62		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
63	●	sec-butylbenzene		205-227-0	135-98-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
64		1-isopropyl-4-methylbenzene; p-cymene	601-094-00-1	202-796-7	99-87-6		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
65		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
66		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
67	●	n-butylbenzene		203-209-7	104-51-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
68		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
69		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
70		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
71	●	hexachlorobutadiene		201-765-5	87-68-3		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
72	●	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
73		styrene	601-026-00-0	202-851-5	100-42-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
74		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
75		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-857-5	88-75-5									
76		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-011-00-7	204-429-6	120-83-2									
77		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
78		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-017-00-X	202-467-8	95-95-4									
79		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-018-00-5	201-795-9	88-06-2									
80		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-014-00-3	200-431-6	59-50-7									
81		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-015-00-2	202-811-7	100-02-7									
82		pentachlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-002-00-8	201-778-6	87-86-5									
83		2-chloronaphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-079-9	91-58-7									
84		2-methyl naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-078-3	91-57-6									
85		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-317-00-9	204-211-0	117-81-7									
86		BBP; benzyl butyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-430-00-3	201-622-7	85-68-7									
87		dibutyl phthalate; DBP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-318-00-4	201-557-4	84-74-2									
88		di-n-octyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-214-7	117-84-0									
89		diethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-550-6	84-66-2									
90		dimethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-011-6	131-11-3									
91		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
92		2,6-dinitrotoluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-049-00-8	210-106-0	606-20-2									
93		4-bromophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-952-4	101-55-3									
94		4-chloroaniline				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-137-00-9	203-401-0	106-47-8									
95		4-chlorophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			230-281-7	7005-72-3									
96		azobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		611-001-00-6	203-102-5	103-33-3									
97		bis(2-chloroethoxy)methane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			203-920-2	111-91-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
98		bis(2-chloroethyl) ether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-029-00-2	203-870-1	111-44-4									
99	●	carbazole				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-696-0	86-74-8									
100	●	dibenzofuran				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-071-3	132-64-9									
101		hexachlorocyclopentadiene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-078-00-7	201-029-3	77-47-4									
102	●	hexachloroethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			200-666-4	67-72-1									
103		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		606-012-00-8	201-126-0	78-59-1									
104		nitrosodipropylamine				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-098-00-8	210-698-0	621-64-7									
105		nitrobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
106		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
107		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
108		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
109		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.00542 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: WS110-19/11/2024-0.61m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS110-19/11/2024-0.61m
Moisture content:
16%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 5.17e-07%)

Determinands

Moisture content: 16% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<**LOD**
2		benzene	601-020-00-8	200-753-7	71-43-2		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<**LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		0.006 mg/kg		0.0051 mg/kg	0.000000517 %	✓	
4		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<**LOD**
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<**LOD**
6		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
7		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
8		acenaphthylene		205-917-1	208-96-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
9		acenaphthene		201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
10		fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
11		phenanthrene		201-581-5	85-01-8		0.082 mg/kg		0.0707 mg/kg	0.00000707 %	✓	

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
12		anthracene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7							
13		fluoranthene				0.104 mg/kg		0.0897 mg/kg	0.00000897 %	✓	
			205-912-4	206-44-0							
14		pyrene				0.115 mg/kg		0.0991 mg/kg	0.00000991 %	✓	
			204-927-3	129-00-0							
15		benzo[a]anthracene				0.099 mg/kg		0.0853 mg/kg	0.00000853 %	✓	
		601-033-00-9	200-280-6	56-55-3							
16		chrysene				0.081 mg/kg		0.0698 mg/kg	0.00000698 %	✓	
		601-048-00-0	205-923-4	218-01-9							
17		benzo[b]fluoranthene				0.099 mg/kg		0.0853 mg/kg	0.00000853 %	✓	
		601-034-00-4	205-911-9	205-99-2							
18		benzo[k]fluoranthene				0.038 mg/kg		0.0328 mg/kg	0.00000328 %	✓	
		601-036-00-5	205-916-6	207-08-9							
19		benzo[a]pyrene; benzo[def]chrysene				0.07 mg/kg		0.0603 mg/kg	0.00000603 %	✓	
		601-032-00-3	200-028-5	50-32-8							
20		indeno[123-cd]pyrene				0.052 mg/kg		0.0448 mg/kg	0.00000448 %	✓	
			205-893-2	193-39-5							
21		dibenz[a,h]anthracene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
22		benzo[ghi]perylene				0.053 mg/kg		0.0457 mg/kg	0.00000457 %	✓	
			205-883-8	191-24-2							
23		phenol				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
24		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3							
25		tetrachloroethylene				0.003 mg/kg		0.0025 mg/kg	0.000000259 %	✓	
		602-028-00-4	204-825-9	127-18-4							
26		carbon tetrachloride; tetrachloromethane				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5							
27		trichloroethylene; trichloroethene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6							
28		vinyl chloride; chloroethylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4							
29		hexachlorobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1							
30		dichlorodifluoromethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8							
31		chloromethane; methyl chloride				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3							
32		bromomethane; methylbromide				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9							
33		chloroethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3							
34		trichlorofluoromethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4							
35		1,1-dichloroethylene; vinylidene chloride				<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4							
36		dichloromethane; methylene chloride				<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
		602-004-00-3	200-838-9	75-09-2							
37		2,2-dichloropropane				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7							
38		bromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5							
39		chloroform; trichloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3							
40		1,1,1-trichloroethane; methyl chloroform				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
41		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
42		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
43		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
44		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
45		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
46		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
47		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
48		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
49		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
50		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
51		chlorobenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-033-00-1	203-628-5	108-90-7									
52		1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6									
53		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2									
54		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8									
55		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
56		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
57		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
58		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
59		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
60		tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
61		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
62		sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
63		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
64		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
65		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
66		n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
67		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
68		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
69		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
70		hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
71		1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
72		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
73		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
74		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
75		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
76		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
77		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
78		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
79		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
80		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
81		pentachlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
82		2-chloronaphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			202-079-9	91-58-7									
83		2-methyl naphthalene				0.027	mg/kg		0.0233	mg/kg	0.00000233 %	✓	
			202-078-3	91-57-6									
84		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
85		BBP; benzyl butyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
86		dibutyl phthalate; DBP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
87		di-n-octyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-214-7	117-84-0									
88		diethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-550-6	84-66-2									
89		dimethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-011-6	131-11-3									
90		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
91		2,6-dinitrotoluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
92		4-bromophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			202-952-4	101-55-3									
93		4-chloroaniline				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		612-137-00-9	203-401-0	106-47-8									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
94	●	4-chlorophenylphenylether		230-281-7	7005-72-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
95		azobenzene	611-001-00-6	203-102-5	103-33-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
96	●	bis(2-chloroethoxy)methane		203-920-2	111-91-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
97		bis(2-chloroethyl) ether	603-029-00-2	203-870-1	111-44-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
98	●	carbazole		201-696-0	86-74-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
99	●	dibenzofuran		205-071-3	132-64-9		0.012	mg/kg		0.0103	mg/kg	0.00000103 %	✓	
100		hexachlorocyclopentadiene	602-078-00-7	201-029-3	77-47-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
101	●	hexachloroethane		200-666-4	67-72-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
102		3,5,5-trimethylcyclohex-2-enone; isophorone	606-012-00-8	201-126-0	78-59-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
103		nitrosodipropylamine	612-098-00-8	210-698-0	621-64-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
104		nitrobenzene	609-003-00-7	202-716-0	98-95-3		0.028	mg/kg		0.0241	mg/kg	0.00000241 %	✓	
105		ethanediol; ethylene glycol	603-027-00-1	203-473-3	107-21-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
106		2,2' -oxybisethanol; diethylene glycol	603-140-00-6	203-872-2	111-46-6		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
107		2,2'-thiodiethanol; thiodiglycol	603-081-00-6	203-874-3	111-48-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
108		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
109		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
110		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]	604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
111		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]	612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]		0.023	mg/kg		0.0198	mg/kg	0.00000198 %	✓	
											Total:	0.00029 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: WS112-19/11/2024-1.20m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS112-19/11/2024-1.20m
Moisture content:
31.5%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

benzene (conc.: 3.8e-07%)

Determinands

Moisture content: 31.5% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		95 mg/kg	1.32	95.385 mg/kg	0.00954 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				49.2 mg/kg	2.27	84.931 mg/kg	0.00849 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		107 mg/kg	1.126	91.612 mg/kg	0.00916 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	165 mg/kg	1.56	195.718 mg/kg	0.0125 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.103 mg/kg	0.0000103 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		45.3 mg/kg	2.976	102.528 mg/kg	0.0103 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	3.884 mg/kg	0.000388 %	✓	
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		87 mg/kg	4.398	290.965 mg/kg	0.0291 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
11	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
12	benzene	601-020-00-8	200-753-7	71-43-2		0.005 mg/kg		0.0038 mg/kg	0.00000038 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
13		toluene	601-021-00-3	203-625-9	108-88-3		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
14		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
15		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<**LOD**
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
17		pH			PH		8.6	pH		8.6	pH	8.6 pH		
18		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.027	mg/kg		<0.027	mg/kg	<0.0000027 %		<**LOD**
19		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
20		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
21		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
22		phenanthrene		201-581-5	85-01-8		0.25	mg/kg		0.19	mg/kg	0.000019 %	✓	
23		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
24		fluoranthene		205-912-4	206-44-0		0.49	mg/kg		0.373	mg/kg	0.0000373 %	✓	
25		pyrene		204-927-3	129-00-0		0.43	mg/kg		0.327	mg/kg	0.0000327 %	✓	
26		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.29	mg/kg		0.221	mg/kg	0.0000221 %	✓	
27		chrysene	601-048-00-0	205-923-4	218-01-9		0.33	mg/kg		0.251	mg/kg	0.0000251 %	✓	
28		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.27	mg/kg		0.205	mg/kg	0.0000205 %	✓	
29		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.1	mg/kg		0.076	mg/kg	0.0000076 %	✓	
30		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.14	mg/kg		0.106	mg/kg	0.0000106 %	✓	
31		indeno[123-cd]pyrene		205-893-2	193-39-5		0.12	mg/kg		0.0913	mg/kg	0.00000913 %	✓	
32		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
33		benzo[ghi]perylene		205-883-8	191-24-2		0.13	mg/kg		0.0989	mg/kg	0.00000989 %	✓	
34		phenol	604-001-00-2	203-632-7	108-95-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
35		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<**LOD**
36		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		0.005	mg/kg		0.0038	mg/kg	0.00000038 %	✓	
37		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
38		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
41		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
42		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
43		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
44		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
45		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
46		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
47		dichloromethane; methylene chloride				0.013	mg/kg		0.0098	mg/kg	0.000000989 %	✓	
		602-004-00-3	200-838-9	75-09-2									
48		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
49		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
50		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
51		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
52		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
53		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
54		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
55		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
56		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
57		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
58		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
59		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
60		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
61		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
62		chlorobenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-033-00-1	203-628-5	108-90-7									
63		1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6									
64		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2									
65		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8									
66		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
67		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
68		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
69		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
70		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
71		tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
72		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
73		sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
74		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
75		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
76		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
77		n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
78		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
79		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
80		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
81		hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
82		1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
83		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
84		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
85		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
86		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
87		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
88		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
89		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
90		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
91		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-015-00-2	202-811-7	100-02-7									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
92		pentachlorophenol	604-002-00-8	201-778-6	87-86-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
93		2-chloronaphthalene		202-079-9	91-58-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
94		2-methyl naphthalene		202-078-3	91-57-6		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
95		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP	607-317-00-9	204-211-0	117-81-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
96		BBP; benzyl butyl phthalate	607-430-00-3	201-622-7	85-68-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
97		dibutyl phthalate; DBP	607-318-00-4	201-557-4	84-74-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
98		di-n-octyl phthalate		204-214-7	117-84-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
99		diethyl phthalate		201-550-6	84-66-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
100		dimethyl phthalate		205-011-6	131-11-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
101		2,4-dinitrotoluene; [1] dinitrotoluene [2]	609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
102		2,6-dinitrotoluene	609-049-00-8	210-106-0	606-20-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
103		4-bromophenylphenylether		202-952-4	101-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
104		4-chloroaniline	612-137-00-9	203-401-0	106-47-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
105		4-chlorophenylphenylether		230-281-7	7005-72-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
106		azobenzene	611-001-00-6	203-102-5	103-33-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
107		bis(2-chloroethoxy)methane		203-920-2	111-91-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
108		bis(2-chloroethyl) ether	603-029-00-2	203-870-1	111-44-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
109		carbazole		201-696-0	86-74-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
110		dibenzofuran		205-071-3	132-64-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
111		hexachlorocyclopentadiene	602-078-00-7	201-029-3	77-47-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
112		hexachloroethane		200-666-4	67-72-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
113		3,5,5-trimethylcyclohex-2-enone; isophorone	606-012-00-8	201-126-0	78-59-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
114		nitrosodipropylamine	612-098-00-8	210-698-0	621-64-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
115		nitrobenzene	609-003-00-7	202-716-0	98-95-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
116		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
117		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
118		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]							
119		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0851 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS112-19/11/2024-3.35m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS112-19/11/2024-3.35m
Moisture content:
22.2%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 22.2% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.5 mg/kg	1.32	5.943 mg/kg	0.000594 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				17.3 mg/kg	2.27	32.137 mg/kg	0.00321 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25 mg/kg	1.126	23.034 mg/kg	0.0023 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	46 mg/kg	1.56	58.716 mg/kg	0.00376 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3 mg/kg	1.353	0.332 mg/kg	0.0000332 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23.2 mg/kg	2.976	56.505 mg/kg	0.00565 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		50 mg/kg	4.398	179.948 mg/kg	0.018 %	✓	
10	pH			PH		7.1 pH		7.1 pH	7.1 pH		
11	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
12	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
13	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
14	fluorene		201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
15	phenanthrene		201-581-5	85-01-8		0.07 mg/kg		0.0573 mg/kg	0.00000573 %	✓	
16	anthracene		204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0									
18		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
19		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
20		chrysene				0.05	mg/kg		0.0409	mg/kg	0.00000409 %	✓	
		601-048-00-0	205-923-4	218-01-9									
21		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
22		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
23		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
24		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-893-2	193-39-5									
25		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2									
27		sulfur { sulfur }				0.03	%		0.0245	%	0.0245 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
										Total:	0.0584 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS113B-20/11/2024-0.35m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS113B-20/11/2024-0.35m
Moisture content:
18.5%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0696%)

Determinands

Moisture content: 18.5% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.7 mg/kg	1.32	9.694 mg/kg	0.000969 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.386 mg/kg	0.0000386 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				56.1 mg/kg	2.27	107.466 mg/kg	0.0107 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		46 mg/kg	1.126	43.705 mg/kg	0.00437 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	106 mg/kg	1.56	139.528 mg/kg	0.00895 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20.4 mg/kg	2.976	51.237 mg/kg	0.00512 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		105 mg/kg	4.398	389.69 mg/kg	0.039 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		825 mg/kg		696.203 mg/kg	0.0696 %	✓	
11	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
13		toluene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
14		ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
15		xylene				<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
17		pH				8.09	pH		8.09	pH	8.09 pH		
				PH									
18		naphthalene				3.72	mg/kg		3.139	mg/kg	0.000314 %	✓	
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
20		acenaphthene				3.63	mg/kg		3.063	mg/kg	0.000306 %	✓	
			201-469-6	83-32-9									
21		fluorene				2.22	mg/kg		1.873	mg/kg	0.000187 %	✓	
			201-695-5	86-73-7									
22		phenanthrene				16.44	mg/kg		13.873	mg/kg	0.00139 %	✓	
			201-581-5	85-01-8									
23		anthracene				3.37	mg/kg		2.844	mg/kg	0.000284 %	✓	
			204-371-1	120-12-7									
24		fluoranthene				25.99	mg/kg		21.932	mg/kg	0.00219 %	✓	
			205-912-4	206-44-0									
25		pyrene				22.73	mg/kg		19.181	mg/kg	0.00192 %	✓	
			204-927-3	129-00-0									
26		benzo[a]anthracene				11.89	mg/kg		10.034	mg/kg	0.001 %	✓	
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				11.41	mg/kg		9.629	mg/kg	0.000963 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				14.02	mg/kg		11.831	mg/kg	0.00118 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				5.45	mg/kg		4.599	mg/kg	0.00046 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				13.24	mg/kg		11.173	mg/kg	0.00112 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				7.36	mg/kg		6.211	mg/kg	0.000621 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				1.23	mg/kg		1.038	mg/kg	0.000104 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				7.06	mg/kg		5.958	mg/kg	0.000596 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-028-00-4	204-825-9	127-18-4									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
41		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
			200-893-9	75-71-8									
42		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-001-00-7	200-817-4	74-87-3									
43		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-002-00-2	200-813-2	74-83-9									
44		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		602-009-00-0	200-830-5	75-00-3									
45		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
			200-892-3	75-69-4									
46		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-025-00-8	200-864-0	75-35-4									
47		dichloromethane; methylene chloride				0.051	mg/kg		0.043	mg/kg	0.0000043 %	✓	
		602-004-00-3	200-838-9	75-09-2									
48		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
			209-832-0	594-20-7									
49		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			200-826-3	74-97-5									
50		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-006-00-4	200-663-8	67-66-3									
51		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-013-00-2	200-756-3	71-55-6									
52		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-031-00-0	209-253-3	563-58-6									
53		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-020-00-0	201-152-2	78-87-5									
54		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-003-00-8	200-824-2	74-95-3									
55		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			200-856-7	75-27-4									
56		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<**LOD**
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
57		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			431-460-4	10061-02-6									
58		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-014-00-8	201-166-9	79-00-5									
59		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			205-531-3	142-28-9									
60		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			204-704-0	124-48-1									
61		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-010-00-6	203-444-5	106-93-4									
62		chlorobenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-033-00-1	203-628-5	108-90-7									
63		1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
			211-135-1	630-20-6									
64		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-007-00-X	200-854-6	75-25-2									
65		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		601-024-00-X	202-704-5	98-82-8									
66		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-015-00-3	201-197-8	79-34-5									
67		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		602-060-00-9	203-623-8	108-86-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
68		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
69		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
70		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
71	●	tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
72		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
73	●	sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
74		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
75		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
76		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
77	●	n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
78		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
79		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
80		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
81	●	hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
82	●	1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
83		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
84		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
85	●	2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
86		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
87		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				0.088	mg/kg		0.0743	mg/kg	0.00000743 %	✓	
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
88		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
89		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
90		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
91		4-nitrophenol; p-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		609-015-00-2	202-811-7	100-02-7									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
92		pentachlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-002-00-8	201-778-6	87-86-5									
93		2-chloronaphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-079-9	91-58-7									
94		2-methyl naphthalene				0.525	mg/kg		0.443	mg/kg	0.0000443 %	✓	
			202-078-3	91-57-6									
95		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-317-00-9	204-211-0	117-81-7									
96		BBP; benzyl butyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-430-00-3	201-622-7	85-68-7									
97		dibutyl phthalate; DBP				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		607-318-00-4	201-557-4	84-74-2									
98		di-n-octyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-214-7	117-84-0									
99		diethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-550-6	84-66-2									
100		dimethyl phthalate				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-011-6	131-11-3									
101		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
102		2,6-dinitrotoluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-049-00-8	210-106-0	606-20-2									
103		4-bromophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			202-952-4	101-55-3									
104		4-chloroaniline				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-137-00-9	203-401-0	106-47-8									
105		4-chlorophenylphenylether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			230-281-7	7005-72-3									
106		azobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		611-001-00-6	203-102-5	103-33-3									
107		bis(2-chloroethoxy)methane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			203-920-2	111-91-1									
108		bis(2-chloroethyl) ether				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-029-00-2	203-870-1	111-44-4									
109		carbazole				0.427	mg/kg		0.36	mg/kg	0.000036 %	✓	
			201-696-0	86-74-8									
110		dibenzofuran				0.431	mg/kg		0.364	mg/kg	0.0000364 %	✓	
			205-071-3	132-64-9									
111		hexachlorocyclopentadiene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-078-00-7	201-029-3	77-47-4									
112		hexachloroethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			200-666-4	67-72-1									
113		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		606-012-00-8	201-126-0	78-59-1									
114		nitrosodipropylamine				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-098-00-8	210-698-0	621-64-7									
115		nitrobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
116		asbestos				<0.001	%		<0.001	%	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
117		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
118		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
119		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				0.247	mg/kg		0.208	mg/kg	0.0000208 %	✓	
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
120		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.153 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS115-20/11/2024-0.10m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS115-20/11/2024-0.10m
Moisture content:
40%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 40% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10.6 mg/kg	1.32	9.997 mg/kg	0.001 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.245 mg/kg	0.0000245 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				50.5 mg/kg	2.27	81.882 mg/kg	0.00819 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		50 mg/kg	1.126	40.21 mg/kg	0.00402 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	155 mg/kg	1.56	172.694 mg/kg	0.0111 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.0967 mg/kg	0.00000967 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		18.6 mg/kg	2.976	39.542 mg/kg	0.00395 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		146 mg/kg	4.398	458.641 mg/kg	0.0459 %	✓	
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
11	pH			PH		7.85 pH		7.85 pH	7.85 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		1.71 mg/kg		1.221 mg/kg	0.000122 %	✓	
13	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
14	acenaphthene		201-469-6	83-32-9		2.28 mg/kg		1.629 mg/kg	0.000163 %	✓	
15	fluorene		201-695-5	86-73-7		1.54 mg/kg		1.1 mg/kg	0.00011 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				9.56	mg/kg		6.829	mg/kg	0.000683 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.81	mg/kg		1.293	mg/kg	0.000129 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				13.19	mg/kg		9.421	mg/kg	0.000942 %	✓	
			205-912-4	206-44-0									
19		pyrene				10.82	mg/kg		7.729	mg/kg	0.000773 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				5.88	mg/kg		4.2	mg/kg	0.00042 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				5.92	mg/kg		4.229	mg/kg	0.000423 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				6.35	mg/kg		4.536	mg/kg	0.000454 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				2.47	mg/kg		1.764	mg/kg	0.000176 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				5.84	mg/kg		4.171	mg/kg	0.000417 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				3.04	mg/kg		2.171	mg/kg	0.000217 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.55	mg/kg		0.393	mg/kg	0.0000393 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				2.81	mg/kg		2.007	mg/kg	0.000201 %	✓	
			205-883-8	191-24-2									
										Total:	0.0798 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS115B-20/11/2024-0.90m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS115B-20/11/2024-0.90m
Moisture content:
19.3%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19.3% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.7 mg/kg	1.32	10.735 mg/kg	0.00107 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7 mg/kg	1.142	0.67 mg/kg	0.000067 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				48.2 mg/kg	2.27	91.713 mg/kg	0.00917 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		38 mg/kg	1.126	35.862 mg/kg	0.00359 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	110 mg/kg	1.56	143.822 mg/kg	0.00922 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.113 mg/kg	0.0000113 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		16.2 mg/kg	2.976	40.415 mg/kg	0.00404 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		294 mg/kg	4.398	1083.814 mg/kg	0.108 %	✓	
10	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
11	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
12	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
14	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
16		pH				8.18	pH		8.18	pH	8.18 pH		
				PH									
17		naphthalene				0.08	mg/kg		0.0671	mg/kg	0.00000671 %	✓	
		601-052-00-2	202-049-5	91-20-3									
18		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
19		acenaphthene				0.1	mg/kg		0.0838	mg/kg	0.00000838 %	✓	
			201-469-6	83-32-9									
20		fluorene				0.07	mg/kg		0.0587	mg/kg	0.00000587 %	✓	
			201-695-5	86-73-7									
21		phenanthrene				0.78	mg/kg		0.654	mg/kg	0.0000654 %	✓	
			201-581-5	85-01-8									
22		anthracene				0.18	mg/kg		0.151	mg/kg	0.0000151 %	✓	
			204-371-1	120-12-7									
23		fluoranthene				1.53	mg/kg		1.282	mg/kg	0.000128 %	✓	
			205-912-4	206-44-0									
24		pyrene				1.3	mg/kg		1.09	mg/kg	0.000109 %	✓	
			204-927-3	129-00-0									
25		benzo[a]anthracene				0.81	mg/kg		0.679	mg/kg	0.0000679 %	✓	
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				0.82	mg/kg		0.687	mg/kg	0.0000687 %	✓	
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				0.95	mg/kg		0.796	mg/kg	0.0000796 %	✓	
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				0.37	mg/kg		0.31	mg/kg	0.000031 %	✓	
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				0.8	mg/kg		0.671	mg/kg	0.0000671 %	✓	
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				0.5	mg/kg		0.419	mg/kg	0.0000419 %	✓	
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				0.08	mg/kg		0.0671	mg/kg	0.00000671 %	✓	
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				0.45	mg/kg		0.377	mg/kg	0.0000377 %	✓	
			205-883-8	191-24-2									
33		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
34		asbestos				0.002	%		0.0016	%	0.00168 %	✓	
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
35		coronene				0.08	mg/kg		0.0671	mg/kg	0.00000671 %	✓	
			205-881-7	191-07-1									
										Total:	0.138 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS117-20/11/2024-1.10m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS117-20/11/2024-1.10m

Moisture content:
19%
(dry weight correction)

LoW Code:

Chapter:
17: Construction and Demolition Wastes (including excavated soil from contaminated sites)

Entry:
17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		polychlorobiphenyls; PCB				<0.35 mg/kg		<0.35 mg/kg	<0.000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3							
								Total:	0.00003 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection

Classification of sample: WS117-20/11/2024-0.40m

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS117-20/11/2024-0.40m
Moisture content:
10.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.16%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.16%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.16%)

Determinands

Moisture content: 10.6% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6 mg/kg	1.32	7.163 mg/kg	0.000716 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.413 mg/kg	0.0000413 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				23.9 mg/kg	2.27	49.053 mg/kg	0.00491 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	36.647 mg/kg	0.00366 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
5		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	88	mg/kg	1.56	124.108	mg/kg	0.00796 %	✓	
6		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
7		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12.2	mg/kg	2.976	32.83	mg/kg	0.00328 %	✓	
8		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
9		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		89	mg/kg	4.398	353.902	mg/kg	0.0354 %	✓	
10		TPH (C6 to C40) petroleum group			TPH		1769	mg/kg		1599.458	mg/kg	0.16 %	✓	
11		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
12		benzene	601-020-00-8	200-753-7	71-43-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
13		toluene	601-021-00-3	203-625-9	108-88-3		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
14		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
15		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<**LOD**
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
17		pH			PH		10.24	pH		10.24	pH	10.24 pH		
18		naphthalene	601-052-00-2	202-049-5	91-20-3		0.34	mg/kg		0.307	mg/kg	0.0000307 %	✓	
19		acenaphthylene		205-917-1	208-96-8		0.14	mg/kg		0.127	mg/kg	0.0000127 %	✓	
20		acenaphthene		201-469-6	83-32-9		0.95	mg/kg		0.859	mg/kg	0.0000859 %	✓	
21		fluorene		201-695-5	86-73-7		0.72	mg/kg		0.651	mg/kg	0.0000651 %	✓	
22		phenanthrene		201-581-5	85-01-8		5.97	mg/kg		5.398	mg/kg	0.00054 %	✓	
23		anthracene		204-371-1	120-12-7		1.63	mg/kg		1.474	mg/kg	0.000147 %	✓	
24		fluoranthene		205-912-4	206-44-0		9.19	mg/kg		8.309	mg/kg	0.000831 %	✓	
25		pyrene		204-927-3	129-00-0		8.14	mg/kg		7.36	mg/kg	0.000736 %	✓	
26		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		4.38	mg/kg		3.96	mg/kg	0.000396 %	✓	
27		chrysene	601-048-00-0	205-923-4	218-01-9		4.01	mg/kg		3.626	mg/kg	0.000363 %	✓	
28		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		5.06	mg/kg		4.575	mg/kg	0.000458 %	✓	
29		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.97	mg/kg		1.781	mg/kg	0.000178 %	✓	
30		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		5.02	mg/kg		4.539	mg/kg	0.000454 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
31		indeno[123-cd]pyrene				2.78	mg/kg		2.514	mg/kg	0.000251 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				0.49	mg/kg		0.443	mg/kg	0.0000443 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				2.52	mg/kg		2.278	mg/kg	0.000228 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
41		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
42		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
43		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
44		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
45		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
46		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
47		dichloromethane; methylene chloride				0.019	mg/kg		0.0172	mg/kg	0.00000172 %	✓	
		602-004-00-3	200-838-9	75-09-2									
48		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
49		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
50		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
51		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
52		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
53		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
54		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
55		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
56		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
57		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
58		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
59		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
60		dibromochloromethane		204-704-0	124-48-1		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
61		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
62		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
63		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
64		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
65		cumene	601-024-00-X	202-704-5	98-82-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
66		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
67		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
68		1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
69		propylbenzene	601-097-00-8	203-132-9	103-65-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
70		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
71		tert-butylbenzene		202-632-4	98-06-6		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
72		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
73		sec-butylbenzene		205-227-0	135-98-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
74		1-isopropyl-4-methylbenzene; p-cymene	601-094-00-1	202-796-7	99-87-6		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
75		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
76		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
77		n-butylbenzene		203-209-7	104-51-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
78		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
79		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
80		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
81		hexachlorobutadiene		201-765-5	87-68-3		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
82		1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
83		styrene	601-026-00-0	202-851-5	100-42-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
84		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]	604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
85		2-nitrophenol		201-857-5	88-75-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
86		2,4-dichlorophenol	604-011-00-7	204-429-6	120-83-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
87		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]											
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
88		2,4,5-trichlorophenol											
		604-017-00-X	202-467-8	95-95-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
89		2,4,6-trichlorophenol											
		604-018-00-5	201-795-9	88-06-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
90		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol											
		604-014-00-3	200-431-6	59-50-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
91		4-nitrophenol; p-nitrophenol											
		609-015-00-2	202-811-7	100-02-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
92		pentachlorophenol											
		604-002-00-8	201-778-6	87-86-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
93	●	2-chloronaphthalene											
			202-079-9	91-58-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
94	●	2-methyl naphthalene											
			202-078-3	91-57-6		0.105	mg/kg		0.0949	mg/kg	0.00000949 %	✓	
95		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP											
		607-317-00-9	204-211-0	117-81-7		0.3	mg/kg		0.271	mg/kg	0.0000271 %	✓	
96		BBP; benzyl butyl phthalate											
		607-430-00-3	201-622-7	85-68-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
97		dibutyl phthalate; DBP											
		607-318-00-4	201-557-4	84-74-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
98	●	di-n-octyl phthalate											
			204-214-7	117-84-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
99	●	diethyl phthalate											
			201-550-6	84-66-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
100	●	dimethyl phthalate											
			205-011-6	131-11-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
101		2,4-dinitrotoluene; [1] dinitrotoluene [2]											
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
102		2,6-dinitrotoluene											
		609-049-00-8	210-106-0	606-20-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
103	●	4-bromophenylphenylether											
			202-952-4	101-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
104		4-chloroaniline											
		612-137-00-9	203-401-0	106-47-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
105	●	4-chlorophenylphenylether											
			230-281-7	7005-72-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
106		azobenzene											
		611-001-00-6	203-102-5	103-33-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
107	●	bis(2-chloroethoxy)methane											
			203-920-2	111-91-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
108		bis(2-chloroethyl) ether											
		603-029-00-2	203-870-1	111-44-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
109	●	carbazole											
			201-696-0	86-74-8		0.155	mg/kg		0.14	mg/kg	0.000014 %	✓	
110	●	dibenzofuran											
			205-071-3	132-64-9		0.206	mg/kg		0.186	mg/kg	0.0000186 %	✓	
111		hexachlorocyclopentadiene											
		602-078-00-7	201-029-3	77-47-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
112		hexachloroethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			200-666-4	67-72-1									
113		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		606-012-00-8	201-126-0	78-59-1									
114		nitrosodipropylamine				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		612-098-00-8	210-698-0	621-64-7									
115		nitrobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
116		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
117		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
118		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
119		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.221 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS117-20/11/2024-2.40m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS117-20/11/2024-2.40m
Moisture content:
26.3%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 26.3% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		29 mg/kg	1.32	30.316 mg/kg	0.00303 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.8 mg/kg	1.142	1.628 mg/kg	0.000163 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				201 mg/kg	2.27	361.259 mg/kg	0.0361 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		238 mg/kg	1.126	212.163 mg/kg	0.0212 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	397 mg/kg	1.56	490.298 mg/kg	0.0314 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.4 mg/kg	1.353	0.429 mg/kg	0.0000429 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		48.5 mg/kg	2.976	114.29 mg/kg	0.0114 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.022 mg/kg	0.000202 %	✓	
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		589 mg/kg	4.398	2050.973 mg/kg	0.205 %	✓	
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				1 mg/kg	1.884	1.492 mg/kg	0.000149 %	✓	
11	pH			PH		8.39 pH		8.39 pH	8.39 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.28 mg/kg		0.222 mg/kg	0.0000222 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.11 mg/kg		0.0871 mg/kg	0.00000871 %	✓	
14	acenaphthene		201-469-6	83-32-9		0.09 mg/kg		0.0713 mg/kg	0.00000713 %	✓	
15	fluorene		201-695-5	86-73-7		0.08 mg/kg		0.0633 mg/kg	0.00000633 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				0.97	mg/kg		0.768	mg/kg	0.0000768 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.25	mg/kg		0.198	mg/kg	0.0000198 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				1.86	mg/kg		1.473	mg/kg	0.000147 %	✓	
			205-912-4	206-44-0									
19		pyrene				1.62	mg/kg		1.283	mg/kg	0.000128 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.04	mg/kg		0.823	mg/kg	0.0000823 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.04	mg/kg		0.823	mg/kg	0.0000823 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.36	mg/kg		1.077	mg/kg	0.000108 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.53	mg/kg		0.42	mg/kg	0.000042 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.2	mg/kg		0.95	mg/kg	0.000095 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.83	mg/kg		0.657	mg/kg	0.0000657 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.16	mg/kg		0.127	mg/kg	0.0000127 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				0.77	mg/kg		0.61	mg/kg	0.000061 %	✓	
			205-883-8	191-24-2									
28		asbestos				<0.001	%		<0.001	%	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.311 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS117-20/11/2024-2.20m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS117-20/11/2024-2.20m
Moisture content:
16.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16.6% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.8 mg/kg	1.32	11.097 mg/kg	0.00111 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.294 mg/kg	0.0000294 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				58.8 mg/kg	2.27	114.473 mg/kg	0.0114 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		97 mg/kg	1.126	93.663 mg/kg	0.00937 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	155 mg/kg	1.56	207.351 mg/kg	0.0133 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20.4 mg/kg	2.976	52.072 mg/kg	0.00521 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		149 mg/kg	4.398	561.999 mg/kg	0.0562 %	✓	
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
11	pH			PH		8.52 pH		8.52 pH	8.52 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.14 mg/kg		0.12 mg/kg	0.000012 %	✓	
13	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
14	acenaphthene		201-469-6	83-32-9		0.08 mg/kg		0.0686 mg/kg	0.00000686 %	✓	
15	fluorene		201-695-5	86-73-7		0.06 mg/kg		0.0515 mg/kg	0.00000515 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				0.61	mg/kg		0.523	mg/kg	0.0000523 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.1	mg/kg		0.0858	mg/kg	0.00000858 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				0.9	mg/kg		0.772	mg/kg	0.0000772 %	✓	
			205-912-4	206-44-0									
19		pyrene				0.8	mg/kg		0.686	mg/kg	0.0000686 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.5	mg/kg		0.429	mg/kg	0.0000429 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.52	mg/kg		0.446	mg/kg	0.0000446 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				0.61	mg/kg		0.523	mg/kg	0.0000523 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.24	mg/kg		0.206	mg/kg	0.0000206 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				0.49	mg/kg		0.42	mg/kg	0.000042 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.35	mg/kg		0.3	mg/kg	0.00003 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.08	mg/kg		0.0686	mg/kg	0.00000686 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				0.35	mg/kg		0.3	mg/kg	0.00003 %	✓	
			205-883-8	191-24-2									
28		asbestos				<0.001	%		<0.001	%	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0985 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS118-20/11/2024-0.20m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS118-20/11/2024-0.20m
Moisture content:
19.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19.6% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16.2 mg/kg	1.32	17.884 mg/kg	0.00179 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.764 mg/kg	0.0000764 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				47.9 mg/kg	2.27	90.914 mg/kg	0.00909 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		61 mg/kg	1.126	57.424 mg/kg	0.00574 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	173 mg/kg	1.56	225.625 mg/kg	0.0145 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.4 mg/kg	1.353	0.453 mg/kg	0.0000453 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		17.5 mg/kg	2.976	43.549 mg/kg	0.00435 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		194 mg/kg	4.398	713.376 mg/kg	0.0713 %	✓	
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		**<LOD**
11	pH			PH		8.3 pH		8.3 pH	8.3 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.1 mg/kg		0.0836 mg/kg	0.00000836 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.19 mg/kg		0.159 mg/kg	0.0000159 %	✓	
14	acenaphthene		201-469-6	83-32-9		0.11 mg/kg		0.092 mg/kg	0.0000092 %	✓	
15	fluorene		201-695-5	86-73-7		0.12 mg/kg		0.1 mg/kg	0.00001 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				1.54	mg/kg		1.288	mg/kg	0.000129 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.39	mg/kg		0.326	mg/kg	0.0000326 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				3.56	mg/kg		2.977	mg/kg	0.000298 %	✓	
			205-912-4	206-44-0									
19		pyrene				3.32	mg/kg		2.776	mg/kg	0.000278 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				2.01	mg/kg		1.681	mg/kg	0.000168 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.88	mg/kg		1.572	mg/kg	0.000157 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				2.37	mg/kg		1.982	mg/kg	0.000198 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.92	mg/kg		0.769	mg/kg	0.0000769 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				2.28	mg/kg		1.906	mg/kg	0.000191 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				1.24	mg/kg		1.037	mg/kg	0.000104 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.23	mg/kg		0.192	mg/kg	0.0000192 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.22	mg/kg		1.02	mg/kg	0.000102 %	✓	
			205-883-8	191-24-2									
										Total:	0.109 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **1,1-dichloroethane and 1,2-dichloroethane (combined)** (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

- **dichlorodifluoromethane** (EC Number: 200-893-9, CAS Number: 75-71-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Aquatic Chronic 3; H412 , Ozone 1; H420 , Press. Gas; H280

- **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

- **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

- **bromochloromethane** (EC Number: 200-826-3, CAS Number: 74-97-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Ozone 1; H420

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

1,3-dichloropropane (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

dibromochloromethane (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

1,1,1,2-tetrachloroethane (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

tert-butylbenzene (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

sec-butylbenzene (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

n-butylbenzene (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

hexachlorobutadiene (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

1,2,3-trichlorobenzene (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

2-nitrophenol (EC Number: 201-857-5, CAS Number: 88-75-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

2-chloronaphthalene (EC Number: 202-079-9, CAS Number: 91-58-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **2-methyl naphthalene** (EC Number: 202-078-3, CAS Number: 91-57-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **di-n-octyl phthalate** (EC Number: 204-214-7, CAS Number: 117-84-0)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Repr. 2; H361 , Skin Sens. 1; H317 , Resp. Sens. 1; H334 , Eye Irrit. 2; H319 , Aquatic Chronic 4; H413

- **diethyl phthalate** (EC Number: 201-550-6, CAS Number: 84-66-2)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , STOT SE 3; H335 , STOT RE 2; H373 , Repr. 2; H361 , Acute Tox. 4; H302 , STOT SE 3; H336 , Skin Sens. 1; H317 , Aquatic Chronic 1; H410

- **dimethyl phthalate** (EC Number: 205-011-6, CAS Number: 131-11-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , STOT SE 3; H335 , STOT SE 3; H336 , Repr. 2; H361 , Aquatic Chronic 3; H412

- **4-bromophenylphenylether** (EC Number: 202-952-4, CAS Number: 101-55-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **4-chlorophenylphenylether** (EC Number: 230-281-7, CAS Number: 7005-72-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **bis(2-chloroethoxy)methane** (EC Number: 203-920-2, CAS Number: 111-91-1)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 4; H312 , Acute Tox. 1; H330 , Acute Tox. 2; H330 , STOT SE 1; H370 , STOT RE 2; H373

- **carbazole** (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 2; H341 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301

- **dibenzofuran** (EC Number: 205-071-3, CAS Number: 132-64-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Acute Tox. 4; H332 , Aquatic Chronic 2; H411

- **hexachloroethane** (EC Number: 200-666-4, CAS Number: 67-72-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , STOT RE 2; H373

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Measured concentrations of hexavalent chromium reported below the limit of detection.

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

sulfur {sulfur}

Worse case compound

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.24.6453.11761 (25 Jan 2025)
HazWasteOnline Database: 2025.24.6453.11761 (25 Jan 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

QNQM7-IM8OC-YY2SG

Report is invalid if pages are removed.

Job name

EMT-24-20208-Batch-1-202412121531

Description/Comments

Project

TE1880

Site

Hopwood Hall College, Rochdale

Classified by

Name:
Adrian Read
Date:
04 Feb 2025 17:57 GMT
Telephone:
01925 818388

Company:
Tier Environmental
Suite 414
Chadwick House
Warrington
WA3 6AE

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	03 Dec 2020
Most recent 3 year Refresher	05 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Hopwood Hall College **Post Code** OL12 6RY

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Proposed redevelopment of land

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavation of soils during development

Description of the waste

Made ground and/or natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS108-21/11/2024-0.70m		Non Hazardous		3
2	WS109-21/11/2024-0.40-0.60m		Non Hazardous		5
3	WS111-21/11/2024-0.80m		Potentially Hazardous	HP 3(i)	6
4	WS116-21/11/2024-1.90m		Potentially Hazardous	HP 3(i)	12
5	WS116-21/11/2024-3.40m		Non Hazardous		18

Related documents

#	Name	Description
1	EMT-24-20208-Batch-1-202412121531.HWOL	Element .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Adrian Read

Created date: 04 Feb 2025 17:57 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	20
Appendix B: Rationale for selection of metal species	24
Appendix C: Version	24

Classification of sample: WS108-21/11/2024-0.70m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS108-21/11/2024-0.70m

Moisture content:
18.7%
(dry weight correction)

LoW Code:

Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)

Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18.7% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		34.7	mg/kg	1.32	38.598	mg/kg	0.00386 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<**LOD**
3		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				55.2	mg/kg	2.27	105.564	mg/kg	0.0106 %	✓	
4		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		55	mg/kg	1.126	52.168	mg/kg	0.00522 %	✓	
5		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	213	mg/kg	1.56	279.899	mg/kg	0.0179 %	✓	
6		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
7		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		18.2	mg/kg	2.976	45.634	mg/kg	0.00456 %	✓	
8		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
9		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		60	mg/kg	2.774	140.226	mg/kg	0.014 %	✓	
10		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
11		pH			PH		10.4	pH		10.4	pH	10.4 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
14		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
15		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		phenanthrene				0.28	mg/kg		0.236	mg/kg	0.0000236 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.05	mg/kg		0.0421	mg/kg	0.00000421 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				0.39	mg/kg		0.329	mg/kg	0.0000329 %	✓	
			205-912-4	206-44-0									
19		pyrene				0.38	mg/kg		0.32	mg/kg	0.000032 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.31	mg/kg		0.261	mg/kg	0.0000261 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.3	mg/kg		0.253	mg/kg	0.0000253 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				0.35	mg/kg		0.295	mg/kg	0.0000295 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.14	mg/kg		0.118	mg/kg	0.0000118 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				0.33	mg/kg		0.278	mg/kg	0.0000278 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.25	mg/kg		0.211	mg/kg	0.0000211 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.06	mg/kg		0.0505	mg/kg	0.00000505 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				0.26	mg/kg		0.219	mg/kg	0.0000219 %	✓	
			205-883-8	191-24-2									
28		asbestos				0.017	%		0.0143	%	0.0143 %	✓	
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0711 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS109-21/11/2024-0.40-0.60m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS109-21/11/2024-0.40-0.60m
Moisture content:
21.4%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21.4% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		ethanediol; ethylene glycol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		603-027-00-1	203-473-3	107-21-1									
2		2,2' -oxybisethanol; diethylene glycol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		603-140-00-6	203-872-2	111-46-6									
3		2,2'-thiodiethanol; thiodiglycol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		603-081-00-6	203-874-3	111-48-8									
										Total:	0.00001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection

Classification of sample: WS111-21/11/2024-0.80m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS111-21/11/2024-0.80m
Moisture content:
24.2%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 4.83e-07%)

Determinands

Moisture content: 24.2% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		76.9 mg/kg	1.32	81.75 mg/kg	0.00817 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<**LOD**
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				47.2 mg/kg	2.27	86.267 mg/kg	0.00863 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		57 mg/kg	1.126	51.671 mg/kg	0.00517 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	157 mg/kg	1.56	197.175 mg/kg	0.0126 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		30.7 mg/kg	2.976	73.568 mg/kg	0.00736 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.056 mg/kg	0.000206 %	✓	
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		67 mg/kg	2.774	149.652 mg/kg	0.015 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<**LOD**
11	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<**LOD**
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
13		toluene				0.006	mg/kg		0.0048	mg/kg	0.000000483 %	✓	
		601-021-00-3	203-625-9	108-88-3									
14		ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
15		xylene				<0.011	mg/kg		<0.011	mg/kg	<0.0000011 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
17		pH				8.97	pH		8.97	pH	8.97 pH		
				PH									
18		naphthalene				<0.027	mg/kg		<0.027	mg/kg	<0.0000027 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
20		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
21		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
22		phenanthrene				0.06	mg/kg		0.0483	mg/kg	0.00000483 %	✓	
			201-581-5	85-01-8									
23		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
24		fluoranthene				0.11	mg/kg		0.0886	mg/kg	0.00000886 %	✓	
			205-912-4	206-44-0									
25		pyrene				0.11	mg/kg		0.0886	mg/kg	0.00000886 %	✓	
			204-927-3	129-00-0									
26		benzo[a]anthracene				0.09	mg/kg		0.0725	mg/kg	0.00000725 %	✓	
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				0.09	mg/kg		0.0725	mg/kg	0.00000725 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				0.08	mg/kg		0.0644	mg/kg	0.00000644 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				0.03	mg/kg		0.0242	mg/kg	0.00000242 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				0.06	mg/kg		0.0483	mg/kg	0.00000483 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				0.05	mg/kg		0.0403	mg/kg	0.00000403 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				0.05	mg/kg		0.0403	mg/kg	0.00000403 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
39		vinyl chloride; chloroethylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4							
40		hexachlorobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1							
41		polychlorobiphenyls; PCB				<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3							
42		dichlorodifluoromethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8							
43		chloromethane; methyl chloride				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3							
44		bromomethane; methylbromide				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9							
45		chloroethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3							
46		trichlorofluoromethane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4							
47		1,1-dichloroethylene; vinylidene chloride				<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4							
48		dichloromethane; methylene chloride				<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
		602-004-00-3	200-838-9	75-09-2							
49		2,2-dichloropropane				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7							
50		bromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5							
51		chloroform; trichloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3							
52		1,1,1-trichloroethane; methyl chloroform				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6							
53		1,1-dichloropropene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6							
54		1,2-dichloropropane; propylene dichloride				<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5							
55		dibromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3							
56		bromodichloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4							
57		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]							
58		trans-1,3-dichloropropene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6							
59		1,1,2-trichloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5							
60		1,3-dichloropropane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9							
61		dibromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1							
62		1,2-dibromoethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4							
63		chlorobenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-033-00-1	203-628-5	108-90-7							
64		1,1,1,2-tetrachloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6							
65		bromoform; tribromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2							
66		cumene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8							
67		1,1,2,2-tetrachloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
68		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
69		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
70		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
71		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
72		tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
73		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
74		sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
75		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
76		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
78		n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
79		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
80		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
81		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
82		hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
83		1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
84		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
85		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
86		2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
87		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
88		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
89		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
90		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
91		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-014-00-3	200-431-6	59-50-7									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
92		4-nitrophenol; p-nitrophenol	609-015-00-2	202-811-7	100-02-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
93		pentachlorophenol	604-002-00-8	201-778-6	87-86-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
94		2-chloronaphthalene		202-079-9	91-58-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
95		2-methyl naphthalene		202-078-3	91-57-6		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
96		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP	607-317-00-9	204-211-0	117-81-7		1.274	mg/kg		1.026	mg/kg	0.000103 %	✓	
97		BBP; benzyl butyl phthalate	607-430-00-3	201-622-7	85-68-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
98		dibutyl phthalate; DBP	607-318-00-4	201-557-4	84-74-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
99		di-n-octyl phthalate		204-214-7	117-84-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
100		diethyl phthalate		201-550-6	84-66-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
101		dimethyl phthalate		205-011-6	131-11-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
102		2,4-dinitrotoluene; [1] dinitrotoluene [2]	609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
103		2,6-dinitrotoluene	609-049-00-8	210-106-0	606-20-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
104		4-bromophenylphenylether		202-952-4	101-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
105		4-chloroaniline	612-137-00-9	203-401-0	106-47-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
106		4-chlorophenylphenylether		230-281-7	7005-72-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
107		azobenzene	611-001-00-6	203-102-5	103-33-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
108		bis(2-chloroethoxy)methane		203-920-2	111-91-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
109		bis(2-chloroethyl) ether	603-029-00-2	203-870-1	111-44-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
110		carbazole		201-696-0	86-74-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
111		dibenzofuran		205-071-3	132-64-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
112		hexachlorocyclopentadiene	602-078-00-7	201-029-3	77-47-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
113		hexachloroethane		200-666-4	67-72-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
114		3,5,5-trimethylcyclohex-2-enone; isophorone	606-012-00-8	201-126-0	78-59-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
115		nitrosodipropylamine	612-098-00-8	210-698-0	621-64-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
116		nitrobenzene	609-003-00-7	202-716-0	98-95-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
117		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		0.06	%		0.0483	%	0.0483 %	✓	
118		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
119		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
120		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
121		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
122		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.111 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS116-21/11/2024-1.90m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS116-21/11/2024-1.90m
Moisture content:
16.9%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 6.84e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 0.0646%)
xylene (conc.: 5.99e-07%)

Determinands

Moisture content: 16.9% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13.3 mg/kg	1.32	15.022 mg/kg	0.0015 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.391 mg/kg	0.0000391 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				46.1 mg/kg	2.27	89.518 mg/kg	0.00895 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		73 mg/kg	1.126	70.308 mg/kg	0.00703 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	312 mg/kg	1.56	416.307 mg/kg	0.0267 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.232 mg/kg	0.0000232 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22.7 mg/kg	2.976	57.794 mg/kg	0.00578 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		164 mg/kg	2.774	389.187 mg/kg	0.0389 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		755 mg/kg		645.851 mg/kg	0.0646 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
11		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
12		benzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
13		toluene				0.008	mg/kg		0.0068	mg/kg	0.000000684 %	✓	
		601-021-00-3	203-625-9	108-88-3									
14		ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
15		xylene				0.007	mg/kg		0.0059	mg/kg	0.000000599 %	✓	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
17		pH				8.42	pH		8.42	pH	8.42 pH		
				PH									
18		naphthalene				0.63	mg/kg		0.539	mg/kg	0.0000539 %	✓	
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				0.32	mg/kg		0.274	mg/kg	0.0000274 %	✓	
			205-917-1	208-96-8									
20		acenaphthene				1.23	mg/kg		1.052	mg/kg	0.000105 %	✓	
			201-469-6	83-32-9									
21		fluorene				0.83	mg/kg		0.71	mg/kg	0.000071 %	✓	
			201-695-5	86-73-7									
22		phenanthrene				8.29	mg/kg		7.092	mg/kg	0.000709 %	✓	
			201-581-5	85-01-8									
23		anthracene				1.89	mg/kg		1.617	mg/kg	0.000162 %	✓	
			204-371-1	120-12-7									
24		fluoranthene				12.25	mg/kg		10.479	mg/kg	0.00105 %	✓	
			205-912-4	206-44-0									
25		pyrene				10.16	mg/kg		8.691	mg/kg	0.000869 %	✓	
			204-927-3	129-00-0									
26		benzo[a]anthracene				4.76	mg/kg		4.072	mg/kg	0.000407 %	✓	
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				5.02	mg/kg		4.294	mg/kg	0.000429 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				5.76	mg/kg		4.927	mg/kg	0.000493 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				2.24	mg/kg		1.916	mg/kg	0.000192 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				4.72	mg/kg		4.038	mg/kg	0.000404 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				3.06	mg/kg		2.618	mg/kg	0.000262 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				0.6	mg/kg		0.513	mg/kg	0.0000513 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				3.12	mg/kg		2.669	mg/kg	0.000267 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-028-00-4	204-825-9	127-18-4									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
41		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
42		asbestos				<0.001	%		<0.001	%	<0.001 %		<LOD
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
43		dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
44		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
45		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
46		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
47		trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
48		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
49		dichloromethane; methylene chloride				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-004-00-3	200-838-9	75-09-2									
50		2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
51		bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
52		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
53		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
54		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
55		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
56		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
57		bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
59		trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
60		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
61		1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
62		dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
63		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
64		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
65	●	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
66		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
67		cumene	601-024-00-X	202-704-5	98-82-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
68		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
69		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
70		1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
71		propylbenzene	601-097-00-8	203-132-9	103-65-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
72		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
73	●	tert-butylbenzene		202-632-4	98-06-6		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
74		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
75	●	sec-butylbenzene		205-227-0	135-98-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
76		1-isopropyl-4-methylbenzene; p-cymene	601-094-00-1	202-796-7	99-87-6		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
77		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
78		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
79	●	n-butylbenzene		203-209-7	104-51-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
80		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
81		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
82		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
83	●	hexachlorobutadiene		201-765-5	87-68-3		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
84	●	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
85		styrene	601-026-00-0	202-851-5	100-42-5		<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]	604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
87	●	2-nitrophenol		201-857-5	88-75-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
88		2,4-dichlorophenol	604-011-00-7	204-429-6	120-83-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
89		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]	604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4]		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
90		2,4,5-trichlorophenol 604-017-00-X	202-467-8	95-95-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
91		2,4,6-trichlorophenol 604-018-00-5	201-795-9	88-06-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
92		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol 604-014-00-3	200-431-6	59-50-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
93		4-nitrophenol; p-nitrophenol 609-015-00-2	202-811-7	100-02-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
94		pentachlorophenol 604-002-00-8	201-778-6	87-86-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
95	●	2-chloronaphthalene	202-079-9	91-58-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
96	●	2-methyl naphthalene	202-078-3	91-57-6		0.182 mg/kg		0.156 mg/kg	0.0000156 %	✓	
97		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP 607-317-00-9	204-211-0	117-81-7		1.201 mg/kg		1.027 mg/kg	0.000103 %	✓	
98		BBP; benzyl butyl phthalate 607-430-00-3	201-622-7	85-68-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
99		dibutyl phthalate; DBP 607-318-00-4	201-557-4	84-74-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
100	●	di-n-octyl phthalate	204-214-7	117-84-0		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
101	●	diethyl phthalate	201-550-6	84-66-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
102	●	dimethyl phthalate	205-011-6	131-11-3		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
103		2,4-dinitrotoluene; [1] dinitrotoluene [2] 609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
104		2,6-dinitrotoluene 609-049-00-8	210-106-0	606-20-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
105	●	4-bromophenylphenylether	202-952-4	101-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
106		4-chloroaniline 612-137-00-9	203-401-0	106-47-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
107	●	4-chlorophenylphenylether	230-281-7	7005-72-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
108		azobenzene 611-001-00-6	203-102-5	103-33-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
109	●	bis(2-chloroethoxy)methane	203-920-2	111-91-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
110		bis(2-chloroethyl) ether 603-029-00-2	203-870-1	111-44-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
111	●	carbazole	201-696-0	86-74-8		0.299 mg/kg		0.256 mg/kg	0.0000256 %	✓	
112	●	dibenzofuran	205-071-3	132-64-9		0.516 mg/kg		0.441 mg/kg	0.0000441 %	✓	
113		hexachlorocyclopentadiene 602-078-00-7	201-029-3	77-47-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
114	●	hexachloroethane	200-666-4	67-72-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
115		3,5,5-trimethylcyclohex-2-enone; isophorone 606-012-00-8	201-126-0	78-59-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
116		nitrosodipropylamine 612-098-00-8	210-698-0	621-64-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
117		nitrobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
118		sulfur { sulfur }				0.08	%		0.0684	%	0.0684 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
119		coronene				0.44	mg/kg		0.376	mg/kg	0.0000376 %	✓	
			205-881-7	191-07-1									
120		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
121		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
122		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
123		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.23 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS116-21/11/2024-3.40m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS116-21/11/2024-3.40m
Moisture content:
29.7%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 29.7% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		3.1 mg/kg	1.32	3.156 mg/kg	0.000316 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.176 mg/kg	0.0000176 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				47.4 mg/kg	2.27	82.959 mg/kg	0.0083 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		19 mg/kg	1.126	16.493 mg/kg	0.00165 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16 mg/kg	1.56	19.242 mg/kg	0.00123 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21.4 mg/kg	2.976	49.107 mg/kg	0.00491 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		52 mg/kg	2.774	111.223 mg/kg	0.0111 %	✓	
10	pH			PH		7.71 pH		7.71 pH	7.71 pH		
11	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
12	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
13	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
14	fluorene		201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
15	phenanthrene		201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
16	anthracene		204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
17	fluoranthene		205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
18		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
19		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
20		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
21		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
22		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
23		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
24		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-893-2	193-39-5									
25		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2									
27		sulfur { sulfur }				0.04	%		0.0308	%	0.0308 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
										Total:	0.0587 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

1,1-dichloroethane and 1,2-dichloroethane (combined) (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

dichlorodifluoromethane (EC Number: 200-893-9, CAS Number: 75-71-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Aquatic Chronic 3; H412 , Ozone 1; H420 , Press. Gas; H280

trichlorofluoromethane (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

2,2-dichloropropane (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

bromochloromethane (EC Number: 200-826-3, CAS Number: 74-97-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Ozone 1; H420

bromodichloromethane (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

- **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

- **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

- **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

- **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

- **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

- **n-butylbenzene** (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **hexachlorobutadiene** (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **1,2,3-trichlorobenzene** (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

- **2-nitrophenol** (EC Number: 201-857-5, CAS Number: 88-75-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

2-chloronaphthalene (EC Number: 202-079-9, CAS Number: 91-58-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

2-methyl naphthalene (EC Number: 202-078-3, CAS Number: 91-57-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

di-n-octyl phthalate (EC Number: 204-214-7, CAS Number: 117-84-0)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Repr. 2; H361 , Skin Sens. 1; H317 , Resp. Sens. 1; H334 , Eye Irrit. 2; H319 , Aquatic Chronic 4; H413

diethyl phthalate (EC Number: 201-550-6, CAS Number: 84-66-2)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , STOT SE 3; H335 , STOT RE 2; H373 , Repr. 2; H361 , Acute Tox. 4; H302 , STOT SE 3; H336 , Skin Sens. 1; H317 , Aquatic Chronic 1; H410

dimethyl phthalate (EC Number: 205-011-6, CAS Number: 131-11-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , STOT SE 3; H335 , STOT SE 3; H336 , Repr. 2; H361 , Aquatic Chronic 3; H412

4-bromophenylphenylether (EC Number: 202-952-4, CAS Number: 101-55-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

4-chlorophenylphenylether (EC Number: 230-281-7, CAS Number: 7005-72-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

bis(2-chloroethoxy)methane (EC Number: 203-920-2, CAS Number: 111-91-1)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 4; H312 , Acute Tox. 1; H330 , Acute Tox. 2; H330 , STOT SE 1; H370 , STOT RE 2; H373

carbazole (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 2; H341 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301

dibenzofuran (EC Number: 205-071-3, CAS Number: 132-64-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Acute Tox. 4; H332 , Aquatic Chronic 2; H411

- **hexachloroethane** (EC Number: 200-666-4, CAS Number: 67-72-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , STOT RE 2; H373

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

sulfur {sulfur}

Worse case compound.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.24.6453.11761 (25 Jan 2025)
HazWasteOnline Database: 2025.24.6453.11761 (25 Jan 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

J5U7L-R7RT7-LC3OL

Report is invalid if pages are removed.

Job name

EMT-24-20419-Batch-1-202412191616

Description/Comments

Project

TE1880

Site

Hopwood Hall College, Rochdale

Classified by

Name:
Adrian Read
Date:
04 Feb 2025 18:00 GMT
Telephone:
01925 818388

Company:
Tier Environmental
Suite 414
Chadwick House
Warrington
WA3 6AE

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	03 Dec 2020
Most recent 3 year Refresher	05 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Hopwood Hall College **Post Code** OL12 6RY

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Proposed redevelopment of land

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavation of soils during development

Description of the waste

Made ground and/or natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	RH101-27/11/2024-0.05m		Hazardous	HP 7	3
2	WS105-27/11/2024-0.05m		Hazardous	HP 7	5
3	WS112-27/11/2024-0.05m		Hazardous	HP 7	7
4	WS116-27/11/2024-0.05m		Hazardous	HP 7	9
5	RH103-27/11/2024-0.05m		Hazardous	HP 7	11

Related documents

#	Name	Description
1	EMT-24-20419-Batch-1-202412191616.HWOL	Element .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Adrian Read

Created date: 04 Feb 2025 18:00 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	13
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	13

Classification of sample: RH101-27/11/2024-0.05m

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample name:
RH101-27/11/2024-0.05m
Moisture content:
0.9%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.] (conc.: 0.297%)

Determinands

Moisture content: 0.9% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		0.037 mg/kg		0.0367 mg/kg	0.00000367 %	✓	
2		acenaphthylene		205-917-1	208-96-8		0.365 mg/kg		0.362 mg/kg	0.0000362 %	✓	
3		acenaphthene		201-469-6	83-32-9		0.066 mg/kg		0.0654 mg/kg	0.00000654 %	✓	
4		fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
5		phenanthrene		201-581-5	85-01-8		0.098 mg/kg		0.0971 mg/kg	0.00000971 %	✓	
6		anthracene		204-371-1	120-12-7		0.067 mg/kg		0.0664 mg/kg	0.00000664 %	✓	
7		fluoranthene		205-912-4	206-44-0		0.159 mg/kg		0.158 mg/kg	0.0000158 %	✓	
8		pyrene		204-927-3	129-00-0		0.334 mg/kg		0.331 mg/kg	0.0000331 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
10		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
11		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
12		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
13		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-883-8	191-24-2									
15		Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.]			H	0.3	%		0.297	%	0.297 %	✓	
		648-081-00-7	232-361-7	8007-45-2									
										Total:	0.297 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
CLP: Note H	Known incomplete entry, should not be used as is

Classification of sample: WS105-27/11/2024-0.05m

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample name:
WS105-27/11/2024-0.05m
Moisture content:
1.9%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.] (conc.: 0.196%)

Determinands

Moisture content: 1.9% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		0.245 mg/kg		0.24 mg/kg	0.000024 %	✓	
2		acenaphthylene		205-917-1	208-96-8		0.208 mg/kg		0.204 mg/kg	0.0000204 %	✓	
3		acenaphthene		201-469-6	83-32-9		0.32 mg/kg		0.314 mg/kg	0.0000314 %	✓	
4		fluorene		201-695-5	86-73-7		0.228 mg/kg		0.224 mg/kg	0.0000224 %	✓	
5		phenanthrene		201-581-5	85-01-8		1.048 mg/kg		1.028 mg/kg	0.000103 %	✓	
6		anthracene		204-371-1	120-12-7		0.226 mg/kg		0.222 mg/kg	0.0000222 %	✓	
7		fluoranthene		205-912-4	206-44-0		0.839 mg/kg		0.823 mg/kg	0.0000823 %	✓	
8		pyrene		204-927-3	129-00-0		0.995 mg/kg		0.976 mg/kg	0.0000976 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.485 mg/kg		0.476 mg/kg	0.0000476 %	✓	
10		chrysene	601-048-00-0	205-923-4	218-01-9		0.466 mg/kg		0.457 mg/kg	0.0000457 %	✓	
11		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.497 mg/kg		0.488 mg/kg	0.0000488 %	✓	
12		indeno[123-cd]pyrene		205-893-2	193-39-5		0.36 mg/kg		0.353 mg/kg	0.0000353 %	✓	
13		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.127 mg/kg		0.125 mg/kg	0.0000125 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	benzo[ghi]perylene				0.466	mg/kg		0.457	mg/kg	0.0000457 %	✓	
			205-883-8	191-24-2									
15		Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.]			H	0.2	%		0.196	%	0.196 %	✓	
		648-081-00-7	232-361-7	8007-45-2									
										Total:	0.197 %		

Key

	User supplied data
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
CLP: Note H	Known incomplete entry, should not be used as is

Classification of sample: WS112-27/11/2024-0.05m

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample name:
WS112-27/11/2024-0.05m
Moisture content:
2.5%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.] (conc.: 0.293%)

Determinands

Moisture content: 2.5% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		0.032 mg/kg		0.0312 mg/kg	0.00000312 %	✓	
2	●	acenaphthylene		205-917-1	208-96-8		0.203 mg/kg		0.198 mg/kg	0.0000198 %	✓	
3	●	acenaphthene		201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
4	●	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
5	●	phenanthrene		201-581-5	85-01-8		0.792 mg/kg		0.773 mg/kg	0.0000773 %	✓	
6	●	anthracene		204-371-1	120-12-7		0.099 mg/kg		0.0966 mg/kg	0.00000966 %	✓	
7	●	fluoranthene		205-912-4	206-44-0		0.742 mg/kg		0.724 mg/kg	0.0000724 %	✓	
8	●	pyrene		204-927-3	129-00-0		0.874 mg/kg		0.853 mg/kg	0.0000853 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.555 mg/kg		0.541 mg/kg	0.0000541 %	✓	
10		chrysene	601-048-00-0	205-923-4	218-01-9		0.587 mg/kg		0.573 mg/kg	0.0000573 %	✓	
11		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.533 mg/kg		0.52 mg/kg	0.000052 %	✓	
12	●	indeno[123-cd]pyrene		205-893-2	193-39-5		0.312 mg/kg		0.304 mg/kg	0.0000304 %	✓	
13		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.134 mg/kg		0.131 mg/kg	0.0000131 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	benzo[ghi]perylene				0.525	mg/kg		0.512	mg/kg	0.0000512 %	✓	
			205-883-8	191-24-2									
15		Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.]			H	0.3	%		0.293	%	0.293 %	✓	
		648-081-00-7	232-361-7	8007-45-2									
										Total:	0.293 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
CLP: Note H	Known incomplete entry, should not be used as is

Classification of sample: WS116-27/11/2024-0.05m

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample name:
WS116-27/11/2024-0.05m
Moisture content:
1.4%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.] (conc.: 0.296%)

Determinands

Moisture content: 1.4% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		0.087 mg/kg		0.0858 mg/kg	0.00000858 %	✓	
2		acenaphthylene		205-917-1	208-96-8		0.129 mg/kg		0.127 mg/kg	0.0000127 %	✓	
3		acenaphthene		201-469-6	83-32-9		0.078 mg/kg		0.0769 mg/kg	0.00000769 %	✓	
4		fluorene		201-695-5	86-73-7		0.09 mg/kg		0.0888 mg/kg	0.00000888 %	✓	
5		phenanthrene		201-581-5	85-01-8		0.387 mg/kg		0.382 mg/kg	0.0000382 %	✓	
6		anthracene		204-371-1	120-12-7		0.115 mg/kg		0.113 mg/kg	0.0000113 %	✓	
7		fluoranthene		205-912-4	206-44-0		0.539 mg/kg		0.532 mg/kg	0.0000532 %	✓	
8		pyrene		204-927-3	129-00-0		0.502 mg/kg		0.495 mg/kg	0.0000495 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.33 mg/kg		0.325 mg/kg	0.0000325 %	✓	
10		chrysene	601-048-00-0	205-923-4	218-01-9		0.244 mg/kg		0.241 mg/kg	0.0000241 %	✓	
11		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.309 mg/kg		0.305 mg/kg	0.0000305 %	✓	
12		indeno[123-cd]pyrene		205-893-2	193-39-5		0.245 mg/kg		0.242 mg/kg	0.0000242 %	✓	
13		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.068 mg/kg		0.0671 mg/kg	0.00000671 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	benzo[ghi]perylene				0.285	mg/kg		0.281	mg/kg	0.0000281 %	✓	
			205-883-8	191-24-2									
15		Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.]			H	0.3	%		0.296	%	0.296 %	✓	
		648-081-00-7	232-361-7	8007-45-2									
										Total:	0.296 %		

Key

	User supplied data
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
CLP: Note H	Known incomplete entry, should not be used as is

Classification of sample: RH103-27/11/2024-0.05m

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample name:
RH103-27/11/2024-0.05m
Moisture content:
4.7%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.] (conc.: 0.191%)

Determinands

Moisture content: 4.7% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
2		acenaphthylene		205-917-1	208-96-8		0.089 mg/kg		0.085 mg/kg	0.0000085 %	✓	
3		acenaphthene		201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
4		fluorene		201-695-5	86-73-7		0.024 mg/kg		0.0229 mg/kg	0.00000229 %	✓	
5		phenanthrene		201-581-5	85-01-8		0.063 mg/kg		0.0602 mg/kg	0.00000602 %	✓	
6		anthracene		204-371-1	120-12-7		0.019 mg/kg		0.0181 mg/kg	0.00000181 %	✓	
7		fluoranthene		205-912-4	206-44-0		0.059 mg/kg		0.0564 mg/kg	0.00000564 %	✓	
8		pyrene		204-927-3	129-00-0		0.086 mg/kg		0.0821 mg/kg	0.00000821 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
10		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
11		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.048 mg/kg		0.0458 mg/kg	0.00000458 %	✓	
12		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
13		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	benzo[ghi]perylene				0.063	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
			205-883-8	191-24-2									
15		Tar, coal; Coal tar; [The by-product from the destructive distillation of coal. Almost black semisolid. A complex combination of aromatic hydro-carbons, phenolic compounds, nitrogen bases and thiophene.]			H	0.2	%		0.191	%	0.191 %	✓	
		648-081-00-7	232-361-7	8007-45-2									
										Total:	0.191 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
CLP: Note H	Known incomplete entry, should not be used as is

Appendix A: Classifier defined and non GB MCL determinands

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

None used in this classification

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.24.6453.11761 (25 Jan 2025)
HazWasteOnline Database: 2025.24.6453.11761 (25 Jan 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

MCHNF-OYJ4W-XU4UC

Report is invalid if pages are removed.

Job name

EMT-24-20727-Batch-1-202412110927

Description/Comments

Project

TE1880

Site

Hopwood Hall College, Rochdale

Classified by

Name:
Adrian Read
Date:
04 Feb 2025 18:04 GMT
Telephone:
01925 818388

Company:
Tier Environmental
Suite 414
Chadwick House
Warrington
WA3 6AE

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	03 Dec 2020
Most recent 3 year Refresher	05 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Hopwood Hall College **Post Code** OL12 6RY

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Proposed redevelopment of land

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavation of soils during development

Description of the waste

Made ground and/or natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS114-29/11/2024-0.50m		Potentially Hazardous	HP 3(i)	3

Related documents

#	Name	Description
1	EMT-24-20727-Batch-1-202412110927.HWOL	Element .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Adrian Read

Created date: 04 Feb 2025 18:04 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	9
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	13

Classification of sample: WS114-29/11/2024-0.50m

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS114-29/11/2024-0.50m
Moisture content:
14.9%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 or 17 05 03 * (Soil and stones other than those mentioned in 17 05 03 or Soil and stones containing hazardous substances)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

toluene (conc.: 1.22e-06%)
ethylbenzene (conc.: 5.22e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 0.0305%)
xylene (conc.: 1.91e-06%)

Determinands

Moisture content: 14.9% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.1 mg/kg	1.32	8.159 mg/kg	0.000816 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.298 mg/kg	0.0000298 %	✓	
3	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				38.6 mg/kg	2.27	76.259 mg/kg	0.00763 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		46 mg/kg	1.126	45.075 mg/kg	0.00451 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	168 mg/kg	1.56	228.067 mg/kg	0.0146 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.236 mg/kg	0.0000236 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		14.4 mg/kg	2.976	37.3 mg/kg	0.00373 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		97 mg/kg	2.774	234.197 mg/kg	0.0234 %	✓	
10	TPH (C6 to C40) petroleum group			TPH		350 mg/kg		304.613 mg/kg	0.0305 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
11		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
12		benzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
13		toluene				0.014	mg/kg		0.0122	mg/kg	0.00000122 %	✓	
		601-021-00-3	203-625-9	108-88-3									
14		ethylbenzene				0.006	mg/kg		0.0052	mg/kg	0.000000522 %	✓	
		601-023-00-4	202-849-4	100-41-4									
15		xylene				0.022	mg/kg		0.0191	mg/kg	0.00000191 %	✓	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
17		pH				9.44	pH		9.44	pH	9.44 pH		
				PH									
18		naphthalene				1.23	mg/kg		1.07	mg/kg	0.000107 %	✓	
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
			205-917-1	208-96-8									
20		acenaphthene				0.77	mg/kg		0.67	mg/kg	0.000067 %	✓	
			201-469-6	83-32-9									
21		fluorene				0.47	mg/kg		0.409	mg/kg	0.0000409 %	✓	
			201-695-5	86-73-7									
22		phenanthrene				4.99	mg/kg		4.343	mg/kg	0.000434 %	✓	
			201-581-5	85-01-8									
23		anthracene				1.47	mg/kg		1.279	mg/kg	0.000128 %	✓	
			204-371-1	120-12-7									
24		fluoranthene				11.44	mg/kg		9.956	mg/kg	0.000996 %	✓	
			205-912-4	206-44-0									
25		pyrene				10.28	mg/kg		8.947	mg/kg	0.000895 %	✓	
			204-927-3	129-00-0									
26		benzo[a]anthracene				4.69	mg/kg		4.082	mg/kg	0.000408 %	✓	
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				4.93	mg/kg		4.291	mg/kg	0.000429 %	✓	
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				5.33	mg/kg		4.639	mg/kg	0.000464 %	✓	
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				2.07	mg/kg		1.802	mg/kg	0.00018 %	✓	
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				4.54	mg/kg		3.951	mg/kg	0.000395 %	✓	
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				2.67	mg/kg		2.324	mg/kg	0.000232 %	✓	
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				0.67	mg/kg		0.583	mg/kg	0.0000583 %	✓	
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				2.73	mg/kg		2.376	mg/kg	0.000238 %	✓	
			205-883-8	191-24-2									
34		phenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
35		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
36		tetrachloroethylene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<**LOD**
		602-028-00-4	204-825-9	127-18-4									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
37		carbon tetrachloride; tetrachloromethane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
38		trichloroethylene; trichloroethene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
39		vinyl chloride; chloroethylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
40		hexachlorobenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
41	●	polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
42	●	dichlorodifluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-893-9	75-71-8									
43		chloromethane; methyl chloride				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
44		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
45		chloroethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
46	●	trichlorofluoromethane				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			200-892-3	75-69-4									
47		1,1-dichloroethylene; vinylidene chloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
48		dichloromethane; methylene chloride				0.01	mg/kg		0.0087	mg/kg	0.00000087 %	✓	
		602-004-00-3	200-838-9	75-09-2									
49	●	2,2-dichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			209-832-0	594-20-7									
50	●	bromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-826-3	74-97-5									
51		chloroform; trichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
52		1,1,1-trichloroethane; methyl chloroform				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
53		1,1-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
54		1,2-dichloropropane; propylene dichloride				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
55		dibromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
56	●	bromodichloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			200-856-7	75-27-4									
57		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
58	●	trans-1,3-dichloropropene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			431-460-4	10061-02-6									
59		1,1,2-trichloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
60	●	1,3-dichloropropane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			205-531-3	142-28-9									
61	●	dibromochloromethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			204-704-0	124-48-1									
62		1,2-dibromoethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
63		chlorobenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-033-00-1	203-628-5	108-90-7									
64	●	1,1,1,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
			211-135-1	630-20-6									
65		bromoform; tribromomethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-007-00-X	200-854-6	75-25-2									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
66		cumene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-024-00-X	202-704-5	98-82-8									
67		1,1,2,2-tetrachloroethane				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
68		bromobenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
69		1,2,3-trichloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
70		propylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-097-00-8	203-132-9	103-65-1									
71		mesitylene; 1,3,5-trimethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
72	●	tert-butylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
			202-632-4	98-06-6									
73		1,2,4-trimethylbenzene				<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
74	●	sec-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			205-227-0	135-98-8									
75		1-isopropyl-4-methylbenzene; p-cymene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-094-00-1	202-796-7	99-87-6									
76		1,3-dichlorbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		1,4-dichlorobenzene; p-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
78	●	n-butylbenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			203-209-7	104-51-8									
79		1,2-dichlorobenzene; o-dichlorobenzene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
80		1,2-dibromo-3-chloropropane				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
81		1,2,4-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
82	●	hexachlorobutadiene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
			201-765-5	87-68-3									
83	●	1,2,3-trichlorobenzene				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
			201-757-1	87-61-6									
84		styrene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
		601-026-00-0	202-851-5	100-42-5									
85		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
86	●	2-nitrophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-857-5	88-75-5									
87		2,4-dichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
88		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
89		2,4,5-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
90		2,4,6-trichlorophenol				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		604-018-00-5	201-795-9	88-06-2									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
91		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol	604-014-00-3	200-431-6	59-50-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
92		4-nitrophenol; p-nitrophenol	609-015-00-2	202-811-7	100-02-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
93		pentachlorophenol	604-002-00-8	201-778-6	87-86-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
94		2-chloronaphthalene		202-079-9	91-58-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
95		2-methyl naphthalene		202-078-3	91-57-6		0.322	mg/kg		0.28	mg/kg	0.000028 %	✓	
96		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP	607-317-00-9	204-211-0	117-81-7		0.245	mg/kg		0.213	mg/kg	0.0000213 %	✓	
97		BBP; benzyl butyl phthalate	607-430-00-3	201-622-7	85-68-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
98		dibutyl phthalate; DBP	607-318-00-4	201-557-4	84-74-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
99		di-n-octyl phthalate		204-214-7	117-84-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
100		diethyl phthalate		201-550-6	84-66-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
101		dimethyl phthalate		205-011-6	131-11-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
102		2,4-dinitrotoluene; [1] dinitrotoluene [2]	609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
103		2,6-dinitrotoluene	609-049-00-8	210-106-0	606-20-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
104		4-bromophenylphenylether		202-952-4	101-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
105		4-chloroaniline	612-137-00-9	203-401-0	106-47-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
106		4-chlorophenylphenylether		230-281-7	7005-72-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
107		azobenzene	611-001-00-6	203-102-5	103-33-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
108		bis(2-chloroethoxy)methane		203-920-2	111-91-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
109		bis(2-chloroethyl) ether	603-029-00-2	203-870-1	111-44-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
110		carbazole		201-696-0	86-74-8		0.182	mg/kg		0.158	mg/kg	0.0000158 %	✓	
111		dibenzofuran		205-071-3	132-64-9		0.241	mg/kg		0.21	mg/kg	0.000021 %	✓	
112		hexachlorocyclopentadiene	602-078-00-7	201-029-3	77-47-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
113		hexachloroethane		200-666-4	67-72-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
114		3,5,5-trimethylcyclohex-2-enone; isophorone	606-012-00-8	201-126-0	78-59-1		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
115		nitrosodipropylamine	612-098-00-8	210-698-0	621-64-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
116		nitrobenzene	609-003-00-7	202-716-0	98-95-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
117		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.006	mg/kg		<0.006	mg/kg	<0.0000006 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
118		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
119		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]							
120		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0909 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **1,1-dichloroethane and 1,2-dichloroethane (combined)** (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

- **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

- **dichlorodifluoromethane** (EC Number: 200-893-9, CAS Number: 75-71-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Aquatic Chronic 3; H412 , Ozone 1; H420 , Press. Gas; H280

- **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

- **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

- **bromochloromethane** (EC Number: 200-826-3, CAS Number: 74-97-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Ozone 1; H420

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

trans-1,3-dichloropropene (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

1,3-dichloropropane (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

dibromochloromethane (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

1,1,1,2-tetrachloroethane (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

tert-butylbenzene (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

sec-butylbenzene (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

n-butylbenzene (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

hexachlorobutadiene (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

1,2,3-trichlorobenzene (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

2-nitrophenol (EC Number: 201-857-5, CAS Number: 88-75-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

2-chloronaphthalene (EC Number: 202-079-9, CAS Number: 91-58-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

2-methyl naphthalene (EC Number: 202-078-3, CAS Number: 91-57-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

di-n-octyl phthalate (EC Number: 204-214-7, CAS Number: 117-84-0)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Repr. 2; H361 , Skin Sens. 1; H317 , Resp. Sens. 1; H334 , Eye Irrit. 2; H319 , Aquatic Chronic 4; H413

diethyl phthalate (EC Number: 201-550-6, CAS Number: 84-66-2)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , STOT SE 3; H335 , STOT RE 2; H373 , Repr. 2; H361 , Acute Tox. 4; H302 , STOT SE 3; H336 , Skin Sens. 1; H317 , Aquatic Chronic 1; H410

dimethyl phthalate (EC Number: 205-011-6, CAS Number: 131-11-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , STOT SE 3; H335 , STOT SE 3; H336 , Repr. 2; H361 , Aquatic Chronic 3; H412

4-bromophenylphenylether (EC Number: 202-952-4, CAS Number: 101-55-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

4-chlorophenylphenylether (EC Number: 230-281-7, CAS Number: 7005-72-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

bis(2-chloroethoxy)methane (EC Number: 203-920-2, CAS Number: 111-91-1)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 4; H312 , Acute Tox. 1; H330 , Acute Tox. 2; H330 , STOT SE 1; H370 , STOT RE 2; H373

carbazole (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 2; H341 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301

dibenzofuran (EC Number: 205-071-3, CAS Number: 132-64-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Acute Tox. 4; H332 , Aquatic Chronic 2; H411

hexachloroethane (EC Number: 200-666-4, CAS Number: 67-72-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , STOT RE 2; H373

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.24.6453.11761 (25 Jan 2025)
HazWasteOnline Database: 2025.24.6453.11761 (25 Jan 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

APPENDIX D - GEOENVIRONMENTAL SURFACE WATER AND GROUNDWATER LABORATORY RESULTS

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Adrian Read
Date :	10th December, 2024
Your reference :	TE1880
Our reference :	Test Report 24/20428 Batch 1
Location :	Hopwood Hall, Rochdale
Date samples received :	30th November, 2024
Status :	Final Report
Issue :	202412101522

Three samples were received for analysis on 30th November, 2024 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 9.122 kg of CO2

Scope 1&2&3 emissions - 21.559 kg of CO2

Authorised By:

Sean Anglish
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20428

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-6	7-12	13-18									
Sample ID	WS01DS	WS02UP	WS03MID									
Depth	0.00	0.00	0.00									
COC No / misc												
Containers	V H HN P G	V H HN P G	V H HN P G									
Sample Date	28/11/2024	28/11/2024	28/11/2024									
Sample Type	Liquid	Liquid	Liquid									
Batch Number	1	1	1									
Date of Receipt	30/11/2024	30/11/2024	30/11/2024									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Arsenic	<0.9	<0.9	<0.9								<0.9	ug/l	TM170/PM14
Dissolved Cadmium	0.04	0.04	0.04								<0.03	ug/l	TM170/PM14
Total Dissolved Chromium	0.6	0.5	0.5								<0.2	ug/l	TM170/PM14
Dissolved Copper	2	2	3								<1	ug/l	TM170/PM14
Dissolved Lead	<0.4	<0.4	<0.4								<0.4	ug/l	TM170/PM14
Dissolved Mercury	<0.5	<0.5	<0.5								<0.5	ug/l	TM170/PM14
Dissolved Nickel	3.0	3.1	3.2								<0.2	ug/l	TM170/PM14
Dissolved Selenium	<1.2	<1.2	<1.2								<1.2	ug/l	TM170/PM14
Dissolved Zinc	10.3	12.1	12.5								<1.5	ug/l	TM170/PM14
Total Hardness Dissolved (as CaCO3)	89	91	92								<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	0.6	<0.1	1.1								<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Acenaphthene	<0.005	<0.005	0.017								<0.005	ug/l	TM4/PM30
Fluorene	0.009	<0.005	0.040								<0.005	ug/l	TM4/PM30
Phenanthrene	<0.005	<0.005	0.010								<0.005	ug/l	TM4/PM30
Anthracene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Fluoranthene	<0.005	0.007	<0.005								<0.005	ug/l	TM4/PM30
Pyrene	<0.005	0.007	<0.005								<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Chrysene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(a)pyrene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
PAH 16 Total	0.609	<0.173	1.167								<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	86	94	98								<0	%	TM4/PM30
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Toluene	<5	<5	<5								<5	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1								<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	94	96	96								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	103	109								<0	%	TM15/PM10

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20428

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-6	7-12	13-18									
Sample ID	WS01DS	WS02UP	WS03MID									
Depth	0.00	0.00	0.00									
COC No / misc												
Containers	V H HN P G	V H HN P G	V H HN P G									
Sample Date	28/11/2024	28/11/2024	28/11/2024									
Sample Type	Liquid	Liquid	Liquid									
Batch Number	1	1	1									
Date of Receipt	30/11/2024	30/11/2024	30/11/2024									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL)	<10	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL)	<10	<10	<10								<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL)	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C35-C40 (EH_CU_1D_AL)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 (HS_1D_AR)	<10	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR)	<10	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR)	<10	<10	<10								<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC35-EC40 (EH_CU_1D_AR)	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.15	<0.15	<0.15								<0.15	mg/l	TM26/PM0
Sulphate as SO4	30.6	31.2	31.2								<0.5	mg/l	TM38/PM0
Monoethylene glycol	<10	<10	<10								<10	ug/l	TM179/PM0
Propylene glycol	<10	<10	<10								<10	ug/l	TM179/PM0
Diethylene glycol	<10	<10	<10								<10	ug/l	TM179/PM0
Triethylene glycol	<10	<10	<10								<10	ug/l	TM179/PM0
Thiodiglycol	<10	<10	<10								<10	ug/l	TM179/PM0
Free Cyanide	<0.01	<0.01	<0.01								<0.01	mg/l	TM89/PM0
Total Cyanide	<0.01	<0.01	<0.01								<0.01	mg/l	TM89/PM0
Complex Cyanide	<0.01	<0.01	<0.01								<0.01	mg/l	TM89/PM0
Total Ammonia as N	0.09	0.11	0.10								<0.03	mg/l	TM38/PM0
Electrical Conductivity @25C	270	268	267								<2	uS/cm	TM76/PM0
pH	7.48	7.35	6.86								<0.01	pH units	TM73/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20428

SVOC Report : **Liquid**

EMT Sample No.	1-6	7-12	13-18									
Sample ID	WS01DS	WS02UP	WS03MID									
Depth	0.00	0.00	0.00							Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H HN P G	V H HN P G	V H HN P G									
Sample Date	28/11/2024	28/11/2024	28/11/2024									
Sample Type	Liquid	Liquid	Liquid									
Batch Number	1	1	1									
Date of Receipt	30/11/2024	30/11/2024	30/11/2024									
SVOC MS												
Phenols												
2-Chlorophenol	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylphenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1							<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1							<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10							<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1							<1	ug/l	TM16/PM30
Phenol	<1	<1	<1							<1	ug/l	TM16/PM30
PAHs												
2-Chloronaphthalene	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylnaphthalene	<1	<1	<1							<1	ug/l	TM16/PM30
Phthalates												
Bis(2-ethylhexyl) phthalate	<5	<5	<5							<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30
Di-n-butyl phthalate	<1.5	<1.5	<1.5							<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30
Diethyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30
Other SVOCs												
1,2-Dichlorobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
1,3-Dichlorobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
1,4-Dichlorobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1							<1	ug/l	TM16/PM30
2,4-Dinitrotoluene	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1							<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1							<1	ug/l	TM16/PM30
4-Bromophenylphenylether	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chlorophenylphenylether	<1	<1	<1							<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Azobenzene	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether	<1	<1	<1							<1	ug/l	TM16/PM30
Carbazole	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Dibenzofuran	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Hexachlorobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachlorobutadiene	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachloroethane	<1	<1	<1							<1	ug/l	TM16/PM30
Isophorone	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Nitrobenzene	<1	<1	<1							<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	111	111	111							<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	116	115	117							<0	%	TM16/PM30

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read
EMT Job No: 24/20428

VOC Report : **Liquid**

EMT Sample No.	1-6	7-12	13-18									
Sample ID	WS01DS	WS02UP	WS03MID									
Depth	0.00	0.00	0.00									
COC No / misc												
Containers	V H HN P G	V H HN P G	V H HN P G									
Sample Date	28/11/2024	28/11/2024	28/11/2024									
Sample Type	Liquid	Liquid	Liquid									
Batch Number	1	1	1									
Date of Receipt	30/11/2024	30/11/2024	30/11/2024									
VOC MS												
Dichlorodifluoromethane	<2	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/l	TM15/PM10
Chloroethane	<3	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
Chloroform	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2	<2								<2	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane	<3	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
Toluene	<5	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	94	96	96								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	103	109								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Adrian Read

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/20428						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/20428

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/20428

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				

EMT Job No: 24/20428

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM179	Determination of Glycols using LCMS	PM0	No preparation is required.				

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE

Attention :	Stefani Ellis
Date :	24th December, 2024
Your reference :	TE1880
Our reference :	Test Report 24/21353 Batch 1
Location :	Hopwood Hall, Rochdale
Date samples received :	13th December, 2024
Status :	Final Report
Issue :	202412241226

Six samples were received for analysis on 13th December, 2024 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 17.81 kg of CO2

Scope 1&2&3 emissions - 42.091 kg of CO2

Authorised By:

Phil Sommerton BSc
Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/21353

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	1-6	7-12	13-18	19-24	25-30	31-36					LOD/LOR	Units	Method No.
Sample ID	CP01	CP102	CP103	CP4	RH102	WS112							
Depth	3.50	4.50	5.50	4.00	5.00	4.00							
COC No / misc													
Containers	V H HN P G	V H HN P G	V H HN BOD G	V H HN P G	V H HN BOD G	V H HN P G							
Sample Date	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1	1							
Date of Receipt	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024							
Dissolved Arsenic #	1.0	2.7	<0.9	3.5	2.3	10.2					<0.9	ug/l	TM170/PM14
Dissolved Cadmium #	0.42	0.30	0.17	<0.03	<0.03	<0.03					<0.03	ug/l	TM170/PM14
Total Dissolved Chromium #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	ug/l	TM170/PM14
Dissolved Copper #	3	2	2	<1	<1	1					<1	ug/l	TM170/PM14
Dissolved Lead #	<0.4	<0.4	0.6	0.8	<0.4	<0.4					<0.4	ug/l	TM170/PM14
Dissolved Mercury #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM170/PM14
Dissolved Nickel #	17.7	3.6	2.9	2.0	1.3	3.1					<0.2	ug/l	TM170/PM14
Dissolved Selenium #	<1.2	4.8	<1.2	<1.2	2.8	<1.2					<1.2	ug/l	TM170/PM14
Dissolved Zinc #	3.5	3.1	12.9	2.6	<1.5	3.7					<1.5	ug/l	TM170/PM14
Total Hardness Dissolved (as CaCO3)	282	317	329	409	93	473					<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	0.1	<0.1					<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	0.073	0.051	0.117	<0.005	0.011					<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	0.013	0.015	0.020	0.014	0.012					<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	0.019	0.038	0.048	0.051	0.067					<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	0.006	0.008	0.020	<0.005	0.018					<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005	0.022	0.064	0.149	0.007	0.192					<0.005	ug/l	TM4/PM30
Pyrene #	<0.005	0.028	0.074	0.157	0.010	0.181					<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	0.012	0.036	0.084	<0.005	0.111					<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	0.007	0.041	0.134	0.012	0.145					<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	0.016	0.044	0.107	<0.008	0.196					<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	0.009	0.024	0.051	<0.005	0.104					<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	0.007	0.015	0.042	<0.005	0.086					<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	0.006	0.014	0.036	<0.005	0.075					<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	0.218	0.424	0.965	0.194	1.198					<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	0.012	0.032	0.077	<0.008	0.141					<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	0.012	0.030	<0.008	0.055					<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	78	76	82	76	79	90					<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	102	104	101	100	101	101					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	105	101	99	99	99					<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/21353

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-6	7-12	13-18	19-24	25-30	31-36					LOD/LOR	Units	Method No.
Sample ID	CP01	CP102	CP103	CP4	RH102	WS112							
Depth	3.50	4.50	5.50	4.00	5.00	4.00							
COC No / misc													
Containers	V H HN P G	V H HN P G	V H HN BOD G	V H HN P G	V H HN BOD G	V H HN P G							
Sample Date	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1	1							
Date of Receipt	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024							
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL)#	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL)#	11	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<5	<5	<5	<5	<5 SV	<5					<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>C35-C40 (EH_CU_1D_AL)	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	11	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 (HS_1D_AR)#	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	<5	<5	<5	<5	<5 SV	<5					<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR)#	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
>EC35-EC40 (EH_CU_1D_AR)	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/PM16/PM30
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<10	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	11	<10	<10	<10	<10 SV	<10					<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15					<0.15	mg/l	TM26/PM0
Sulphate as SO4#	81.7	137.7	67.8	57.3	93.9	189.7					<0.5	mg/l	TM38/PM0
Monoethylene glycol	<10	<10	<10	<10	19	<10					<10	ug/l	TM179/PM0
Propylene glycol	<10	<10	<10	<10	<10	<10					<10	ug/l	TM179/PM0
Diethylene glycol	15	<10	<10	<10	60	<10					<10	ug/l	TM179/PM0
Triethylene glycol	<10	<10	<10	<10	<10	<10					<10	ug/l	TM179/PM0
Thiodiglycol	<10	<10	<10	<10	<10	<10					<10	ug/l	TM179/PM0
Free Cyanide#	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM89/PM0
Total Cyanide#	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM89/PM0
Complex Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM89/PM0
Total Ammonia as N#	0.11	0.25	0.34	0.38	0.50	0.43					<0.03	mg/l	TM38/PM0
Electrical Conductivity @25C#	674	1065	869	1528	399	1424					<2	uS/cm	TM76/PM0
pH#	7.37	7.50	7.41	7.43	8.06	7.16					<0.01	pH units	TM73/PM0

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/21353

SVOC Report : **Liquid**

EMT Sample No.	1-6	7-12	13-18	19-24	25-30	31-36					LOD/LOR	Units	Method No.
Sample ID	CP01	CP102	CP103	CP4	RH102	WS112							
Depth	3.50	4.50	5.50	4.00	5.00	4.00							
COC No / misc													
Containers	V H HN P G	V H HN P G	V H HN BOD G	V H HN P G	V H HN BOD G	V H HN P G							
Sample Date	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1	1							
Date of Receipt	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024							
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10	<10	<10					<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	12	<5	<5					<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5					<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	106	114	116	68 SV	116	116					<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	112	121	121	96	121	122					<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis
EMT Job No: 24/21353

VOC Report : **Liquid**

EMT Sample No.	1-6	7-12	13-18	19-24	25-30	31-36					LOD/LOR	Units	Method No.
Sample ID	CP01	CP102	CP103	CP4	RH102	WS112							
Depth	3.50	4.50	5.50	4.00	5.00	4.00							
COC No / misc													
Containers	V H HN P G	V H HN P G	V H HN BOD G	V H HN P G	V H HN BOD G	V H HN P G							
Sample Date	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1	1							
Date of Receipt	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024							
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4					<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	102	104	101	100	101	101					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	105	101	99	99	99					<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Notification of Deviating Samples

Client Name: Tier Environmental
Reference: TE1880
Location: Hopwood Hall, Rochdale
Contact: Stefani Ellis

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/21353						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/21353

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

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	EU_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.

EMT Job No: 24/21353

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				

EMT Job No: 24/21353

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM179	Determination of Glycols using LCMS	PM0	No preparation is required.				

APPENDIX E - GEOTECHNICAL IN SITU FIELDWORK AND LABORATORY RESULTS

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/12059
Issue Number: 1 **Date:** 16 December, 2024

Client:
Murray Rix (Northern) Ltd
Andrew House
Hadfield Street
Dukinfield
Dukinfield
SK16 4QX

Project Manager: Enquires/Owain Davies
Project Name: TE1880 - Hopwood Hall College
Project Ref: N/A
Order No: 24/410
Date Samples Received: 11/12/24
Date Instructions Received: 11/12/24
Date Analysis Completed: 16/12/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/12059

Client Project Name: TE1880 - Hopwood Hall College

Client Project Ref: N/A

Lab Sample ID	24/12059/1	24/12059/2	24/12059/3	24/12059/4	24/12059/5	24/12059/6	24/12059/7	Units	Limit of Detection	Method ref
Client Sample No	608384	608386	608390	608329	608373	608365	608350			
Client Sample ID	RH103C	RH103C	RH101	RH102	CP104	CP103	CP101			
Depth to Top	3.10	15.00	3.50	8.00	5.50	7.20	5.20			
Depth To Bottom		15.11		8.10						
Date Sampled										
Sample Type	SOIL	SOIL - D	SOIL	SOIL	SOLID	SOIL - D	SOLID			
Sample Matrix Code	6	3	6A	3	7	6	7			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.69	8.77	8.12	8.83	8.82^U	8.66	8.68^U	pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.33	2.14	<1.00	2.38	2.31	6.13	8.87	mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	29	<7	23	<7	<7^U	10	<7^U	mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	0.8	<0.4	1.8	<0.4	<0.4	<0.4	<0.4	mg/l	0.4	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	34	24	52	<10	15^U	89	71^U	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.04	<0.02	0.04	<0.02	<0.04^U	0.04	0.02^U	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.06	0.06	0.04	<0.01	0.06	0.12	0.10	% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	2	3	2	<1	1	4	4	mg/l	1	A-T-SOLMETS

Envirolab Job Number: 24/12059

Client Project Name: TE1880 - Hopwood Hall College

Client Project Ref: N/A

Lab Sample ID	24/12059/8	24/12059/9	24/12059/10	24/12059/11	24/12059/12			Units	Limit of Detection	Method ref
Client Sample No	608392	608391	608389	608388	608395					
Client Sample ID	CP103	CP102	CP101	CP101	RH103C					
Depth to Top	0.40	1.70	2.70	0.70	2.00					
Depth To Bottom	0.70	2.00	3.00	1.20	3.00					
Date Sampled										
Sample Type	SOIL - B	SOIL - B	SOIL - B	SOIL - B	SOIL - B					
Sample Matrix Code	6	6	6A	6	6AB					
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	9.08	9.63	11.07	9.29	9.26			pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	<1.00	<1.00	<1.00	<1.00			mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	108	49	36	53	26			mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	4.0	30.5	2.3	2.0			mg/l	0.4	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	117	505	132	546	814			mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.10	0.49	0.18	0.44	0.41			% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.04	0.18	0.07	0.17	0.14			% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	3	4	<1	3	4			mg/l	1	A-T-SOLMETS

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

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

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

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

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

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

Envirolab Deviating Samples Report

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

Client: Murray Rix (Northern) Ltd, Andrew House , Hadfield Street, Dukinfield , Dukinfield, SK16 4QX

Project: TE1880 - Hopwood Hall College

Clients Project No: N/A

Project No: 24/12059

Date Received: 11/12/2024 (am)

Cool Box Temperatures (°C): 10.7

Lab Sample ID	24/12059/1	24/12059/2	24/12059/3	24/12059/4	24/12059/5	24/12059/6	24/12059/7	24/12059/8	24/12059/9	24/12059/10	24/12059/11	24/12059/12
Client Sample No	608384	608386	608390	608329	608373	608365	608350	608392	608391	608389	608388	608395
Client Sample ID/Depth	RH103C 3.10m	RH103C 15.00-15.11m	RH101 3.50m	RH102 8.00-8.10m	CP104 5.50m	CP103 7.20m	CP101 5.20m	CP103 0.40-0.70m	CP102 1.70-2.00m	CP101 2.70-3.00m	CP101 0.70-1.20m	RH103C 2.00-3.00m
Date Sampled												
Deviation Code												
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key
E (no date) *No sampling date provided (all results affected if not provided)*

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

Envirolab Analysis Dates

Lab Sample ID	24/12059/1	24/12059/2	24/12059/3	24/12059/4	24/12059/5	24/12059/6	24/12059/7	24/12059/8	24/12059/9	24/12059/10	24/12059/11	24/12059/12
Client Sample No	608384	608386	608390	608329	608373	608365	608350	608392	608391	608389	608388	608395
Client Sample ID/Depth	RH103C 3.10m	RH103C 15.00-15.11m	RH101 3.50m	RH102 8.00-8.10m	CP104 5.50m	CP103 7.20m	CP101 5.20m	CP103 0.40-0.70m	CP102 1.70-2.00m	CP101 2.70-3.00m	CP101 0.70-1.20m	RH103C 2.00-3.00m
Date Sampled												
A-T-024s	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
A-T-026s	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
A-T-028s	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
A-T-031s	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
A-T-033s	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
A-T-044	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
A-T-SOLMETS	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024

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

End of Report

MURRAY RIX

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client Tier Environmental Ltd

Address Suite 513
Chadwick House
Warrington Road
Birchwood
WA3 6AE

Contract TE1880 -
Hopwood Hall College

Job Number MRN 25010/1
Date of Issue 03 January 2025
Pages 1 of 15

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

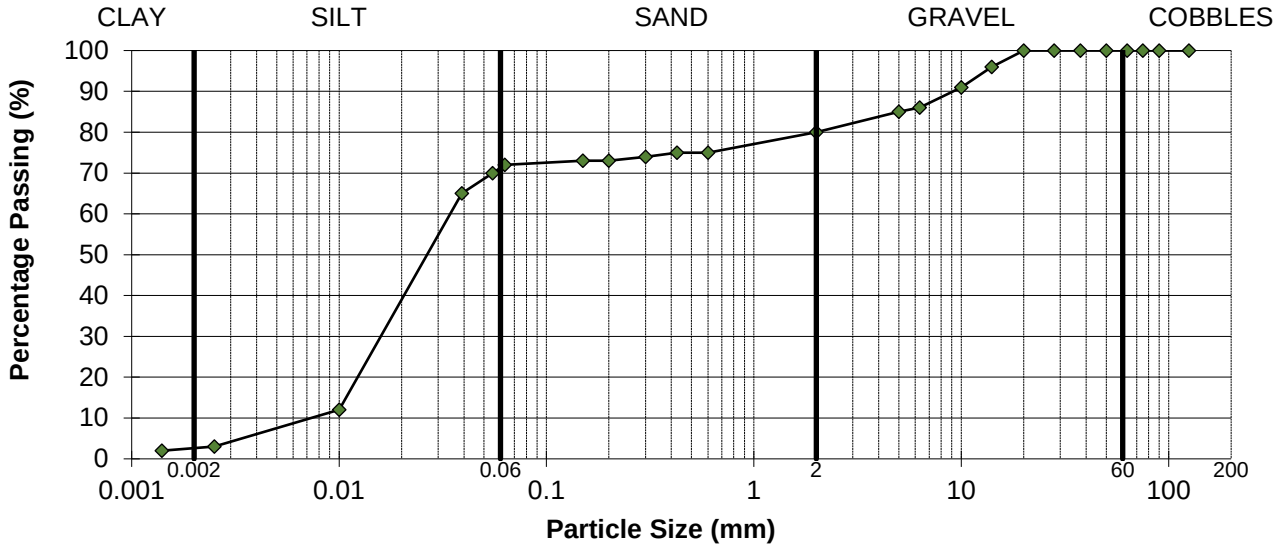
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP102 1.7-2.0 B	DATE SAMPLED	Not advised
LAB SAMPLE No	608391	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey slightly clayey slightly sandy slightly gravelly SILT
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	80	
90	100		0.6	75	
75	100		0.425	75	
63	100		0.3	74	
50	100		0.2	73	
37.5	100		0.15	73	
28	100		0.063	72	
20	100		0.055	70	
14	96		0.039	65	
10	91		0.01	12	
6.3	86		0.0025	3	
5	85		0.0014	2	



REMARKS
As received water content = 36.8%

SIGNED

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 03-Jan-25

M U R R A Y R I X
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

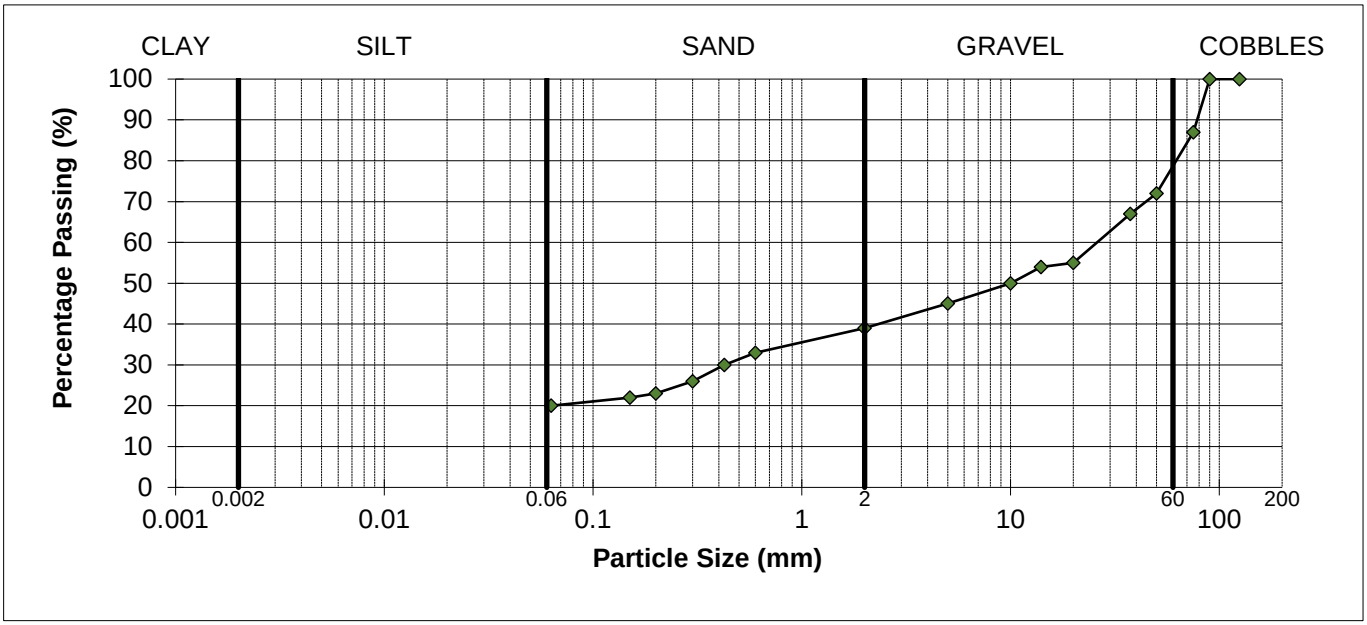
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP101 2.7-3.0 B	DATE SAMPLED	Not advised
LAB SAMPLE No	608389	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Brown silty sandy GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	45	
90	100		2	39	
75	87		0.6	33	
50	72		0.425	30	
37.5	67		0.3	26	
20	55		0.2	23	
14	54		0.15	22	
10	50		0.063	20	



SOIL FRACTIONS			
COBBLES	21%	SAND	19%
GRAVEL	41%	SILT / CLAY	20%

REMARKS
As received water content = 12.6%

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

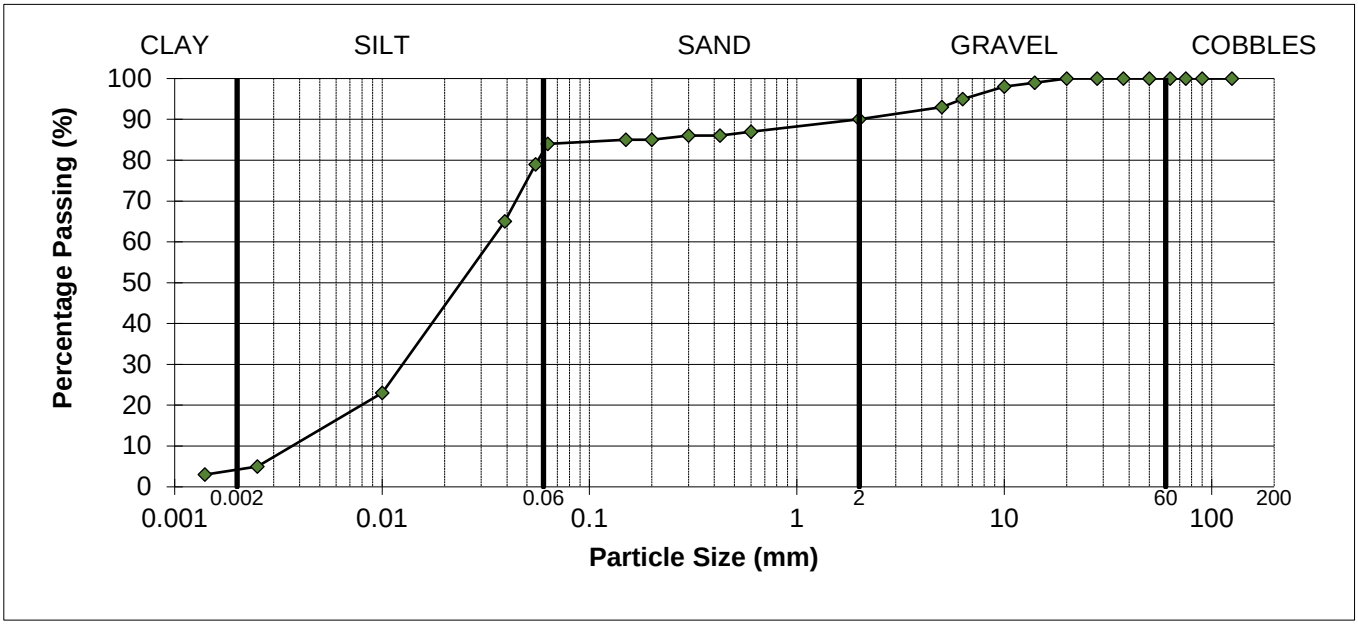
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP101 0.7-1.2 B	DATE SAMPLED	Not advised
LAB SAMPLE No	608388	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey slightly clayey slightly sandy slightly gravelly SILT
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	90	
90	100		0.6	87	
75	100		0.425	86	
63	100		0.3	86	
50	100		0.2	85	
37.5	100		0.15	85	
28	100		0.063	84	
20	100		0.055	79	
14	99		0.039	65	
10	98		0.01	23	
6.3	95		0.0025	5	
5	93		0.0014	3	



REMARKS
As received water content = 37.4%

SIGNED

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 03-Jan-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

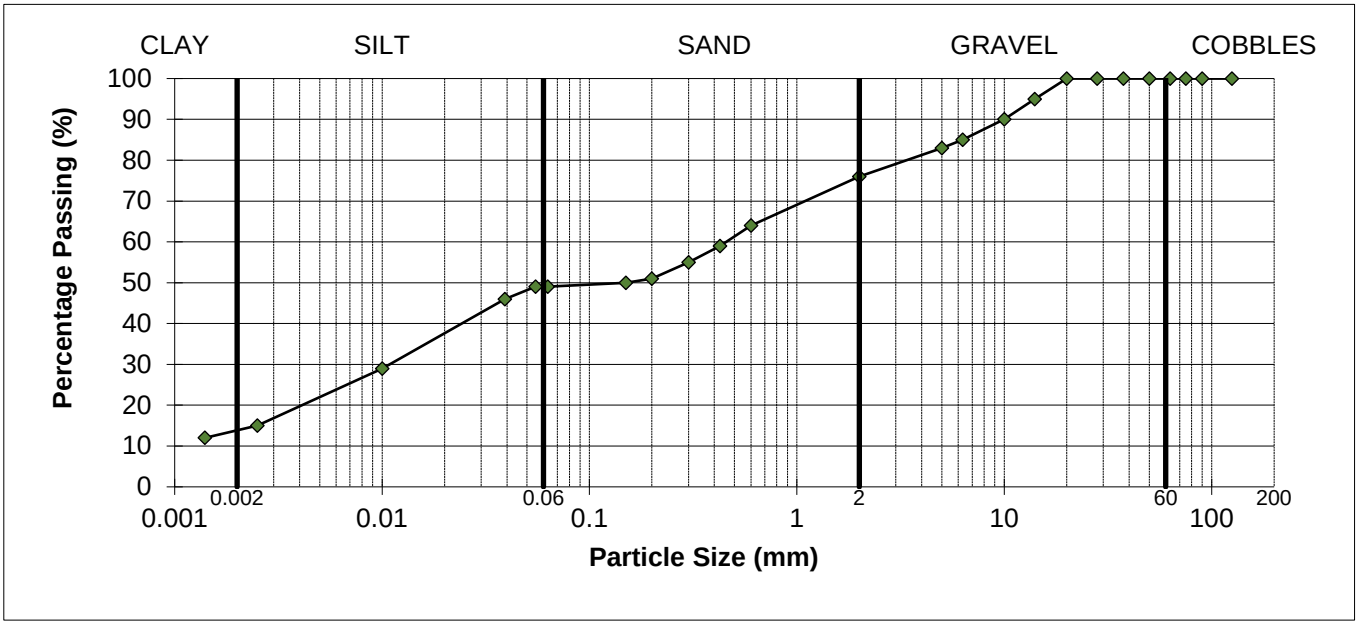
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	RH103C 2.0-3.0 B	DATE SAMPLED	Not advised
LAB SAMPLE No	608395	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey silty sandy gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	76	
90	100		0.6	64	
75	100		0.425	59	
63	100		0.3	55	
50	100		0.2	51	
37.5	100		0.15	50	
28	100		0.063	49	
20	100		0.055	49	
14	95		0.039	46	
10	90		0.01	29	
6.3	85		0.0025	15	
5	83		0.0014	12	



REMARKS
As received water content = 22.2%

SIGNED

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 03-Jan-25

M U R R A Y R I X
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

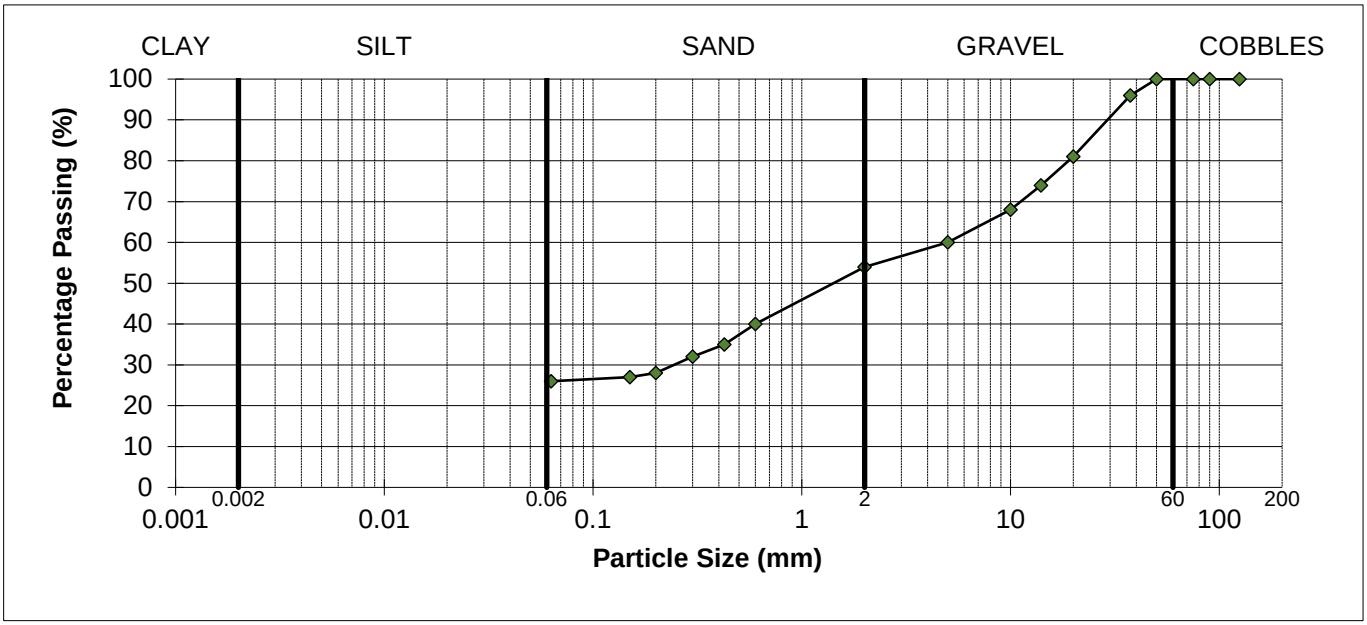
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	RH103C 3.5-4.0 B	DATE SAMPLED	Not advised
LAB SAMPLE No	608396	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey brown silty sandy vetry gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	60	
90	100		2	54	
75	100		0.6	40	
50	100		0.425	35	
37.5	96		0.3	32	
20	81		0.2	28	
14	74		0.15	27	
10	68		0.063	26	



SOIL FRACTIONS			
COBBLES	0%	SAND	28%
GRAVEL	46%	SILT / CLAY	26%

REMARKS
As received water content = 13.7%

SIGNED

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 03-Jan-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

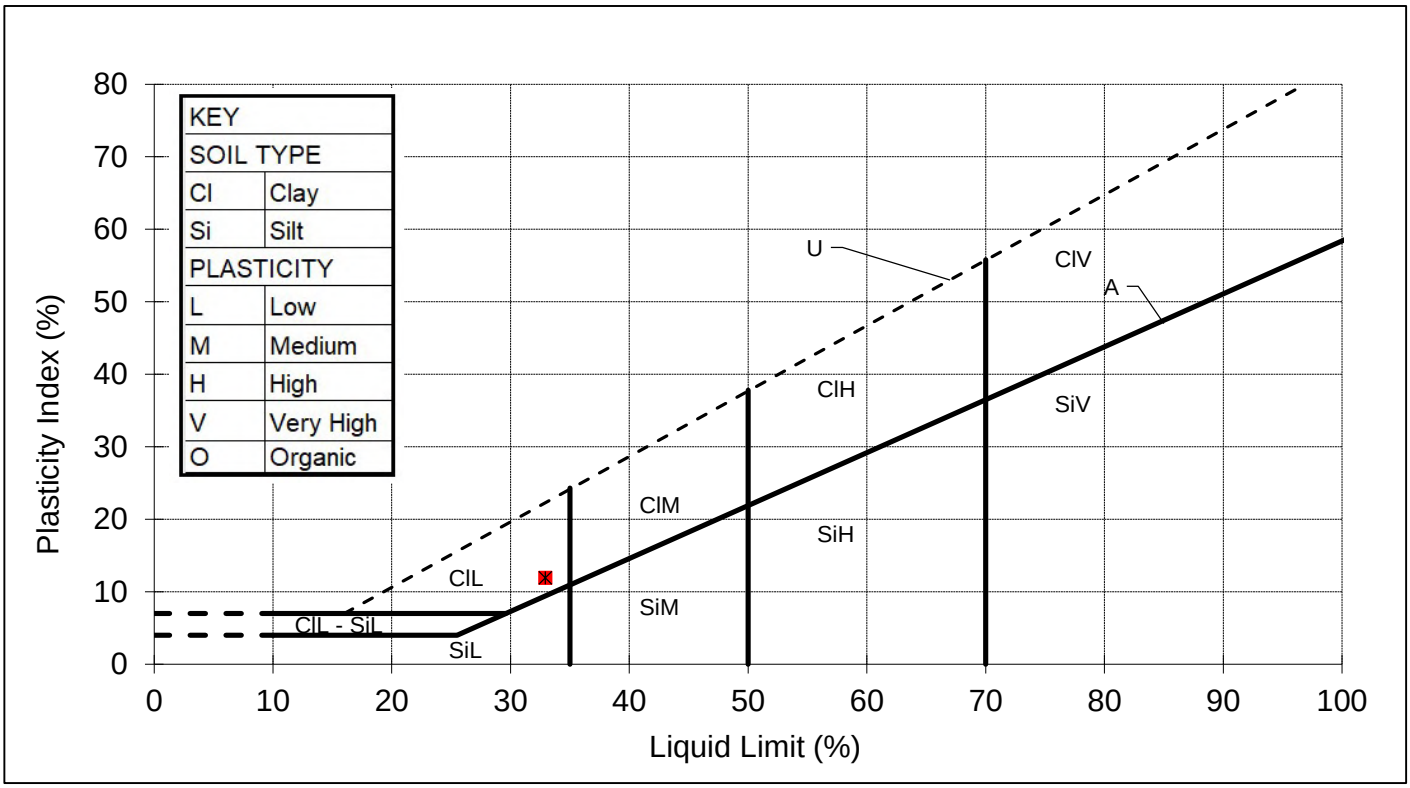
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	RH103C 3.1 D/B	DATE SAMPLED	Not advised
SAMPLE No.	608384	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Brown very silty slightly sandy CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.8	32.8	1.005	
Determination 2 (avg)	19.5	32.7		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
23.7	33	21	12	89



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

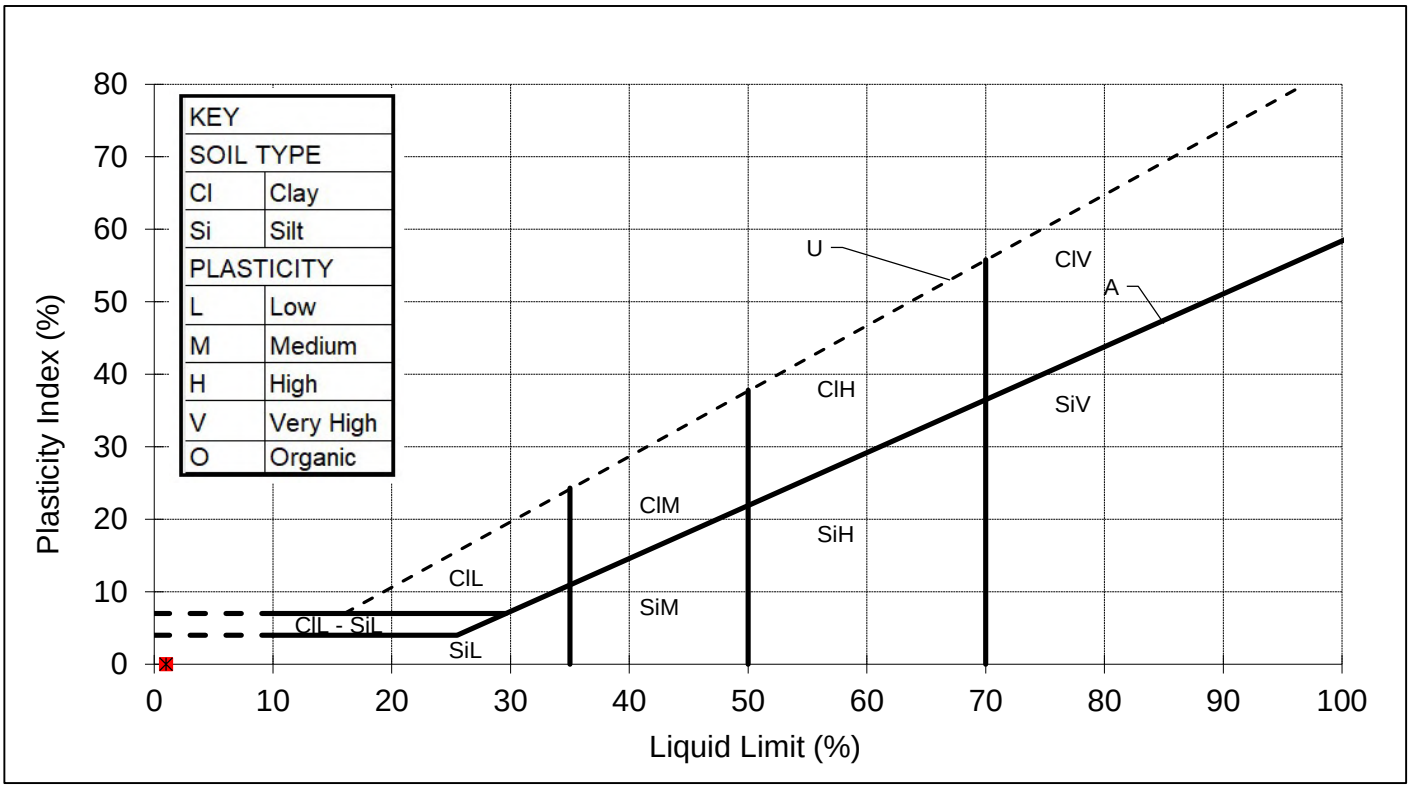
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP104 5.5 D	DATE SAMPLED	Not advised
SAMPLE No.	608373	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey brown silty sandy GRAVEL		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	N/A	N/A	N/A	
Determination 2 (avg)	N/A	N/A		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
5.7	N/A	Non Plastic	N/A	19



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

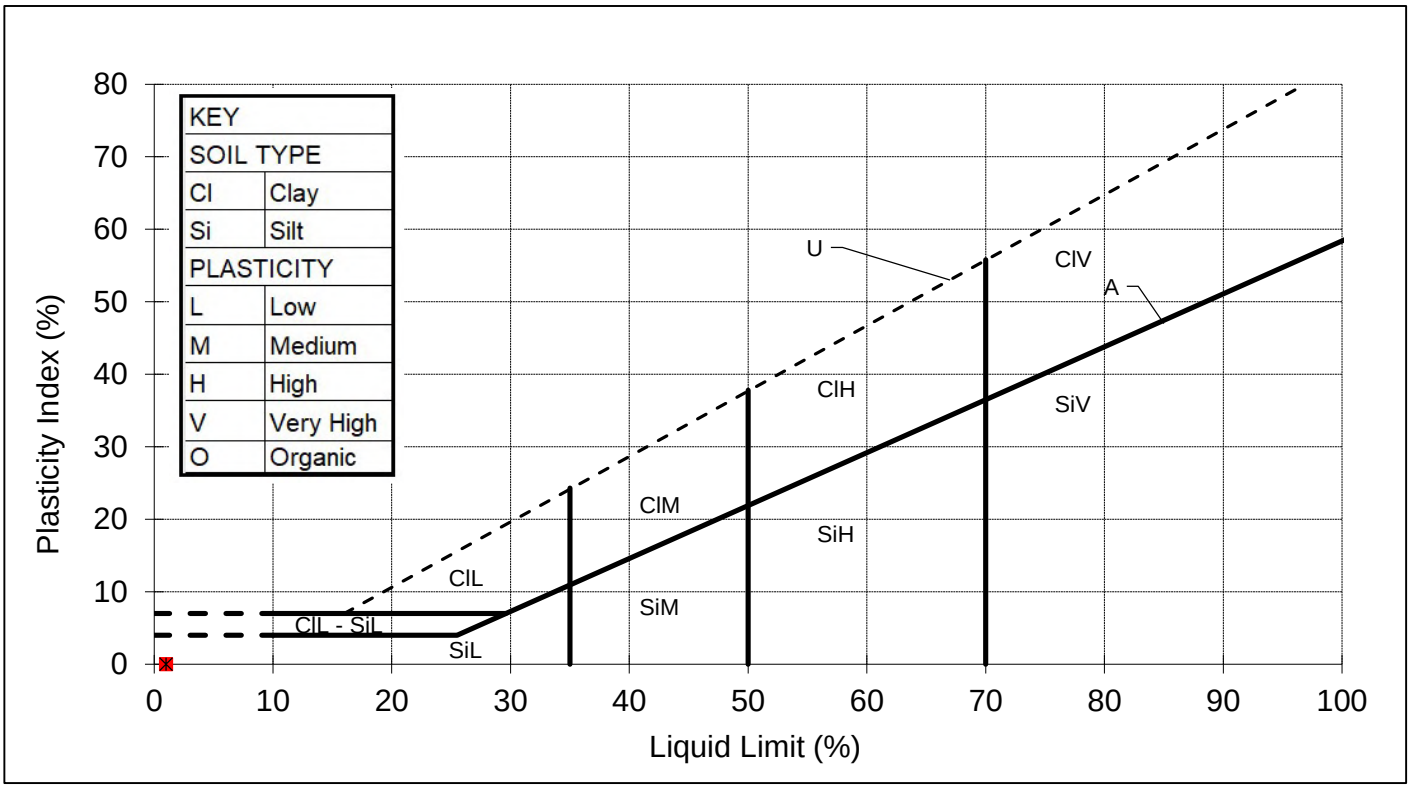
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP101 4.5 D	DATE SAMPLED	Not advised
SAMPLE No.	608349	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey brown silty sandy GRAVEL		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	N/A	N/A	N/A	
Determination 2 (avg)	N/A	N/A		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
10.2	N/A	Non Plastic	N/A	23



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

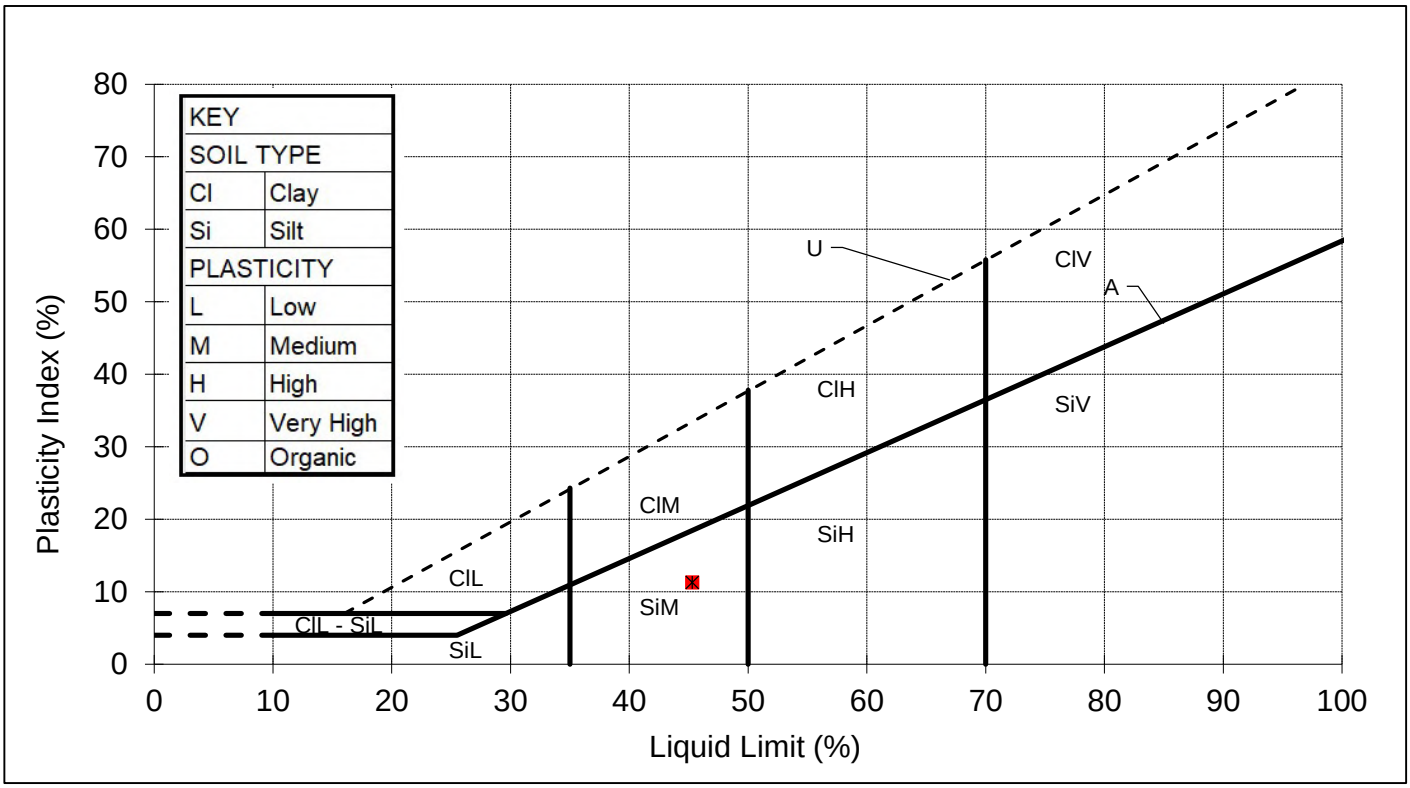
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP103 0.4-0.7	DATE SAMPLED	Not advised
SAMPLE No.	608392	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey slightly clayey very sandy SILT		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	24.5	47.9	0.947	
Determination 2 (avg)	24.3	47.7		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
41.2	45	34	11	100



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

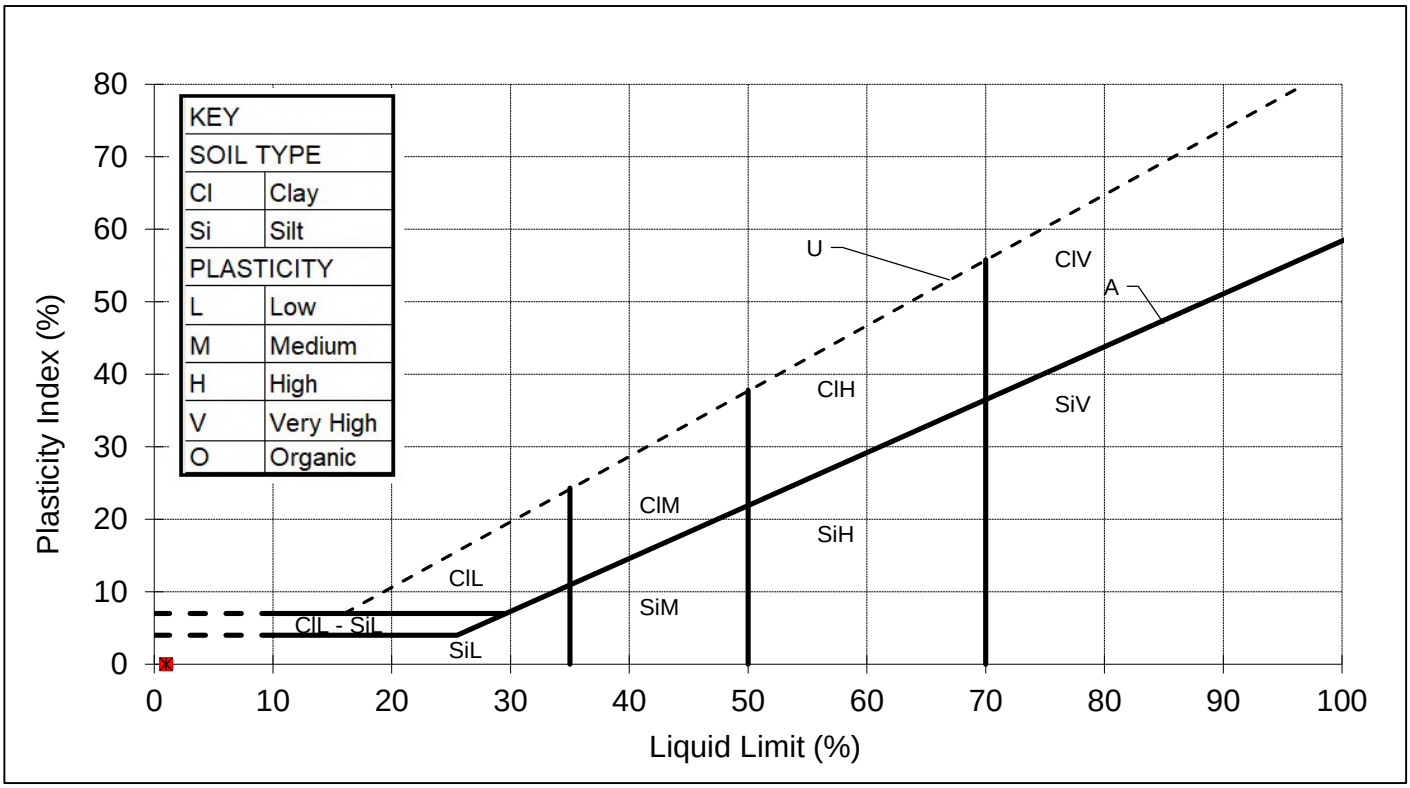
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP102 1.7-2.0 B	DATE SAMPLED	Not advised
SAMPLE No.	608391	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Grey slightly clayey slightly sandy slightly gravelly SILT		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	N/A	N/A	N/A	
Determination 2 (avg)	N/A	N/A		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
36.8	N/A	Non Plastic	N/A	75



REMARKS
Sample contained some palstic material but was found to be non plastic.

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

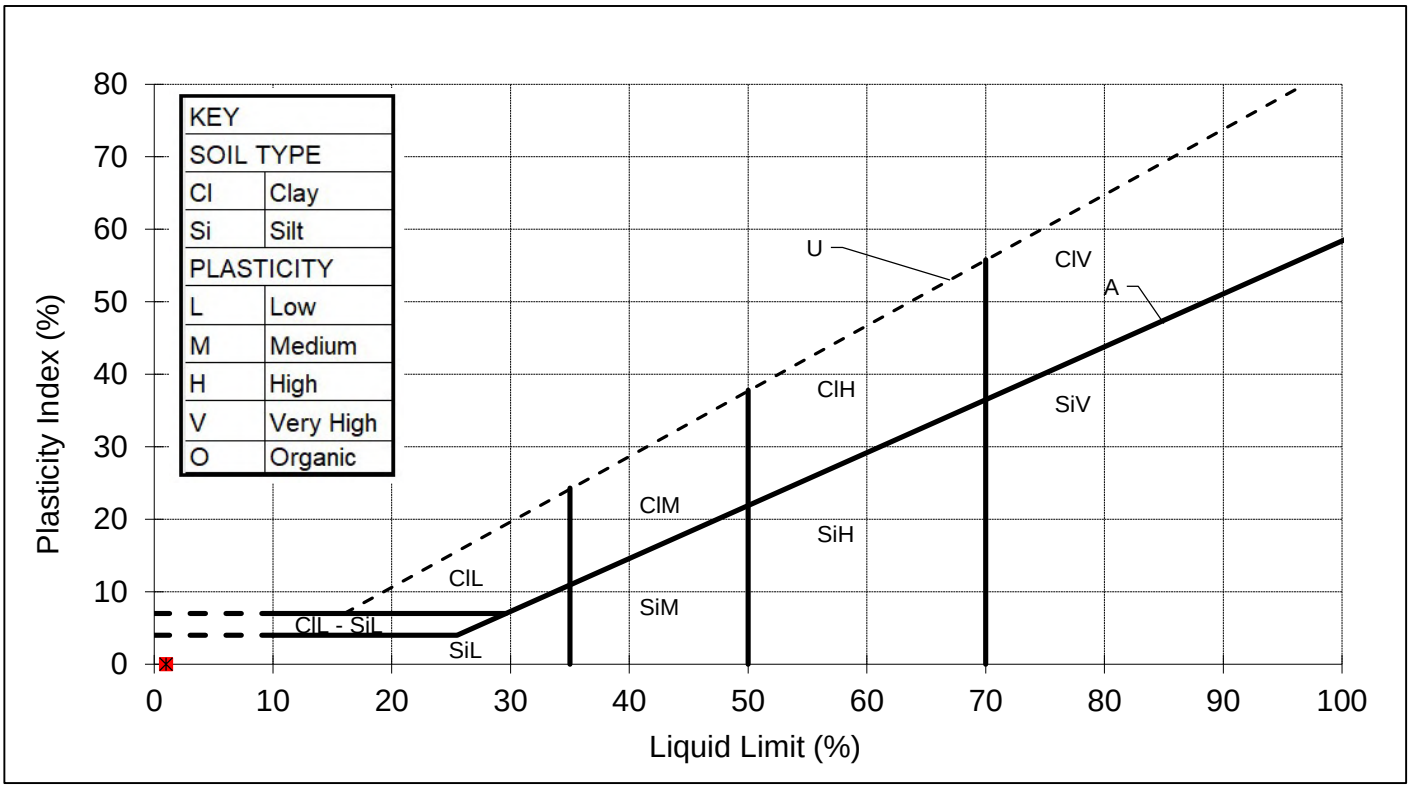
CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

SAMPLE LABEL	CP101 2.7-3.0 B	DATE SAMPLED	Not advised
SAMPLE No.	608389	DATE RECEIVED	03-Dec-24
DATE TESTED	16-Dec-24	SAMPLED BY	Client

MATERIAL	Brown silty sandy GRAVEL		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	N/A	N/A	N/A	
Determination 2 (avg)	N/A	N/A		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
12.6	N/A	Non Plastic	N/A	30



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

DATE RECEIVED	03-Dec-24	DATE SAMPLED	Not advised
DATE TESTED	13-Dec-24	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	B/H No.	Depth (m)	Test Type*	D (mm)	W** (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
608330	RH103C	4.21-4.29	A	68.2	89.6	5.6	7780.41	88.21	0.72	1.29	0.93
608331	RH103C	4.95-5.00	A	49.5	89.6	6.3	5647.07	75.15	1.12	1.20	1.34
608394	RH103C	5.75-5.80	A	38.3	89.4	3.9	4359.60	66.03	0.89	1.13	1.01
608332	RH103C	6.14-6.23	D	89.4		1.1	7992.36	89.40	0.14	1.30	0.18
608333	RH103C	7.14-7.48	A	74.3	89.4	10.9	8457.39	91.96	1.29	1.32	1.70
608334	RH103C	7.93-8.00	A	30.7	84.0	3.2	3283.43	57.30	0.97	1.06	1.04
608335	RH103C	8.23-8.30	A	47.8	87.7	2.9	5337.50	73.06	0.54	1.19	0.64
608337	RH103C	10.11-10.19	A	46.2	89.6	11.8	5270.60	72.60	2.24	1.18	2.65
608338	RH103C	11.14-11.21	A	73.4	88.4	2.0	8261.49	90.89	0.24	1.31	0.32
608339	RH103C	12.26-12.32	A	29.3	88.6	0.3	3305.30	57.49	0.09	1.06	0.10
608341	RH103C	13.80-13.88	D	89.4		3.3	7992.36	89.40	0.41	1.30	0.54
608342	RH103C	14.62-14.70	A	46.6	89.5	4.1	5310.30	72.87	0.77	1.18	0.91
608302	RH101	4.77-4.80	A	36.5	88.5	1.8	4112.88	64.13	0.44	1.12	0.49
608303	RH101	6.28-6.35	A	63.3	88.9	3.4	7164.99	84.65	0.47	1.27	0.60
608304	RH101	6.71-6.78	A	79.9	89.5	10.2	9105.00	95.42	1.12	1.34	1.50
608305	RH101	7.71-7.75	A	22.8	90.2	1.7	2618.49	51.17	0.65	1.01	0.66
608306	RH101	9.02-9.15	A	34.1	90.2	8.2	3916.26	62.58	2.09	1.11	2.32
608307	RH101	9.56-9.61	A	27.6	90.1	2.4	3166.24	56.27	0.76	1.05	0.80
608309	RH101	10.77-10.80	A	36.4	90.6	3.1	4198.94	64.80	0.74	1.12	0.83
608397	RH101	11.71-11.74	A	40.9	89.8	1.7	4676.38	68.38	0.36	1.15	0.42
608310	RH101	12.84-12.90	A	39.9	89.0	2.4	4521.40	67.24	0.53	1.14	0.61
608311	RH101	13.42-13.50	A	55.4	89.2	4.8	6291.94	79.32	0.76	1.23	0.94
608312	RH101	14.22-14.26	A	38.1	90.4	2.5	4385.34	66.22	0.57	1.13	0.65
608313	RH101	15.12-15.16	A	51.3	89.7	6.2	5858.95	76.54	1.06	1.21	1.28

Test Type *				**W	Entry required if test type is not Diametral
A	Axial Test	D	Diametral Test		
B	Block Test	I	Irregular Lump Test		

REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

DATE RECEIVED	03-Dec-24	DATE SAMPLED	Not advised
DATE TESTED	13-Dec-24	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	B/H No.	Depth (m)	Test Type*	D (mm)	W** (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
608314	RH101	17.30-17.39	A	45.6	89.8	4.8	5213.76	72.21	0.92	1.18	1.09
608315	RH101	18.30-18.42	A	20.3	89.6	1.8	2315.87	48.12	0.78	0.98	0.76
608316	RH101	19.23-19.30	A	83.3	89.8	11.8	9524.26	97.59	1.24	1.35	1.67
608317	RH102	6.70-6.77	A	56.8	89.7	12.8	6487.10	80.54	1.97	1.24	2.45
608318	RH102	7.43-7.50	A	63.2	89.6	4.9	7210.00	84.91	0.68	1.27	0.86
608319	RH102	8.49-8.53	A	40.3	89.8	17.0	4607.78	67.88	3.69	1.15	4.23
608321	RH102	9.55-9.60	A	38.9	89.8	4.1	4447.71	66.69	0.92	1.14	1.05
608323	RH102	10.76-10.80	A	35.1	89.8	11.2	4013.23	63.35	2.79	1.11	3.10
608324	RH102	11.68-11.75	A	38.3	89.7	20.3	4374.23	66.14	4.64	1.13	5.26
608325	RH102	12.94-13.00	A	57.6	89.7	4.9	6578.47	81.11	0.74	1.24	0.93
608326	RH102	14.28-14.32	A	32.0	89.8	5.1	3658.78	60.49	1.39	1.09	1.52
608327	RH102	15.40-15.43	A	31.4	89.9	3.8	3594.18	59.95	1.06	1.09	1.15
608328	RH102	16.20-16.50	A	73.7	89.7	8.3	8417.25	91.75	0.99	1.31	1.30

Test Type *				**W	Entry required if test type is not Diametral
A	Axial Test	D	Diametral Test		
B	Block Test	I	Irregular Lump Test		

REMARKS

SIGNED

NAME O.P. Davies BA (Hons) DATE 03-Jan-25
(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	Tier Environmental Ltd
SITE	TE1880 - Hopwood Hall College
JOB NUMBER	MRN 25010/1

DATE RECEIVED	03-Dec-24	DATE SAMPLED	Not advised
DATE TESTED		SAMPLED BY	Client
MATERIAL TESTED	Rock Core		

Sample Number	B/H No.	Sample Depth	Tested By	Diameter (mm)	Length* (mm)	L/D Ratio	Method of Preparation	Load at Failure (kN)	Compressive Strength (N/mm^2)	Description after Test
608336	RH103C	9.42-9.71	M.R.	90	180	2.00	Saw / Grinding	280.2	**44.0**	Split vertically top to bottom with no visible end defects
608340	RH103C	12.89-13.03	M.R.	90	180	2.00	Saw / Grinding	192.3	**30.2**	Split vertically top to bottom with no visible end defects
608308	RH101	10.15-10.40	M.R.	91	182	2.00	Saw / Grinding	219.2	**33.7**	Split vertically top to bottom with no visible end defects
608320	RH102	8.66-8.90	M.R.	90	180	2.00	Saw / Grinding	240.4	**37.8**	Split vertically top to bottom with no visible end defects
608322	RH102	9.67-9.92	M.R.	90	180	2.00	Saw / Grinding	242.8	**38.2**	Split vertically top to bottom with no visible end defects

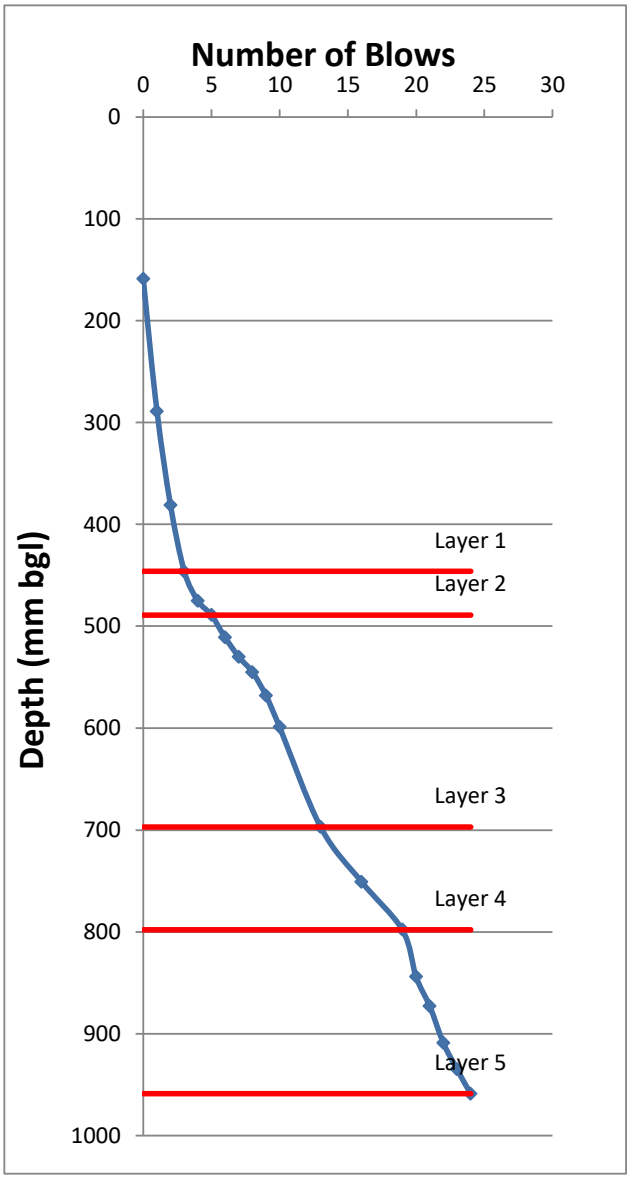
Comments / Deviation from standard method / Abnormalities noted during visual inspection.
*Length after sample preparation

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) SIGNED  DATE 03-Jan-25

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS102 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	160	159
1	290	289
2	382	381
3	447	446
4	476	475
5	490	489
6	512	511
7	531	530
8	546	545
9	569	568
10	600	599
13	698	697
16	752	751
19	799	798
20	845	844
21	874	873
22	910	909
23	936	935
24	960	959

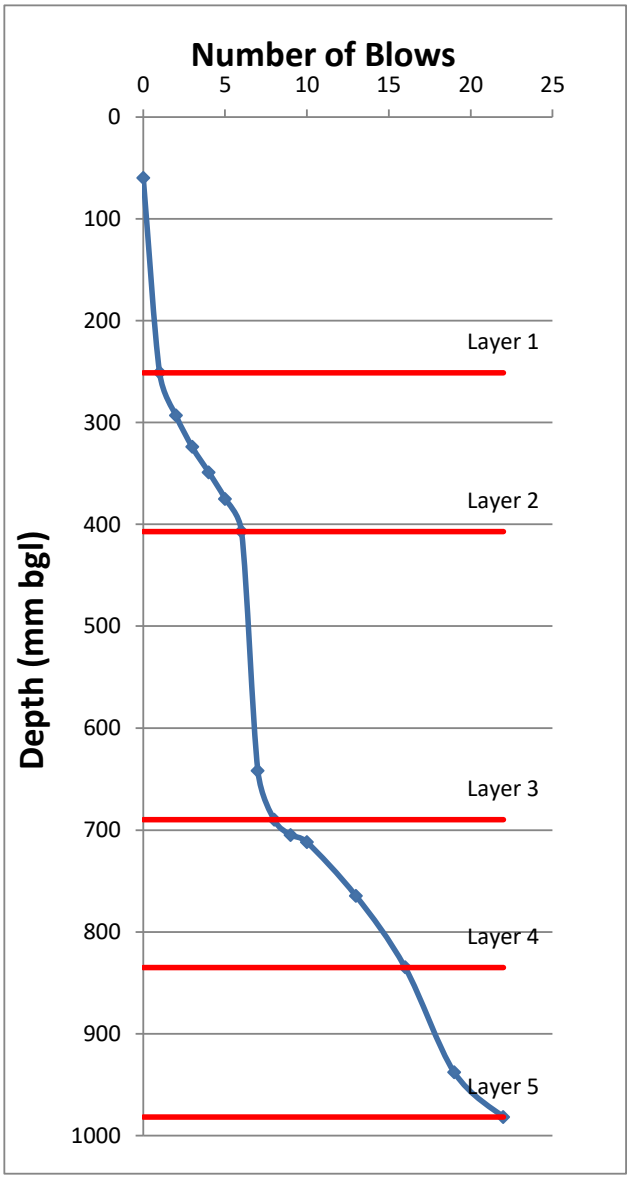


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	159	446	3	95.67	1.28
2	446	489	5	21.50	8.55
3	489	697	13	26.00	6.71
4	697	798	19	16.83	11.67
5	798	959	24	32.20	5.11

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS103 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	61	60
1	252	251
2	294	293
3	325	324
4	350	349
5	376	375
6	408	407
7	643	642
8	691	690
9	706	705
10	713	712
13	766	765
16	836	835
19	939	938
22	983	982

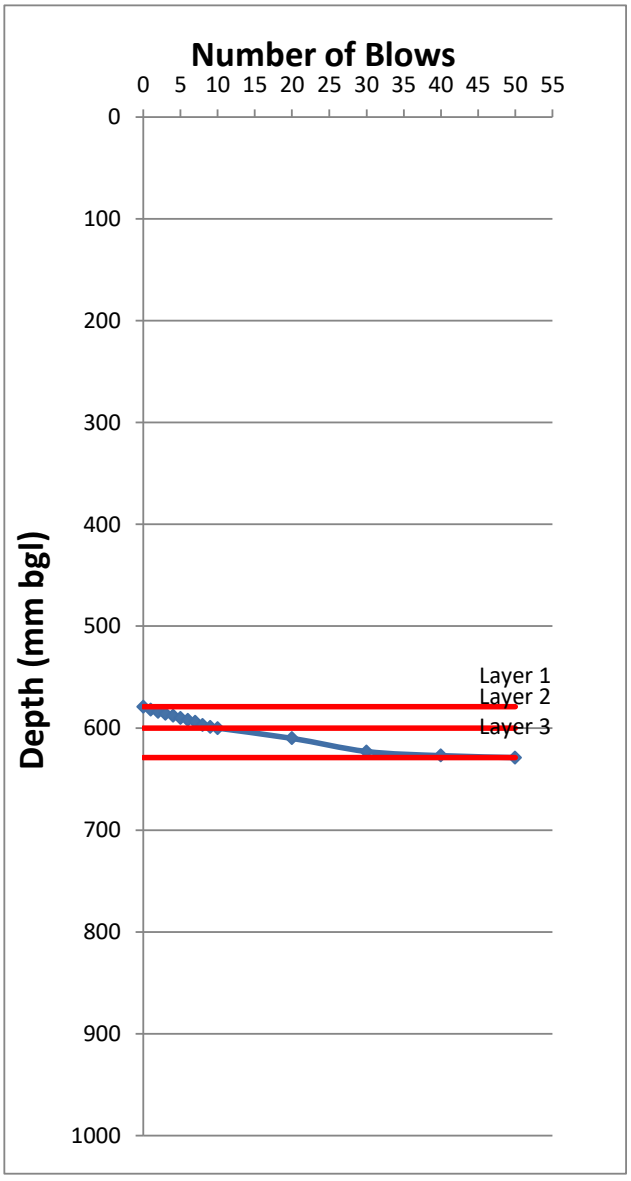


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	60	251	1	191.00	0.53
2	251	407	6	31.20	5.32
3	407	690	8	141.50	0.78
4	690	835	16	18.13	10.62
5	835	982	22	24.50	7.24

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS108 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	580	579
1	583	582
2	585	584
3	587	586
4	589	588
5	591	590
6	593	592
7	595	594
8	598	597
9	600	599
10	601	600
20	611	610
30	624	623
40	628	627
50	630	629

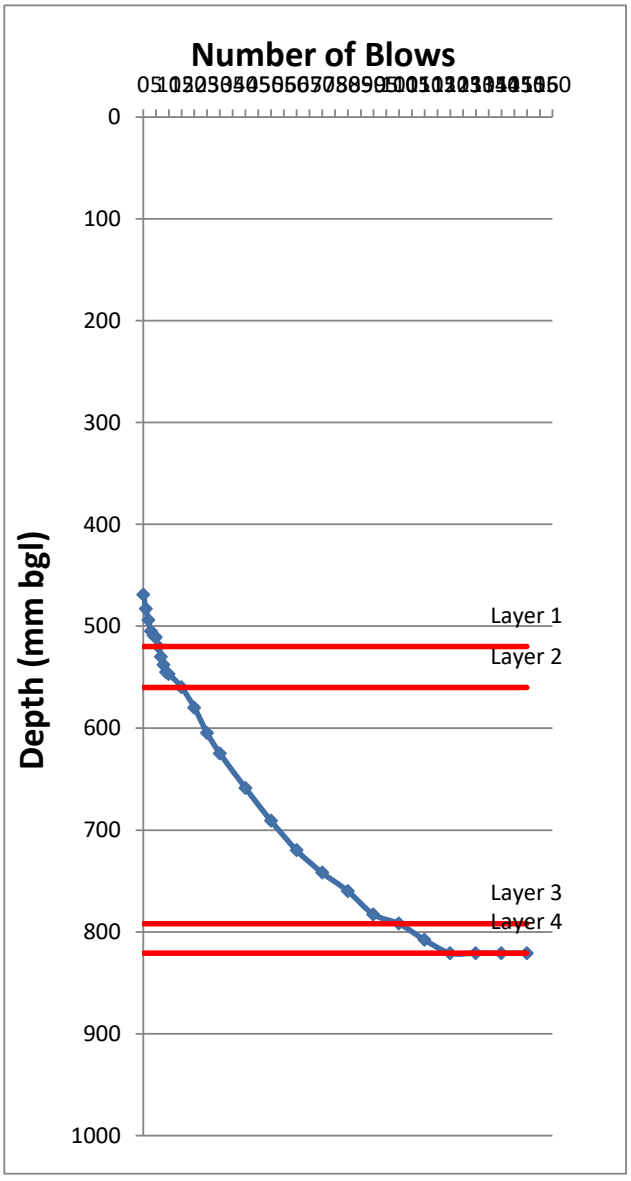


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	579	579	0		
2	579	600	10	2.10	165.13
3	600	629	50	0.73	639.43
4	629				
5					

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS109 DCP
Test Date	22.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	470	469
1	484	483
2	495	494
3	506	505
4	510	509
5	512	511
6	521	520
7	531	530
8	539	538
9	546	545
10	548	547
15	561	560
20	581	580
25	606	605
30	626	625
40	660	659
50	692	691
60	721	720
70	743	742
80	761	760
90	784	783
100	793	792
110	809	808
120	822	821
130	822	821
140	822	821
150	822	821

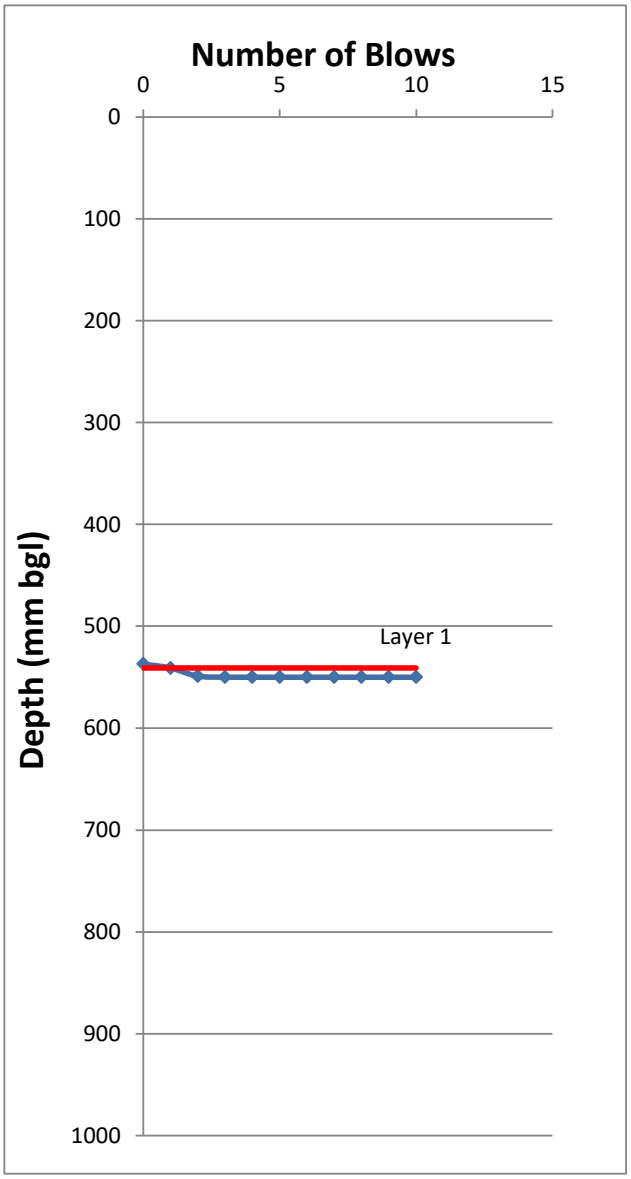


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	469	520	6	8.50	27.85
2	520	560	15	4.44	63.58
3	560	792	100	2.73	118.27
4	792	821	120	1.45	264.59
5	821				

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS111 DCP
Test Date	22.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	538	537
1	542	541
2	550	549
3	551	550
4	551	550
5	551	550
6	551	550
7	551	550
8	551	550
9	551	550
10	551	550



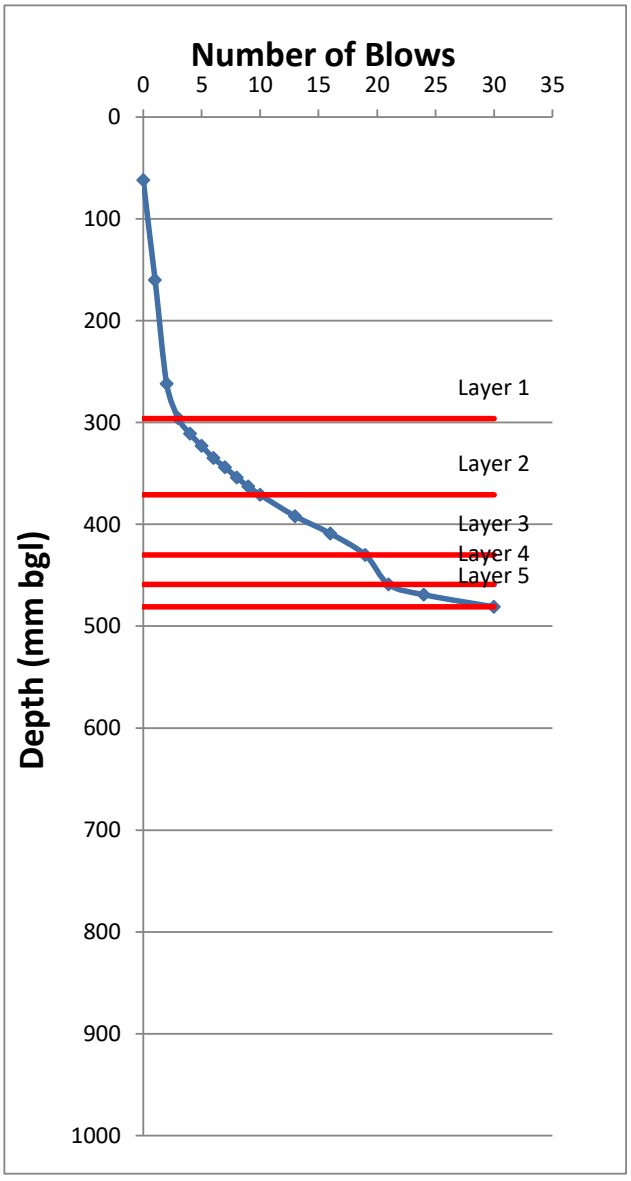
Based on the Kleyn and Van Heerden Model

Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	537	541	1	4.00	72.71
2	541				
3					
4					
5					

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS113 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	63	62
1	161	160
2	263	262
3	297	296
4	312	311
5	324	323
6	336	335
7	345	344
8	355	354
9	364	363
10	372	371
13	393	392
16	410	409
19	431	430
21	460	459
24	470	469
30	482	481

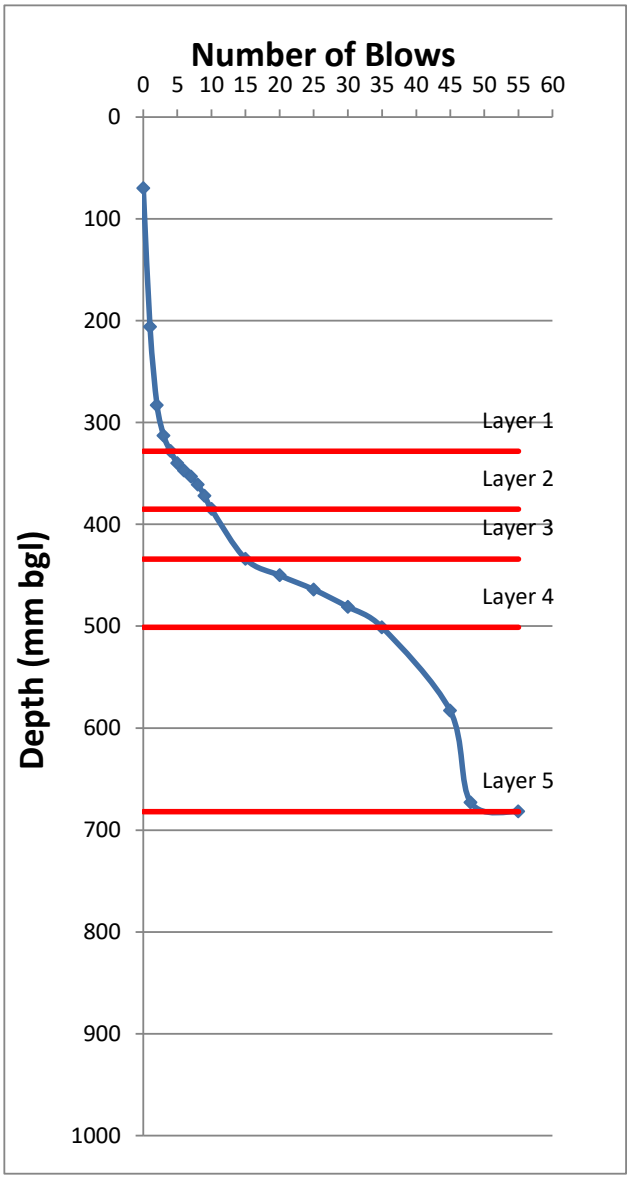


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	62	296	3	78.00	1.66
2	296	371	10	10.71	20.74
3	371	430	19	6.56	38.77
4	430	459	21	14.50	14.11
5	459	481	30	2.44	136.10

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS113A DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	71	70
1	207	206
2	284	283
3	314	313
4	329	328
5	341	340
6	348	347
7	354	353
8	362	361
9	373	372
10	386	385
15	435	434
20	451	450
25	465	464
30	482	481
35	502	501
45	584	583
48	674	673
55	683	682

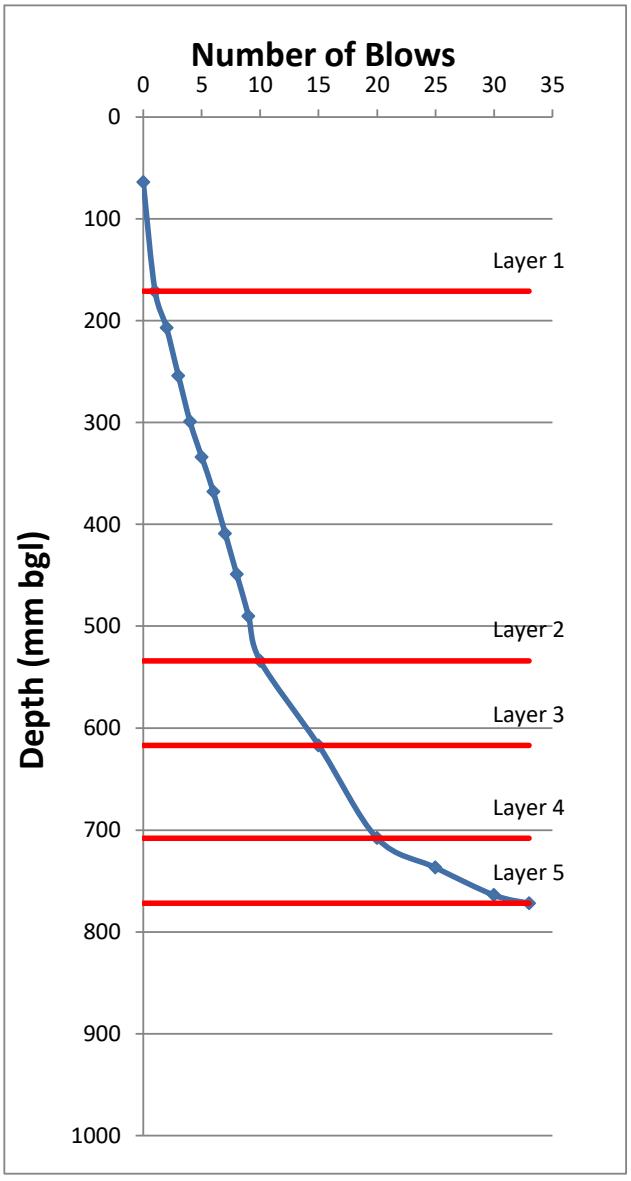


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	70	328	4	64.50	2.11
2	328	385	10	9.50	24.17
3	385	434	15	9.80	23.24
4	434	501	35	3.35	91.12
5	501	682	55	9.05	25.71

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS115 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	65	64
1	172	171
2	208	207
3	255	254
4	300	299
5	335	334
6	369	368
7	410	409
8	450	449
9	491	490
10	535	534
15	618	617
20	709	708
25	738	737
30	765	764
33	773	772

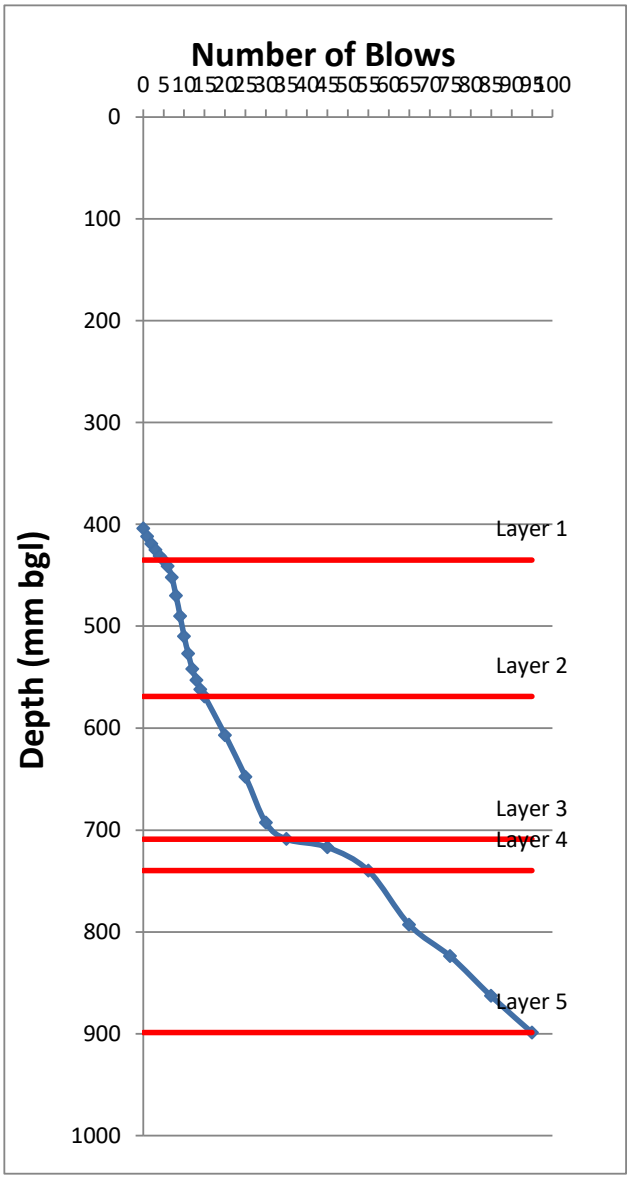


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	64	171	1	107.00	1.11
2	171	534	10	40.33	3.84
3	534	617	15	16.60	11.88
4	617	708	20	18.20	10.57
5	708	772	33	4.92	55.82

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS116 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	405	404
1	413	412
2	420	419
3	426	425
4	432	431
5	436	435
6	442	441
7	453	452
8	471	470
9	491	490
10	511	510
11	528	527
12	543	542
13	554	553
14	563	562
15	570	569
20	608	607
25	649	648
30	694	693
35	710	709
45	718	717
55	741	740
65	794	793
75	825	824
85	864	863
95	900	899

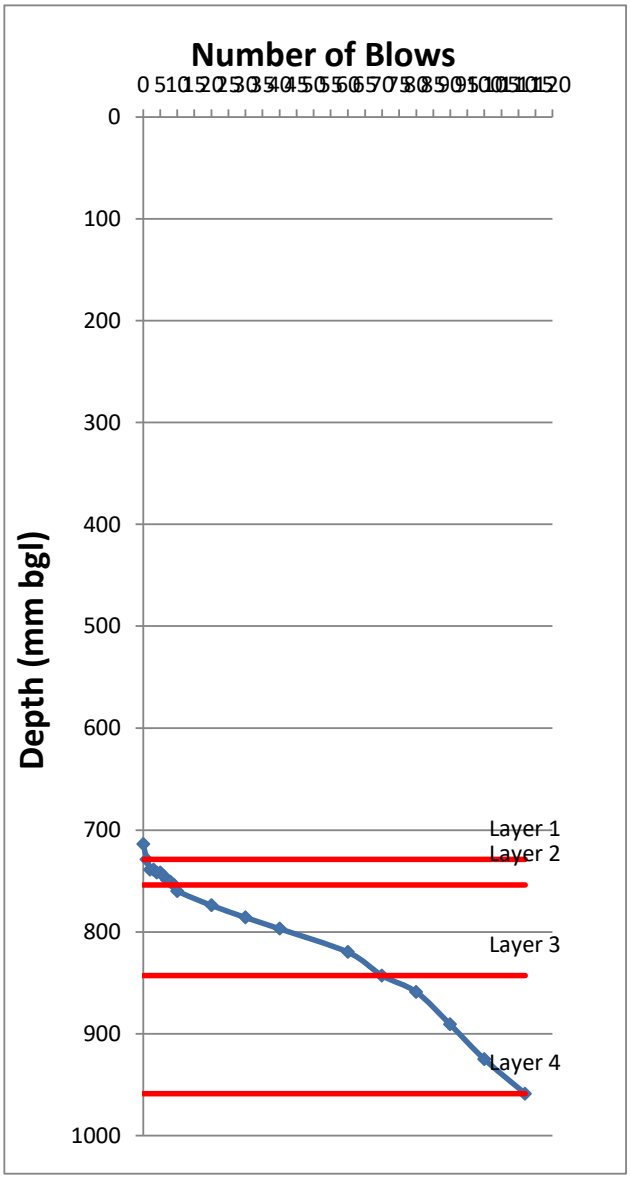


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	404	435	5	6.20	41.62
2	435	569	15	13.40	15.60
3	569	709	35	7.00	35.66
4	709	740	55	1.55	243.06
5	740	899	95	3.98	73.29

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	WS184 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	715	714
1	730	729
2	740	739
3	740	739
4	743	742
5	743	742
6	746	745
7	750	749
8	752	751
9	755	754
10	761	760
20	775	774
30	787	786
40	798	797
60	821	820
70	844	843
80	860	859
90	892	891
100	926	925
112	960	959

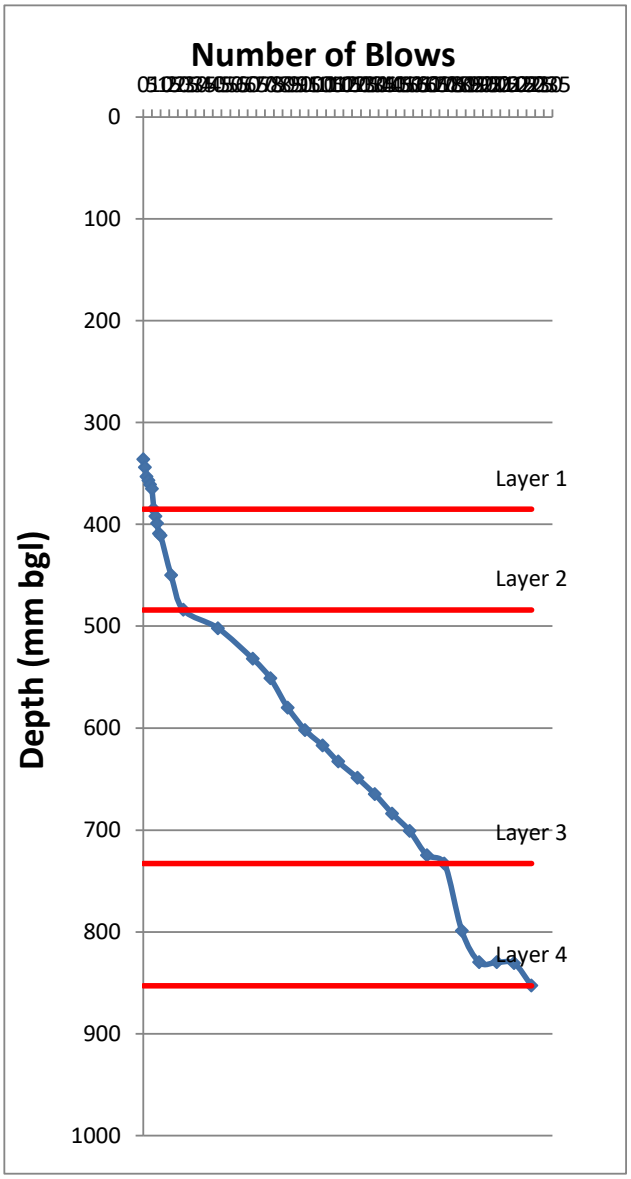


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	714	729	1	15.00	13.52
2	729	754	9	3.13	99.55
3	754	843	70	1.46	262.51
4	843	959	112	2.76	116.50
5	959				

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	CP101 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	337	336
1	345	344
2	354	353
3	358	357
4	362	361
5	366	365
6	386	385
7	393	392
8	400	399
9	410	409
10	412	411
16	451	450
23	485	484
43	503	502
63	533	532
73	552	551
83	581	580
93	603	602
103	618	617
112	634	633
123	650	649
133	666	665
143	685	684
153	702	701
163	726	725
173	734	733
183	800	799
193	831	830
203	831	830
213	832	831
223	854	853

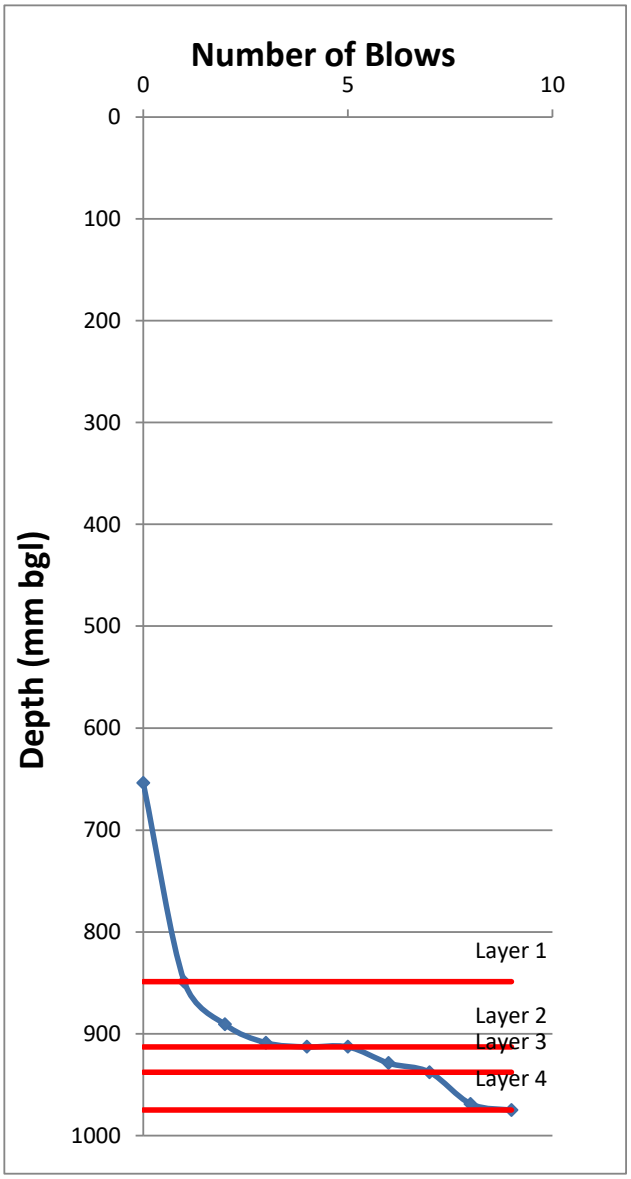


Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	336	385	6	8.17	29.31
2	385	484	23	5.82	45.07
3	484	733	173	1.66	222.74
4	733	853	223	2.40	139.31

DYNAMIC CONE PENETROMETER RECORD SHEET

JOB DETAILS	
Job No:	TE1880
Site:	HOPWOOD HALL COLLEGE
Location	HDP105 DCP
Test Date	21.11.2024
Zero Error mm	1
Cone Angle	
Layers Removed	

No of Blows (Cumulative)	Height (mm)	Depth (mm bgl)
0	655	654
1	850	849
2	892	891
3	910	909
4	914	913
5	914	913
6	930	929
7	939	938
8	970	969
9	976	975



Based on the Kleyn and Van Heerden Model					
Layer	Top of layer	Base of Layer	Total blows	DCP (mm / blow)	CBR %
1	654	849	1	195.00	0.52
2	849	913	4	21.33	8.63
3	913	938	7	8.33	28.56
4	938	975	9	18.50	10.35
5	975				

APPENDIX F - GROUNDWATER AND GAS MONITORING RESULTS & GAS ANALYSER CALIBRATION CERTIFICATE

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	17.12.2024

Job No:	TE1880		
Visit No:	1	of	6
Operator:	LH		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**								
Ambient Gas Concentrations:	**CH_4**	ND	**CO_2**	0.1	**O_2**	20.9			
METEOROLOGICAL AND SITE INFORMATION									
State of ground:	X	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong	
Cloud cover:		None		Slight	X	Cloudy		Overcast	
Preciptation:	X	None		Slight		Moderate		Heavy	
Barometric pressure (mbar):			1006	Before			1006	After	
Pressure Trend			X	Falling		Steady		Rising	

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	ND	ND	ND	ND	0.2	0.1	20.8	20.9	ND	ND	ND	ND	0.22	33.80	119.52	119.30	Deep PCM (inc. coal)	
RH102	ND	ND	ND	ND	0.3	0.3	18.7	18.7	3	3	ND	ND	1.95	7.43	119.64	117.69	Shallow PCM	
RH103C	24.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.00	32.80	119.53	119.53	Deep PCM (inc. coal)	FLOODED
CP101	ND	ND	ND	ND	2.9	2.9	12.3	12.3	4	ND	ND	ND	3.11	5.13	119.53	116.42	MG / GT / PCM	
CP102	1.0	ND	ND	ND	0.2	0.2	19.1	19.1	2	ND	ND	ND	3.70	4.42	119.51	115.81	MG / PCM	
CP103	ND	ND	ND	ND	1.2	1.2	19.2	19.2	3	1	ND	ND	3.94	6.15	119.43	115.49	MG	
CP105	0.1	ND	ND	ND	0.4	0.1	10.2	13.1	13	12	ND	ND	2.14	3.82	119.50	117.36	MG / PCM	
WS104	ND	ND	ND	ND	0.1	0.1	20.0	20.0	ND	ND	ND	ND	ND	0.65	119.69		MG	
WS107	ND	ND	ND	ND	2.6	0.3	13.4	20.1	2	ND	ND	ND	ND	0.97	119.51		MG	
WS108	ND	ND	ND	ND	0.2	0.1	19.7	19.7	2	ND	ND	ND	ND	0.65	119.61		MG	
WS109	4.3	ND	ND	ND	0.1	0.1	14.0	17.5	4	2	ND	ND	0.35	0.41	119.56	119.21	MG	
WS112	ND	ND	ND	ND	2.2	2.2	0.5	0.5	4	ND	ND	ND	3.67	4.19	118.86	115.19	MG / GFD	
WS116	ND	ND	ND	ND	0.1	0.1	20.1	20.3	1	ND	ND	ND	ND	2.07	119.14		MG	
WS111	ND	ND	ND	ND	1.8	0.1	12.1	19.8	2	ND	ND	ND	ND	0.70	119.74		MG	
Min	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	ND	ND	ND	ND		0.41	118.86	115.19		
Max	24.0	0.1	0.1	0.1	2.9	2.9	20.8	20.9	13	12	ND	ND	3.94	33.80	119.74	119.53		

Borehole Hazardous Gas Flow Rates (l/hr)							
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003
0.024	0.024	0.024	0.024	0.0001	0.0001	0.0001	0.0001
0.0001	0.0029	0.0001	0.0029	0.0001	0.0029	0.0001	0.0029
0.001	0.002	0.001	0.002	0.0001	0.0002	0.0001	0.0002
0.0001	0.0012	0.0001	0.0012	0.0001	0.0012	0.0001	0.0012
0.0001	0.0004	0.0001	0.0001	0.0001	0.0004	0.0001	0.0001
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0026	0.0001	0.0003	0.0001	0.0026	0.0001	0.0003
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0043	0.0043	0.0043	0.0043	0.0001	0.0001	0.0001	0.0001
0.0001	0.0022	0.0001	0.0022	0.0001	0.0022	0.0001	0.0022
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0018	0.0001	0.0001	0.0001	0.0018	0.0001	0.0001

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	07.01.2025

Job No:	TE1880		
Visit No:	2	of	6
Operator:	LH		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**						
Ambient Gas Concentrations:	**CH_4**	ND	**CO_2**	0.1	**O_2**	20.9	

METEOROLOGICAL AND SITE INFORMATION												
State of ground:		Dry		Moist	X	Wet		Snow		Frozen		
Wind:		Calm	X	Light		Moderate		Strong				
Cloud cover:		None		Slight		Cloudy	X	Overcast				
Preciptation:		None		Slight	X	Moderate		Heavy				
Barometric pressure (mbar):				979	Before			979	After			
Pressure Trend					Falling		Steady	X	Rising			

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	33.89	119.52	119.52	Deep PCM (inc. coal)	Well head flooded. Water rising slowly but stopped at top of well head
RH102	1.0	ND	0.3	0.2	1.0	0.6	12.3	16.7	86	6	ND	ND	1.89	7.49	119.64	117.75	Shallow PCM	
RH103C	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	32.80	119.53	119.53	Deep PCM (inc. coal)	well head flooded, water contiued to flow out of well and did not stop
CP101	ND	ND	ND	ND	2.5	2.5	16.0	16.0	12	ND	ND	ND	3.05	5.15	119.53	116.48	MG / GT / PCM	
CP102	1.0	ND	ND	ND	2.4	2.3	17.4	17.5	1	ND	1	ND	3.43	5.44	119.51	116.08	MG / PCM	
CP103	0.1	ND	ND	ND	1.7	1.7	18.1	18.1	26	6	ND	ND	3.77	6.15	119.43	115.66	MG	
CP105	0.1	ND	ND	ND	0.2	0.1	13.2	15.1	41	9	ND	ND	1.28	3.71	119.50	118.22	MG / PCM	
WS104	0.1	ND	0.1	ND	0.2	0.1	17.4	17.4	ND	ND	ND	ND	ND	0.64	119.69		MG	
WS107	ND	ND	ND	ND	0.3	0.2	20.7	20.8	3	2	ND	ND	ND	0.98	119.51		MG	
WS108	ND	ND	ND	ND	0.3	0.2	20.6	20.9	ND	ND	ND	ND	ND	0.66	119.61		MG	
WS109	0.8	ND	ND	ND	0.2	0.1	18.0	18.4	8	ND	ND	ND	ND	0.39	119.56		MG	
WS112	ND	ND	ND	ND	2.0	2.0	8.2	8.2	ND	ND	ND	ND	3.44	4.15	118.86	115.42	MG / GFD	
WS116	ND	ND	ND	ND	0.3	0.2	21.1	21.5	1	ND	ND	ND	ND	2.05	119.14		MG	
WS111	ND	ND	ND	ND	0.2	0.1	21.0	21.0	ND	ND	ND	ND	ND	0.70	119.74		MG	
Min	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	ND	ND	ND	ND		0.39	118.86	115.42		
Max	1.0	0.1	0.3	0.2	2.5	2.5	21.1	21.5	86	9	1	ND	3.77	33.89	119.74	119.53		

Borehole Hazardous Gas Flow Rates (l/hr)							
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.003	0.01	0.002	0.006	0.0003	0.001	0.0002	0.0006
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0025	0.0001	0.0025	0.0001	0.0025	0.0001	0.0025
0.001	0.024	0.001	0.023	0.0001	0.0024	0.0001	0.0023
0.0001	0.0017	0.0001	0.0017	0.0001	0.0017	0.0001	0.0017
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002
0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002
0.0008	0.0016	0.0008	0.0008	0.0001	0.0002	0.0001	0.0001
0.0001	0.002	0.0001	0.002	0.0001	0.002	0.0001	0.002
0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	15.01.2025

Job No:	TE1880		
Visit No:	3	of	6
Operator:	LH		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**								
Ambient Gas Concentrations:	**CH_4**	0	**CO_2**	0.1	**O_2**	20.9			
METEOROLOGICAL AND SITE INFORMATION									
State of ground:		Dry		Moist	X	Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Preciptation:	X	None		Slight		Moderate		Heavy		
Barometric pressure (mbar):			1016	Before			1017	After		
Pressure Trend				Falling	X	Steady		Rising		

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	ND	ND	ND	ND	0.1	0.1	20.7	21.1	13	ND	ND	ND	0.12	33.53	119.52	119.40	Deep PCM (inc. coal)	
RH102	0.1	ND	0.1	ND	0.7	0.4	15.8	16.0	3	ND	ND	ND	2.08	7.69	119.64	117.56	Shallow PCM	
RH103C	0.1	ND	ND	ND	0.2	0.1	22.1	22.3	6	ND	ND	ND	0.85	32.53	119.53	118.68	Deep PCM (inc. coal)	water in pipe test cut short
CP101	ND	ND	ND	ND	2.4	2.4	15.0	15.0	1	ND	ND	ND	3.10	5.05	119.53	116.43	MG / GT / PCM	
CP102	ND	ND	ND	ND	2.3	2.3	17.5	17.5	ND	ND	ND	ND	3.70	5.43	119.51	115.81	MG / PCM	
CP103	ND	ND	ND	ND	1.7	1.7	19.7	19.7	5	ND	ND	ND	3.92	6.15	119.43	115.51	MG	
CP105	ND	ND	ND	ND	0.2	ND	14.3	15.4	18	ND	ND	ND	2.05	3.67	119.50	117.45	MG / PCM	
WS104	ND	ND	ND	ND	0.1	0.1	19.2	19.2	3	ND	ND	ND	ND	0.63	119.69		MG	
WS107	ND	ND	ND	ND	0.3	0.1	20.6	20.7	ND	ND	ND	ND	ND	0.98	119.51		MG	
WS108	ND	ND	ND	ND	0.1	0.1	21.1	21.4	24	ND	ND	ND	0.58	0.65	119.61	119.03	MG	
WS109	ND	ND	ND	ND	0.1	ND	17.8	19.0	48	6	ND	ND	0.10	0.41	119.56	119.46	MG	water in pipe test cut short
WS112	ND	ND	ND	ND	3.1	3.1	3.9	3.9	ND	ND	ND	ND	3.69	4.13	118.86	115.17	MG / GFD	
WS116	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	119.14		MG	No access, car parked over well cover
WS111	ND	ND	ND	ND	0.2	0.1	21.3	21.3	ND	ND	ND	ND	ND	0.70	119.74		MG	
Min	0.1	0.1	0.1	0.1	0.1	0.1	3.9	3.9	ND	ND	ND	ND	0.10	0.41	118.86	115.17		
Max	0.1	0.1	0.1	0.1	3.1	3.1	22.1	22.3	48	6	ND	ND	3.92	33.53	119.74	119.46		

Borehole Hazardous Gas Flow Rates (l/hr)								
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0007	0.0001	0.0004	0.0001	0.0007	0.0001	0.0004
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0024	0.0001	0.0024	0.0001	0.0024	0.0001	0.0024
0.0001	0.0023	0.0001	0.0023	0.0001	0.0023	0.0001	0.0023
0.0001	0.0017	0.0001	0.0017	0.0001	0.0017	0.0001	0.0017
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0003	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0031	0.0001	0.0031	0.0001	0.0031	0.0001	0.0031
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	24.01.2025

Job No:	TE1880		
Visit No:	4	of	6
Operator:	Lee Hogg		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**						
Ambient Gas Concentrations:	**CH_4**	0.1	**CO_2**	0.2	**O_2**	20.6	
METEOROLOGICAL AND SITE INFORMATION							
State of ground:	X	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm		Light		Moderate	X	Strong		
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Preciptation:	X	None		Slight		Moderate		Heavy		
Barometric pressure (mbar):			963	Before			967	After		
Pressure Trend			X	Falling		Steady		Rising		

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	0.2	0.2	0.1	0.1	0.2	0.2	20.4	20.4	ND	ND	ND	ND	0.20	33.80	119.52	119.32	Deep PCM (inc. coal)	
RH102	-0.1	-0.1	ND	ND	0.9	0.8	15.9	15.9	2	1	ND	ND	2.06	7.60	119.64	117.58	Shallow PCM	
RH103C	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	0.85	32.52	119.53	118.68	Deep PCM (inc. coal)	
CP101	ND	ND	ND	ND	2.6	2.6	14.3	14.3	ND	ND	ND	ND	3.11	5.03	119.53	116.42	MG / GT / PCM	
CP102	ND	ND	ND	ND	2.9	2.9	13.4	13.4	ND	ND	ND	ND	3.70	5.42	119.51	115.81	MG / PCM	
CP103	ND	ND	ND	ND	1.9	1.9	18.8	18.8	3	ND	ND	ND	3.97	6.14	119.43	115.46	MG	
CP105	ND	ND	ND	ND	0.2	0.1	10.2	10.2	12	1	ND	ND	1.85	3.67	119.50	117.65	MG / PCM	
WS104	ND	ND	ND	ND	0.2	0.1	17.0	17.0	ND	ND	ND	ND	ND	0.64	119.69		MG	
WS107	ND	ND	ND	ND	0.3	0.2	19.2	19.2	ND	ND	ND	ND	ND	0.97	119.51		MG	
WS108	-0.1	-0.1	ND	ND	0.3	0.1	18.6	18.6	7	ND	ND	ND	ND	0.66	119.61		MG	
WS109	-0.1	-0.1	ND	ND	0.2	0.1	16.4	19.2	60	2	ND	ND	0.10	.0.40	119.56	119.46	MG	
WS112	ND	ND	ND	ND	3.2	3.2	1.3	1.3	ND	ND	ND	ND	3.64	4.15	118.86	115.22	MG / GFD	
WS116	-0.1	-0.1	ND	ND	0.3	0.2	20.5	21.0	2	ND	ND	ND	ND	2.03	119.14		MG	
WS111	ND	ND	ND	ND	0.2	0.1	19.6	19.8	1	1	ND	ND	ND	0.70	119.74		MG	
Min	0.1	0.1	0.1	0.1	0.2	0.1	1.3	1.3	ND	ND	ND	ND	0.10	0.64	118.86	115.22		
Max	0.2	0.2	0.1	0.1	3.2	3.2	20.5	21.0	60	2	ND	ND	3.97	33.80	119.74	119.46		

Borehole Hazardous Gas Flow Rates (l/hr)							
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0002	0.0004	0.0002	0.0004	0.0002	0.0004	0.0002	0.0004
-0.0001	-0.0009	-0.0001	-0.0008	-0.0001	-0.0009	-0.0001	-0.0008
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0001	0.0026	0.0001	0.0026	0.0001	0.0026	0.0001	0.0026
0.0001	0.0029	0.0001	0.0029	0.0001	0.0029	0.0001	0.0029
0.0001	0.0019	0.0001	0.0019	0.0001	0.0019	0.0001	0.0019
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002
-0.0001	-0.0003	-0.0001	-0.0001	-0.0001	-0.0003	-0.0001	-0.0001
-0.0001	-0.0002	-0.0001	-0.0001	-0.0001	-0.0002	-0.0001	-0.0001
0.0001	0.0032	0.0001	0.0032	0.0001	0.0032	0.0001	0.0032
-0.0001	-0.0003	-0.0001	-0.0002	-0.0001	-0.0003	-0.0001	-0.0002
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	05/02/2025

Job No:	TE1880		
Visit No:	5	of	6
Operator:	LEE HOGG		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**						
Ambient Gas Concentrations:	**CH_4**	0.7	**CO_2**	0.2	**O_2**	20.6	
METEOROLOGICAL AND SITE INFORMATION							
State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:	X	Calm		Light		Moderate		Strong		
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Preciptation:		None	X	Slight		Moderate		Heavy		
Barometric pressure (mbar):			1017	Before			1020	After		
Pressure Trend				Falling		Steady	X	Rising		

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	0.3	0.3	0.6	0.6	0.3	0.2	20.6	20.9	3	1	ND	ND	0.28	24.07	119.52	119.24	Deep PCM (inc. coal)	Flow rate measured for 70 seconds (1 minute and 10 seconds).
RH102	-0.1	ND	0.7	0.7	1.1	1.1	15.6	15.6	2	2	ND	ND	2.10	7.32	119.64	117.54	Shallow PCM	Flow rate measured for 70 seconds (1 minute and 10 seconds).
RH103C	ND	ND	0.6	0.6	0.2	0.2	19.5	19.5	8	8	ND	ND	0.15	32.52	119.53	119.38	Deep PCM (inc. coal)	Flow rate measured for 10 seconds (10 seconds).
CP101	0.2	0.2	0.6	0.6	0.6	0.6	20.1	20.6	4	4	ND	ND	3.01	5.13	119.53	116.52	MG / GT / PCM	Flow rate measured for 70 seconds (1 minute and 10 seconds).
CP102	ND	ND	0.6	0.6	2.6	2.6	14.9	14.9	ND	ND	ND	ND	3.77	4.87	119.51	115.74	MG / PCM	Flow rate measured for 70 seconds (1 minute and 10 seconds).
CP103	0.2	0.2	0.7	0.7	1.9	1.9	19.3	19.4	ND	ND	ND	ND	4.01	6.21	119.43	115.42	MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
CP105	ND	ND	0.6	0.6	0.2	0.1	13.8	13.8	28	ND	ND	ND	2.19	3.68	119.50	117.31	MG / PCM	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS104	0.1	0.1	0.7	0.7	0.2	0.1	18.3	18.3	ND	ND	ND	ND	DRY	0.67	119.69		MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS107	0.4	0.4	0.7	0.6	0.2	0.2	20.8	20.8	ND	ND	ND	ND	DRY	1.04	119.51		MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS108	0.1	0.1	0.6	0.6	0.3	0.1	18.9	19.1	ND	ND	ND	ND	0.67	0.70	119.61	118.94	MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS109	ND	ND	0.7	0.7	0.2	0.2	20.4	20.4	ND	ND	ND	ND	ND	ND	119.56		MG	Flow rate measured for 10 seconds (10 seconds).
WS112	0.2	0.2	0.6	0.6	3.7	3.7	11.0	11.0	ND	ND	ND	ND	DRY	1.14	118.86		MG / GFD	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS116	-0.5	-0.5	0.6	0.6	0.5	0.2	18.6	21.2	ND	ND	ND	ND	DRY	2.03	119.14		MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS111	0.2	0.2	0.6	0.6	0.3	0.1	20.0	20.0	1	1	ND	ND	0.71	0.72	119.74	119.03	MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
Min	0.1	0.1	0.6	0.6	0.2	0.1	11.0	11.0	ND	ND	ND	ND	0.15	0.67	118.86	115.42		
Max	0.4	0.4	0.7	0.7	3.7	3.7	20.8	21.2	28	8	ND	ND	4.01	32.52	119.74	119.38		

Borehole Hazardous Gas Flow Rates (l/hr)							
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0018	0.0009	0.0018	0.0006	0.0018	0.0009	0.0018	0.0006
-0.0007	-0.0011	-0.0007	-0.0011	0.0007	0.0011	0.0007	0.0011
0.0006	0.0002	0.0006	0.0002	0.0006	0.0002	0.0006	0.0002
0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
0.0006	0.0026	0.0006	0.0026	0.0006	0.0026	0.0006	0.0026
0.0014	0.0038	0.0014	0.0038	0.0014	0.0038	0.0014	0.0038
0.0006	0.0002	0.0006	0.0001	0.0006	0.0002	0.0006	0.0001
0.0007	0.0002	0.0007	0.0001	0.0007	0.0002	0.0007	0.0001
0.0028	0.0008	0.0024	0.0008	0.0028	0.0008	0.0024	0.0008
0.0006	0.0003	0.0006	0.0001	0.0006	0.0003	0.0006	0.0001
0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002
0.0012	0.0074	0.0012	0.0074	0.0012	0.0074	0.0012	0.0074
-0.003	-0.0025	-0.003	-0.001	-0.003	-0.0025	-0.003	-0.001
0.0012	0.0006	0.0012	0.0002	0.0012	0.0006	0.0012	0.0002

GAS AND GROUNDWATER MONITORING ACROSS BOREHOLE LOCATIONS FIELD PROFORMA

JOB DETAILS:	
Client:	Willmott Dixon
Site:	Hopwood Hall College
Date:	18/02/2025

Job No:	TE1880		
Visit No:	6	of	6
Operator:	JACK LLOYD		
Project Manager:	SE		

Ground Gas Instrument	**GA5000**						
Ambient Gas Concentrations:	**CH_4**	ND	**CO_2**	0.2	**O_2**	20.4	

METEOROLOGICAL AND SITE INFORMATION										
State of ground:	X	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None	X	Slight		Cloudy		Overcast		
Preciptation:	X	None		Slight		Moderate		Heavy		
Barometric pressure (mbar):			1001	Before			1003	After		
Pressure Trend				Falling	X	Steady		Rising		

Key

CS	Hazard Potential	GSV (l/hr)	Additional Factors
CS1	Very Low	<0.07	Typically <1% CH4 and <5% CO2
CS2	Low	<0.70	Typical measured flow rate <70 l/h
CS3	Moderate	<3.5	N/A
CS4	Moderate to High	<15	N/A
CS5	High	<70	N/A
CS6	Very High	>70	N/A

Monitoring Point	FLOW DATA		GAS CONCENTRATIONS										WELL AND WATER DATA				RESPONSE ZONE	COMMENTS
	Flow rate (l/hr)		Methane (%v/v) CH4		Carbon dioxide (%v/v) CO2		Oxygen (%v/v) O2		Carbon monoxide (ppm) CO		Hydrogen sulphide (ppm) H2S		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady	Peak	Steady						
RH101	ND	ND	ND	ND	0.2	0.2	20.5	21.1	ND	ND	ND	ND	0.32	34.02	119.52	119.20	Deep PCM (inc. coal)	Flow rate measured for 50 seconds (50 seconds).
RH102	-0.1	ND	ND	ND	1.0	0.8	15.9	16.0	1	ND	ND	ND	2.05	7.84	119.64	117.59	Shallow PCM	Flow rate measured for 60 seconds (1 minute).
RH103C	ND	ND	0.1	ND	0.7	0.7	15.4	15.4	2	1	ND	ND	0.19	32.93	119.53	119.34	Deep PCM (inc. coal)	Flow rate measured for 70 seconds (1 minute and 10 seconds).
CP101	ND	ND	ND	ND	2.4	2.4	15.5	15.5	ND	ND	ND	ND	3.11	5.04	119.53	116.42	MG / GT / PCM	Flow rate measured for 70 seconds (1 minute and 10 seconds).
CP102	ND	ND	ND	ND	3.0	3.0	14.4	14.4	1	ND	ND	ND	3.70	5.42	119.51	115.81	MG / PCM	Flow rate measured for 60 seconds (1 minute).
CP103	0.1	ND	ND	ND	1.8	1.8	18.8	18.8	ND	ND	ND	ND	4.14	6.11	119.43	115.29	MG	Flow rate measured for 90 seconds (1 minute and 30 seconds).
CP105	ND	ND	ND	ND	0.2	0.1	12.2	12.2	39	ND	ND	ND	2.15	3.65	119.50	117.35	MG / PCM	Flow rate measured for 50 seconds (50 seconds).
WS104	ND	ND	ND	ND	0.3	0.1	18.1	18.1	ND	ND	ND	ND	ND	0.61	119.69		MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS107	ND	ND	ND	ND	0.3	0.2	20.7	20.7	ND	ND	ND	ND	ND	0.98	119.51		MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS108	ND	ND	ND	ND	0.2	0.1	20.2	20.2	ND	ND	ND	ND	0.61	0.66	119.61	119.00	MG	Flow rate measured for 70 seconds (1 minute and 10 seconds).
WS109	ND	ND	ND	ND	0.2	0.1	18.6	19.2	25	ND	ND	ND	0.27	0.38	119.56	119.29	MG	Flow rate measured for 50 seconds (50 seconds).
WS112	ND	ND	ND	ND	4.2	4.2	3.8	3.8	ND	ND	ND	ND	3.76	4.14	118.86	115.10	MG / GFD	Flow rate measured for 60 seconds (1 minute).
WS116	ND	ND	ND	ND	0.2	0.2	21.3	21.5	4	ND	ND	ND	ND	2.04	119.14		MG	Flow rate measured for 50 seconds (50 seconds).
WS111	ND	ND	ND	ND	0.2	0.1	20.9	20.9	1	1	ND	ND	0.64	0.70	119.74	119.10	MG	Flow rate measured for 60 seconds (1 minute).
Min	0.1	0.1	0.1	0.1	0.2	0.1	3.8	3.8	ND	ND	ND	ND	0.19	0.38	118.86	115.10		
Max	0.1	0.1	0.1	0.1	4.2	4.2	21.3	21.5	39	1	ND	ND	4.14	34.02	119.74	119.34		

Borehole Hazardous Gas Flow Rates (l/hr)							
Peak Flow Rates				Steady Flow Rates			
CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)	CH4 Qhg (Peak)	CO2 Qhg (Peak)	CH4 Qhg (Steady)	CO2 Qhg (Steady)
0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002
-0.0001	-0.001	-0.0001	-0.0008	0.0001	0.001	0.0001	0.0008
0.0001	0.0007	0.0001	0.0007	0.0001	0.0007	0.0001	0.0007
0.0001	0.0024	0.0001	0.0024	0.0001	0.0024	0.0001	0.0024
0.0001	0.003	0.0001	0.003	0.0001	0.003	0.0001	0.003
0.0001	0.0018	0.0001	0.0018	0.0001	0.0018	0.0001	0.0018
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0003	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001
0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
0.0001	0.0042	0.0001	0.0042	0.0001	0.0042	0.0001	0.0042
0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002
0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001

CERTIFICATION OF CALIBRATION

Date Of Calibration: 09-Aug-2024 No. 66916 Certificate Number: G508641_9/36190

Issued by: QED Environmental Systems Inc.

Customer: **TIER ENVIRONMENTAL LTD**

UNIT 5 VILLAGE OFFICE CHESTER BUSINESS PARK CHESTER, CHESHIRE CH4 9QZ
GB

Description:

Model: GA5000

Serial Number: G508641

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.42
15.1	15.1	0.66
60.0	59.9	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.43
15.0	15.0	0.71
39.9	40.0	1.19

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
20.9	21.0	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 34.6 °C/94.2 °F

O2 readings recorded at: 26.0 °C/78.8 °F

Barometric Pressure: 0979 mbar/28.90 "Hg

Method of Test: The analyzer is calibrated in a temperature controlled chamber using reference gases. All analyzers are calibrated in accordance with our procedure ISP-17 using high purity grade gas.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

www.qedenv.com (800) 624-2026 info@qedenv.com
QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130

CERTIFICATION OF CALIBRATION

PJLA Calibration No. 66916

Date Of Calibration: 09-Aug-2024

Certificate Number: G508641_9/36190

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.7"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0979 mbar / 28.90 "Hg	0979 mbar / 28.90 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	500	500
H_2S	256	256

As received gas check readings:

Methane (CH4)	
Certified Gas (%)	**Instrument Reading (%)**
5.0	5.0
15.1	14.9
60.0	60.4

Carbon Dioxide (CO2)	
Certified Gas (%)	**Instrument Reading (%)**
5.0	5.6
15.0	16.9
39.9	44.4

Oxygen (O2)	
Certified Gas (%)	**Instrument Reading (%)**
20.9	20.5

As received Gas readings recorded at: 34.6 °C/94.2 °F

As received Barometric Pressure recorded at: 26.0 °C/78.8 °F

As received gas check readings are only recorded if the instrument is received in a working condition. Where the instrument is received damaged no reading can be taken.

Date of Issue : 12 Aug 2024

Approved By Signatory

Linda Ostrowski

Laboratory Inspection

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

www.qedenv.com (800) 624-2026 info@qedenv.com

QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130

APPENDIX G - PHOTOGRAPHS

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH101
Engineer	SE		Plate No.
Client	WILMOTT DIXON		1



From: 1.2

To: 6.35



From: 6.35

To: 9.15

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH101
Engineer	SE		Plate No.
Client	WILMOTT DIXON		2



From: 9.15

To: 12.15



From: 12.15

To: 13.3

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH101
Engineer	SE		Plate No.
Client	WILMOTT DIXON		3



From: 13.5

To: 15.5



From: 15.5

To: 18.3

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID RH101
Project No.	TE1880		
Engineer	SE		Plate No. 4
Client	WILMOTT DIXON		



From: 18.3

To: 19.8

From:

To:

Photographed By SE		Date Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH102
Engineer	SE		Plate No.
Client	WILMOTT DIXON		5



From: 6

To: 9



From: 9

10.5

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH102
Engineer	SE		Plate No.
Client	WILMOTT DIXON		6



From: 10.5

13.5



From: 13.5

To: 15.5

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH102
Engineer	SE		Plate No.
Client	WILMOTT DIXON		7



From: 15.5

To: 16.5

From:

To:

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH103
Engineer	SE		Plate No.
Client	WILMOTT DIXON		8



From: 3

To: 6



From: 6

To: 6.5

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH103C
Engineer	SE		Plate No.
Client	WILMOTT DIXON		9



From: 3

To: 5.8



From: 5.8

To: 8.5

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE	Photographic Record	Borehole ID
Project No.	TE1880		RH103C
Engineer	SE		Plate No.
Client	WILMOTT DIXON		10



From: 10.5

To: 13.5



From: 13.5

To: 15

Photographed By		Date	
SE		Dec-24	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS102
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		1



Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS103
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		2



Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS104
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		3



Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS105
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		4





Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS107
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		5



Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS112
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		6



Photographed By		Date	
SE		19/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS113
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		7



Photographed By		Date	
SE		20/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS115
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		8



Photographed By		Date	
SE		20/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS115B
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		9





Photographed By		Date	
SE		20/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS118
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		10



Photographed By		Date	
SE		20/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS118A
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		11



Photographed By		Date	
SE		20/11/2024	

Project Name	HOPWOOD HALL COLLEGE, ROCHDALE	Photographic Record	Borehole ID
Project No.	TE1880		WS118B
Engineer	STEF ELLIS / JACK LLOYD		Plate No.
Client	WILLMOTT DIXON		12



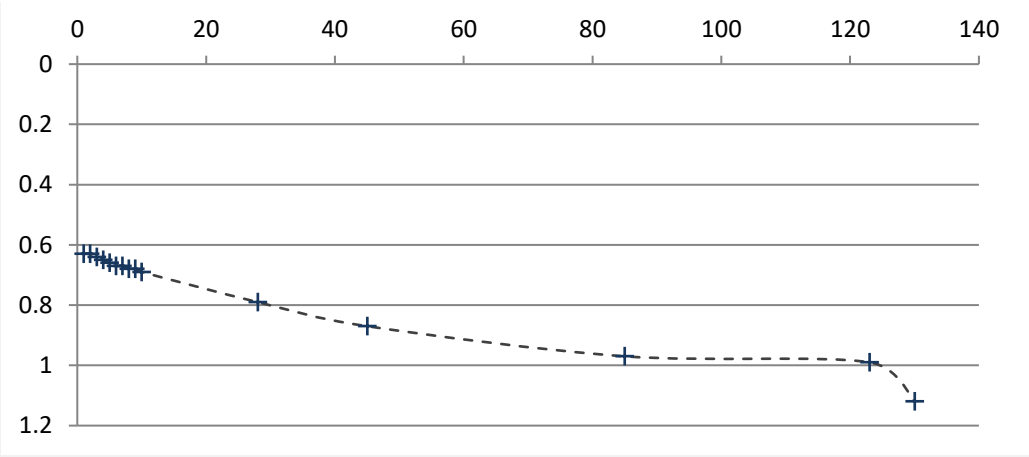
Photographed By		Date	
SE		20/11/2024	

APPENDIX H – INFILTRATION TEST RESULTS

	Tier Environmental Chadwick House Birchwood Park Warrington Rd WA3 6AE	**Test ID:**	SA01 CYCLE 1
		Job Number:	TE1880
		Technician:	LH
		Test Date:	26/11/2024
Client:	WILMOTT DIXON	**Test Number:**	1 of 2
Site:	HOPWOOD HALL COLLEGE	**Comments:**	

Soakage Pit Width [m]	0.75
Soakage Pit Length [m]	2.2
Soakage Pit Depth [m]	1.98
Depth to water at start of test bgl [m]	
Effective Storage Depth [m]	1.98
Free Volume [%]	100

Effective Depth at 25% Drainage	0.495
Effective Depth at 75% Drainage	1.485
Time to Drain From 25% to 75% [s]	N/A
Internal Surface Area [m^2]	7.491
Effective Storage Volume [m^3]	1.6335
Test Completion [%]	57%



Soil infiltration rate(m/s)	Soakaway failed. Estimated to take at least 3.06 hours to drain 75%

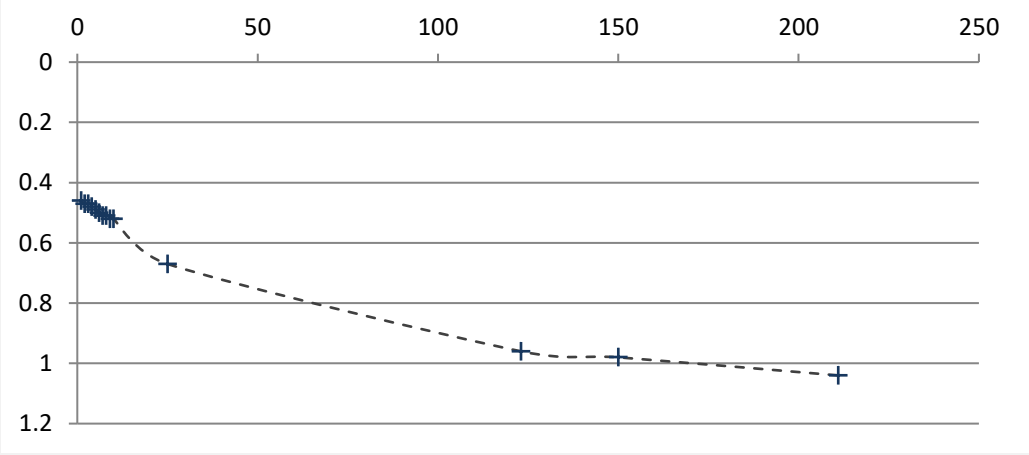
SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

Measurement N°	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
Time [min]	1	2	3	4	5	6	7	8	9	10	28	45	85	123	130					
Depth to water [m]	0.63	0.63	0.64	0.65	0.66	0.67	0.67	0.68	0.68	0.69	0.79	0.87	0.97	0.99	1.12					

	Tier Environmental Chadwick House Birchwood Park Warrington Rd WA3 6AE	**Test ID:**	SA01 CYCLE 2
		Job Number:	TE1880
		Technician:	LH
		Test Date:	26/11/2024
Client:	WILMOTT DIXON	**Test Number:**	2 of 2
Site:	HOPWOOD HALL COLLEGE	**Comments:**	

Soakage Pit Width [m]	0.75
Soakage Pit Length [m]	2.2
Soakage Pit Depth [m]	1.98
Depth to water at start of test bgl [m]	
Effective Storage Depth [m]	1.98
Free Volume [%]	100

Effective Depth at 25% Drainage	0.495
Effective Depth at 75% Drainage	1.485
Time to Drain From 25% to 75% [s]	N/A
Internal Surface Area [m^2]	7.491
Effective Storage Volume [m^3]	1.6335
Test Completion [%]	53%



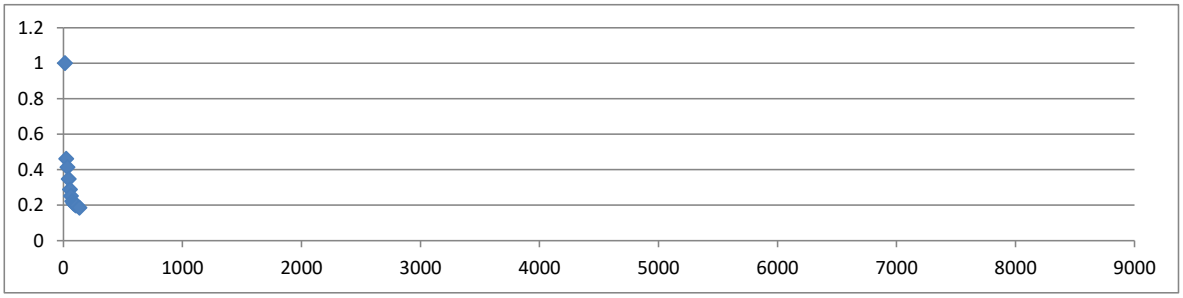
Soil infiltration rate(m/s)	Soakaway failed. Estimated to take at least 18.85 hours to drain 75%

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

Measurement N°	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
Time [min]	1	2	3	4	5	6	7	8	9	10	25	123	150	211						
Depth to water [m]	0.46	0.47	0.47	0.48	0.49	0.5	0.51	0.51	0.52	0.52	0.67	0.96	0.98	1.04						

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS112	TEST No.:	1			
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	1



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0
14	0.93	1.67	1
24	1.83	0.77	0.46107784
34	1.91	0.69	0.41317365
44	2.02	0.58	0.34730539
54	2.12	0.48	0.28742515
64	2.18	0.42	0.25149701
74	2.23	0.37	0.22155689
84	2.25	0.35	0.20958084
94	2.26	0.34	0.20359281
104	2.27	0.33	0.19760479
114	2.27	0.33	0.19760479
134	2.29	0.31	0.18562874
180	2.3		
300	2.35		
420	2.41		
540	2.53		
1920	3.38		
3120	3.52		
7800	3.6		

Test Section Depth	m	2.6	
Borehole Depth	m	5.45	
Borehole Diameter	m	0.15	
Casing Depth	m	NA	
Depth to Standing Water Level (d_1)	Assumed m	0.93	
Height of casing agl (h_c)	m	0.6	
Height of top of casing above water table	m	1.53	
Depth to Water at Start of Test below casing level (d_0)	m	0.06	
Depth to Water at End of Test below casing level	m	2.58	
Depth to Filter at Start of Test	m		
Depth to Filter at End of Test	m		
Response Zone Length	m	0.2	
Borehole Diameter in Test Section	m	0.15	
Cross-sectional Area of Borehole	m2	0.02	
Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
Basic Time Lag = (T) t_1=	14.00	$s.h_1$ =	1.00
t_2=	104.00	$s.h_2$ =	0.20
Coefficient of Permeability (k) ms-1 =			2.78E-04

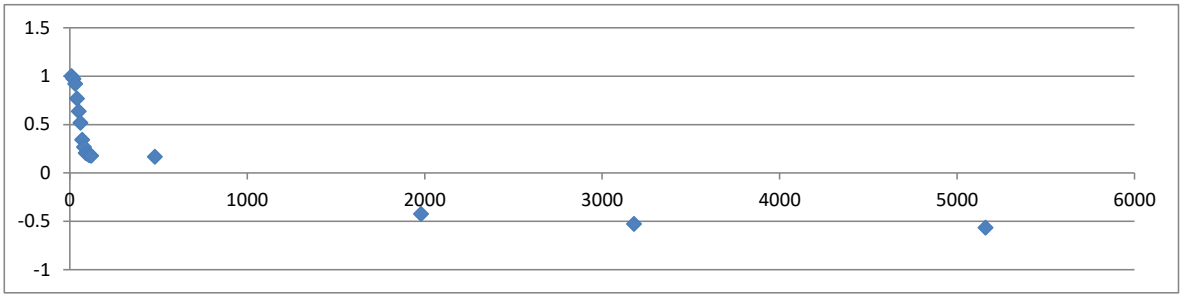
Remarks	Borehole cleaned out prior to test.				
Compiled By	JB	Date	17/11/2014		
Checked By	AR	Date	19/11/2014		
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)				

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS112	TEST No.:	2			
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	2



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0
10	0.84	1.76	1
20	0.89	1.71	0.97159091
30	0.98	1.62	0.92045455
40	1.25	1.35	0.76704545
50	1.48	1.12	0.63636364
60	1.69	0.91	0.51704545
70	2	0.6	0.34090909
80	2.13	0.47	0.26704545
90	2.24	0.36	0.20454545
100	2.26	0.34	0.19318182
110	2.28	0.32	0.18181818
120	2.29	0.31	0.17613636
480	2.31	0.29	0.16477273
1980	3.35	-0.75	-0.4261364
3180	3.53	-0.93	-0.5284091
5160	3.6	-1	-0.5681818

Test Section Depth	m	2.6	
Borehole Depth	m	5.45	
Borehole Diameter	m	0.15	
Casing Depth	m	NA	
Depth to Standing Water Level (d_1)	Assumed m	0.93	
Height of casing agl (h_c)	m	0.6	
Height of top of casing above water table	m	1.53	
Depth to Water at Start of Test below casing level (d_0)	m	0.06	
Depth to Water at End of Test below casing level	m	2.58	
Depth to Filter at Start of Test	m		
Depth to Filter at End of Test	m		
Response Zone Length	m	0.2	
Borehole Diameter in Test Section	m	0.15	
Cross-sectional Area of Borehole	m2	0.02	
Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
Basic Time Lag = (T) t_1=	10.00	$s.h_1$ =	1.00
t_2=	100.00	$s.h_2$ =	0.19
Coefficient of Permeability (k) ms-1 =			2.82E-04

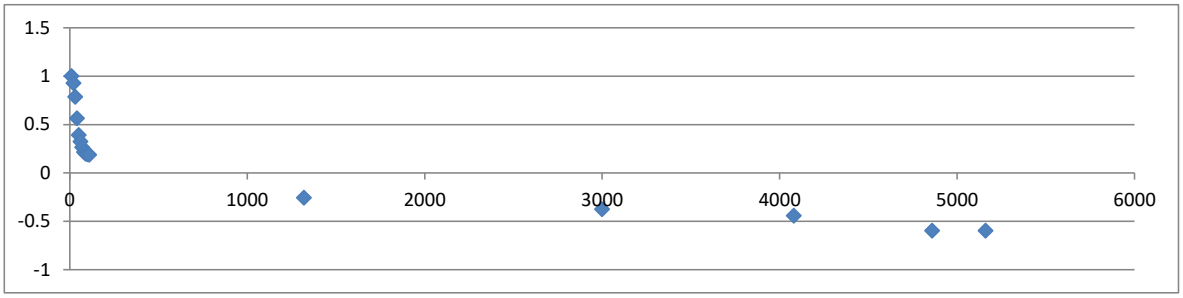
Remarks	Borehole cleaned out prior to test.			
Compiled By	JB	Date	17/11/2014	
Checked By	AR	Date	19/11/2014	
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)			

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS112	TEST No.:	3			
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	3



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0					
10	0.93	1.67	1		Test Section Depth	m	2.6	
20	1.05	1.55	0.92814371		Borehole Depth	m	5.45	
30	1.29	1.31	0.78443114		Borehole Diameter	m	0.15	
40	1.66	0.94	0.56287425		Casing Depth	m	NA	
50	1.95	0.65	0.38922156		Depth to Standing Water Level (d_1)	Assumed m	0.93	
60	2.06	0.54	0.32335329		Height of casing agl (h_c)	m	0.6	
70	2.16	0.44	0.26347305		Height of top of casing above water table	m	1.53	
80	2.24	0.36	0.21556886		Depth to Water at Start of Test below casing level (d_0)	m	0.06	
90	2.27	0.33	0.19760479		Depth to Water at End of Test below casing level	m	2.58	
100	2.28	0.32	0.19161677		Depth to Filter at Start of Test	m		
110	2.29	0.31	0.18562874		Depth to Filter at End of Test	m		
1320	3.03	-0.43	-0.257485		Response Zone Length	m	0.2	
3000	3.23	-0.63	-0.3772455		Borehole Diameter in Test Section	m	0.15	
4080	3.34	-0.74	-0.4431138		Cross-sectional Area of Borehole	m2	0.02	
4860	3.6	-1	-0.5988024		Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
5160	3.6	-1	-0.5988024		Basic Time Lag = (T) t_1=	10.00	$s.h_1$ =	1.00
					t_2=	100.00	$s.h_2$ =	0.19
					Coefficient of Permeability (k) ms-1 =			2.83E-04

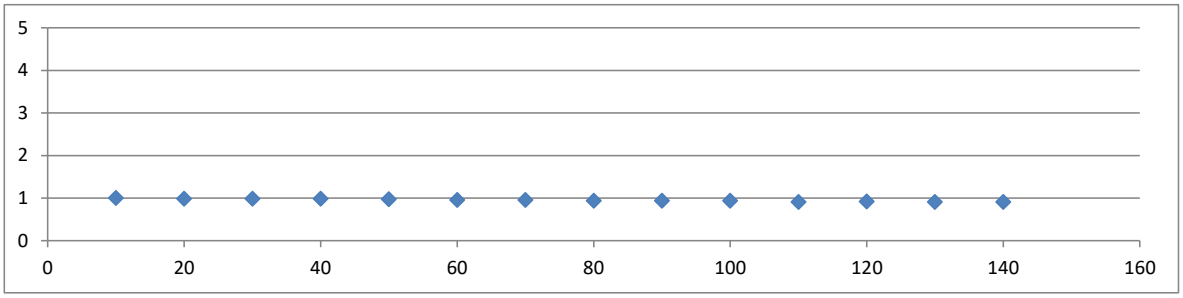
Remarks	Borehole cleaned out prior to test.			
Compiled By	JB	Date	17/11/2014	
Checked By	AR	Date	19/11/2014	
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)			

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS116	TEST No.:	1				
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	1	



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0					
10	1.97	0.63	1		Test Section Depth	m	2.6	
20	1.98	0.62	0.98412698		Borehole Depth	m	5.45	
30	1.98	0.62	0.98412698		Borehole Diameter	m	0.15	
40	1.98	0.62	0.98412698		Casing Depth	m	NA	
50	1.99	0.61	0.96825397		Depth to Standing Water Level (d_1)	Assumed m	0.93	
60	2	0.6	0.95238095		Height of casing agl (h_c)	m	0.6	
70	2	0.6	0.95238095		Height of top of casing above water table	m	1.53	
80	2.01	0.59	0.93650794		Depth to Water at Start of Test below casing level (d_0)	m	0.06	
90	2.01	0.59	0.93650794		Depth to Water at End of Test below casing level	m	2.58	
100	2.01	0.59	0.93650794		Depth to Filter at Start of Test	m		
110	2.03	0.57	0.9047619		Depth to Filter at End of Test	m		
120	2.02	0.58	0.92063492		Response Zone Length	m	0.2	
130	2.03	0.57	0.9047619		Borehole Diameter in Test Section	m	0.15	
140	2.03	0.57	0.9047619		Cross-sectional Area of Borehole	m2	0.02	
		2.6	4.12698413		Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
		2.6	4.12698413		Basic Time Lag = (T) t_1=	10.00	$s.h_1$ =	1.00
					t_2=	100.00	$s.h_2$ =	0.94
					Coefficient of Permeability (k) ms-1 =			1.13E-05

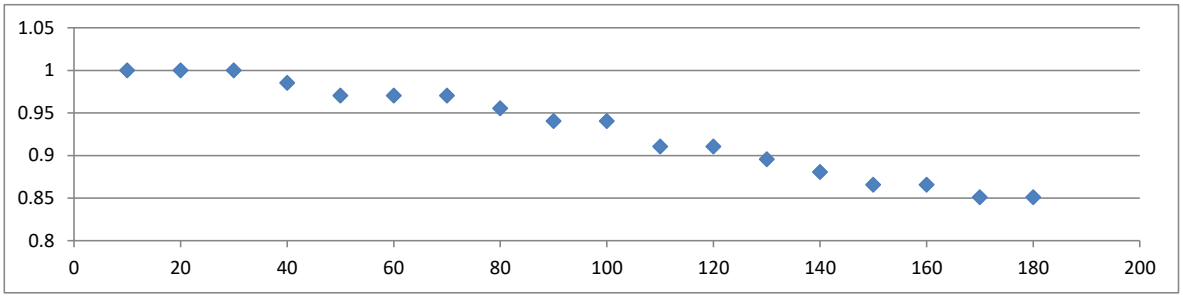
Remarks	Borehole cleaned out prior to test.				
Compiled By	JB	Date	17/11/2014		
Checked By	AR	Date	19/11/2014		
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)				

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS116	TEST No.:	2			
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	2



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0
10	1.93	0.67	1
20	1.93	0.67	1
30	1.93	0.67	1
40	1.94	0.66	0.98507463
50	1.95	0.65	0.97014925
60	1.95	0.65	0.97014925
70	1.95	0.65	0.97014925
80	1.96	0.64	0.95522388
90	1.97	0.63	0.94029851
100	1.97	0.63	0.94029851
110	1.99	0.61	0.91044776
120	1.99	0.61	0.91044776
130	2	0.6	0.89552239
140	2.01	0.59	0.88059701
150	2.02	0.58	0.86567164
160	2.02	0.58	0.86567164
170	2.03	0.57	0.85074627
180	2.03	0.57	0.85074627

Test Section Depth	m	2.6	
Borehole Depth	m	5.45	
Borehole Diameter	m	0.15	
Casing Depth	m	NA	
Depth to Standing Water Level (d_1)	Assumed m	0.93	
Height of casing agl (h_c)	m	0.6	
Height of top of casing above water table	m	1.53	
Depth to Water at Start of Test below casing level (d_0)	m	0.06	
Depth to Water at End of Test below casing level	m	2.58	
Depth to Filter at Start of Test	m		
Depth to Filter at End of Test	m		
Response Zone Length	m	0.2	
Borehole Diameter in Test Section	m	0.15	
Cross-sectional Area of Borehole	m2	0.02	
Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
Basic Time Lag = (T) t_1=	10.00	$s.h_1$ =	1.00
t_2=	100.00	$s.h_2$ =	0.94
Coefficient of Permeability (k) ms-1 =			1.06E-05

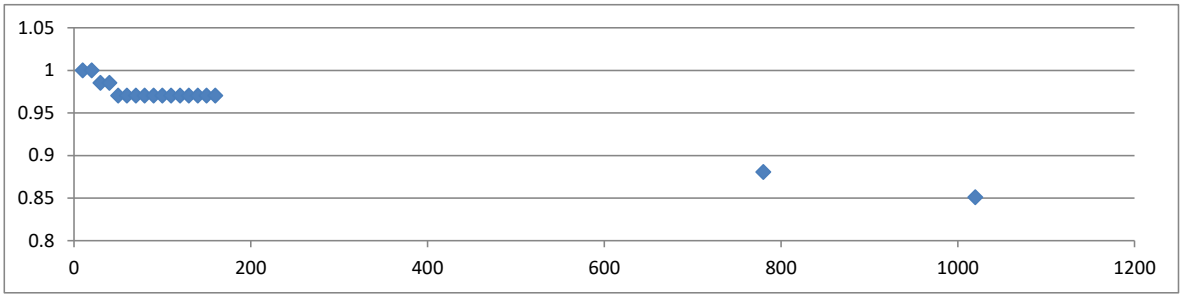
Remarks	Borehole cleaned out prior to test.				
Compiled By	JB	Date	17/11/2014		
Checked By	AR	Date	19/11/2014		
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)				

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

VARIABLE HEAD PERMEABILITY TEST IN BOREHOLE

BOREHOLE No.:	WS116	TEST No.:	2			
	DEPTH (m)	5.45	DATE	11.12.2024	SHEET	2



Time Elapsed (secs)	Depth of water below top of casing - d_t (m)	h (m) - (d_1-d_t)	h_1/h_0
10	1.93	0.67	1
20	1.93	0.67	1
30	1.94	0.66	0.98507463
40	1.94	0.66	0.98507463
50	1.95	0.65	0.97014925
60	1.95	0.65	0.97014925
70	1.95	0.65	0.97014925
80	1.95	0.65	0.97014925
90	1.95	0.65	0.97014925
100	1.95	0.65	0.97014925
110	1.95	0.65	0.97014925
120	1.95	0.65	0.97014925
130	1.95	0.65	0.97014925
140	1.95	0.65	0.97014925
150	1.95	0.65	0.97014925
160	1.95	0.65	0.97014925
780	2.01	0.59	0.88059701
1020	2.03	0.57	0.85074627

Test Section Depth	m	2.6	
Borehole Depth	m	5.45	
Borehole Diameter	m	0.15	
Casing Depth	m	NA	
Depth to Standing Water Level (d_1)	Assumed m	0.93	
Height of casing agl (h_c)	m	0.6	
Height of top of casing above water table	m	1.53	
Depth to Water at Start of Test below casing level (d_0)	m	0.06	
Depth to Water at End of Test below casing level	m	2.58	
Depth to Filter at Start of Test	m		
Depth to Filter at End of Test	m		
Response Zone Length	m	0.2	
Borehole Diameter in Test Section	m	0.15	
Cross-sectional Area of Borehole	m2	0.02	
Intake factor (BS5930 p51):	Figure 7 (F) =	1.14	
Basic Time Lag = (T) t_1=	10.00	$s.h_1$ =	1.00
t_2=	100.00	$s.h_2$ =	0.97
Coefficient of Permeability (k) ms-1 =			5.20E-06

Remarks	Borehole cleaned out prior to test.
Compiled By	JB
Date	17/11/2014
Checked By	AR
Date	19/11/2014
Geology of Test Section:	Very dense light brown very sandy subangular to rounded fine to coarse GRAVEL of flint. (LYNCH HILL MEMBER)

Tier Environmental Ltd
Unit 5 Office Village
Sandpiper Court, Chester Business Park
Chester CH4 9QZ
Tel. 01925 818 388

Project Number	
Project Name	
Client	

APPENDIX I - DEFINITIONS OF TERMS USED IN QUALITATIVE AND QUANTITATIVE RISK ASSESSMENTS

CIRIA C552 Terminology

For the qualitative and quantitative assessment of risks posed by potential pollutant linkages have been undertaken using the risk matrix adapted from CIRIA C552 and outlined in the table below.

	Category	Definition
Potential severity	Severe	Acute (short term) risk to human health, Major pollution of sensitive controlled waters, ecosystems or habitat. Catastrophic damage to buildings or property or crops.
	Medium	Chronic (Medium / long term) risk to human health Pollution of sensitive controlled waters, ecosystems or species, Significant damage to crops, buildings or structures
	Mild	Easily preventable permanent health effects on humans. Pollution of non-sensitive controlled waters. Minor damage to buildings or structures.
	Minor	Easily preventable non-permanent health effects on humans, or no effects. Minor, low level and localised contamination of on-site soil. Easily repairable damage to buildings or structures.
Probability of risk	High Likelihood	Pollutant linkage may be present, and the risk is almost certain to occur , or there is evidence of harm already occurring.
	Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
	Low Likelihood	Pollutant linkages may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
	Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

		Potential Severity			
		Severe	**Medium**	**Mild**	**Minor**
Probability of risk	**High Likelihood**	Very high risk	High risk	Moderate risk	Moderate / low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low Likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	very low risk	Very low risk

APPENDIX J - HUMAN HEALTH ASSESSMENT CRITERIA

HUMAN HEALTH ASSESSMENT CRITERIA

Context

Contaminated Land is defined under law through Part IIA of the Environmental Protection Act 1990, implemented through Section 57 of the Environment Act 1995 and associated guidance ("Part IIA"). These specify that a "suitable for use" approach is to be applied in the assessment of potentially contaminated land, implemented through a phased programme of site investigation and risk assessment appropriate to the site under consideration.

The assessment of potential risks posed by contaminated land is based upon the assessment of plausible contaminant source - pathway - receptor linkages ("pollutant linkages") for the current and/or proposed future use of the site. The process for the assessment of contaminated land adopted in this report is in line with guidance issued by the Environment Agency Land contamination risk management (LCRM) - GOV.UK (www.gov.uk)

Land contamination can harm:

- human health
- drinking water supplies, groundwater and surface water
- soils
- ecosystems including wildlife, animals and wetlands.
- property

It can also affect the current and future land use. Dealing with land contamination helps make the environment clean and safe. Through regeneration it can:

- enhance the health and wellbeing of all.
- add to the economic, ecological and amenity value of the area.

Use land contamination risk management (LCRM) to:

- identify and assess if there is an unacceptable risk.
- assess what remediation options are suitable to manage the risk.
- plan and carry out remediation.
- verify that remediation has worked.

You can use LCRM in a range of regulatory and management contexts. For example, voluntary remediation, planning, assessing liabilities or under the Part 2A contaminated land regime. The Environment Agency expects you to follow LCRM if you are managing the risks from land contamination.

We support the use of the National Quality Mark Scheme (NQMS). You can use it for any type of land contamination report.

Using the NQMS:

- will make sure all legislative requirements and necessary standards related to managing land contamination are met.
- can provide increased confidence by submitting reports of the quality we expect.
- can result in cost and time savings by 'getting it right first time'.

LCRM is made up of 4 guides.

1. LCRM: Before you start.
2. LCRM: Risk assessment.
3. LCRM: Options appraisal.
4. LCRM: Remediation and verification.

We use a staged risk based approach. There are 3 stages, and each stage is broken down into tiers or steps.

Stage 1: Risk assessment

You will use a tiered approach to risk assessment. The 3 tiers are:

1. Preliminary risk assessment.
2. Generic quantitative risk assessment.
3. Detailed quantitative risk assessment.

Stage 1 includes information for intrusive site investigations.

Stage 2: Options appraisal

There are 3 steps to follow.

1. Identify feasible remediation options.
2. Do a detailed evaluation of options.
3. Select the final remediation option.

Stage 3: Remediation and verification

There are 4 steps to follow.

1. Develop a remediation strategy.
2. Remediate.
3. Produce a verification report.
4. Do long term monitoring and maintenance, if required

You must always start with a preliminary risk assessment.

The risk assessment stage is an iterative process. You can do the 3 tiers in order or progress from a preliminary risk assessment to a detailed quantitative risk assessment. As part of a generic or detailed quantitative risk assessment you will need to collect detailed information about the site. This is usually through an intrusive site investigation.

Depending on the level of risk or regulatory requirements, you can proceed from a preliminary risk assessment to the options appraisal stage. If you proceed direct to the options appraisal stage, you still need to collect the detailed site investigation information required by the generic and detailed quantitative risk assessments. This is to confirm that your approach is viable and acceptable.

Following the risk assessment stage, if you conclude that the risks are acceptable, with agreement from the relevant regulator, you can end the process.

If there are unacceptable risks, then remediation or mitigation is required. Follow stages 2 and 3 in order.

In stage 2 options appraisal, you will:

- look at the most feasible options.
- produce a shortlist of options.
- use evaluation criteria to assess them.
- select which ones are the most suitable to take forward to stage 3.

In stage 3 remediation and verification, you will produce a remediation strategy, do the remediation and then produce a verification report.

You will decide at the options appraisal stage if long term monitoring and maintenance is the remediation option. You may need to do post-remediation monitoring for further verification.

The risk assessment and subsequent investigation, remediation and verification must address all potential sources of pollutants that may be present on the site (the “hazards”), all receptors that may be harmed by these (e.g., human health, controlled waters, ecological receptors) and the pathways by which the contamination may be transported from the contaminant source(s) to the receptor(s). This is defined within the conceptual model for the site, which represents the characteristics of the site in a form that shows the possible pollutant linkages. As further information becomes available (for example, through site investigation), so the conceptual model will be refined.

Remedial action can be specified at any phase within this assessment process to break the identified pollutant linkage in determining whether or not to undertake further assessment or to undertake remediation, the potential cost-savings arising from a more thorough assessment of the pollutant linkages and more tightly defined remedial strategy must be considered against the direct costs involved in the work and the time that this will take to execute and gain regulatory approval.

A different approach to the statistical appraisal of data is required depending on whether the assessment is being undertaken to assess land as Contaminated Land in accordance with the regulations or whether the assessment is to assess whether the site is suitable for new development in accordance with the Planning regime. The statistical approach to assessment is discussed further in CL:AIRE:2020 “Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration”.

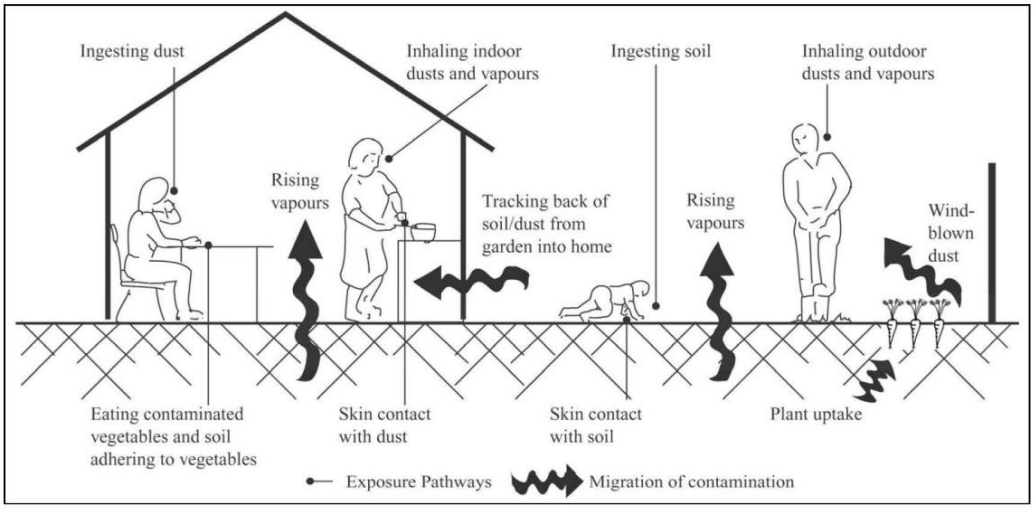
Some form of Detailed Quantitative Risk Assessment (DQRA) will be essential for those cases where appropriate GAC values cannot be established for the contaminant linkages under consideration.

Generic Assessment Criteria for Human Health Risk Assessment

In March 2002, the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) published the Contaminated Land Exposure Assessment (CLEA) Model and a series of related reports and guidance. These were designed to provide a scientifically based framework for the assessment of chronic risks to human health from contaminated land. The initial documents (CLR7 – 10) were withdrawn and replaced with revised guidance issued by the Environment Agency including:

- "Using Soil Guideline Values"; EA,2009; Land contamination: using soil guideline values (SGVs) - GOV.UK (www.gov.uk)
- "Human Health toxicology assessment of contaminants in soil" EA;, 2009; https://www.gov.uk/government/publications/human-health-toxicological-assessment-of-contaminants-in-soil
- "Update technical background to the CLEA model" 2009; https://www.gov.uk/government/publications/updated-technical-background-to-the-clea-model
- CLEA Software (Version1.05) Handbook 2015; https://www.gov.uk/government/publications/contaminated-land-exposure-assessment-clea-tool
- Compilation of Data for priority Organic Contaminants for Derivation of Soil Guideline Values; Science Report SC050021/SR7, 2008; and,
- "Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration". CL:AIRE:2020 https://www.claire.co.uk/component/phocadownload/category/9-other-cl-aire-documents?download=745:2020-stats-guidance

The CLEA model and associated guidance was developed to calculate an estimated tolerable daily intake (TDI) of contaminants for site users given a set of 'typical' human health exposure pathways which are detailed in "SR3: Updated technical background to the CLEA model"



(Science Report SC050021/SR3, EA, 2009) and reproduced below.

Ingestion

- Outdoor soil;
- Indoor dust;
- Home grown produce;
- Soil attached to home grown produce.

Dermal Contact

- Outdoor soil;
- Indoor dust.

Inhalation

- Outdoor dust;
- Indoor dust;
- Outdoor vapour;
- Indoor vapour.

It should be noted that the CLEA model does not include an exhaustive list of potential exposure pathways, e.g. certain compounds can pass through plastic water pipes into drinking water supply.

The potential significance of each of the exposure pathways is dependent upon the type of land use and the nature of the contaminant being considered. The CLEA model considers principal 'default' land use scenarios and makes a series of assumptions with regards to building type (where applicable), identification of the critical human receptor group, exposure frequency and duration. The definitions of the principal land use types given in SR3 (EA, 2009) are:

Residential land use;

- A typical residential property consisting of a two-storey terraced house built on a ground-bearing slab of 0.15m thickness with a private garden consisting of lawn, flowerbeds, and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden. The critical receptor is a 0 – 6-year-old female.
- Active exposure pathways are ingestion of outdoor soil, ingestion of indoor dust, ingestion of home grown produce and soil adhering to home grown produce; direct dermal contact with outdoor soil and indoor dust; inhalation of outdoor dust and vapour and indoor dust and vapour.

Allotments

- A plot of open space commonly made available by the Local Authority to tenants to grow fruit and vegetables for their own consumption. There are usually several plots to a site and the overall site area may cover more than one hectare. The tenants are assumed to be the parents or grandparents and that young children make occasional accompanied visits to the plots. The critical receptor is a 0 – 6-year-old female and there is no building present on site.
- Active exposure pathways are ingestion of outdoor soil, ingestion of home grown produce and soil adhering to home grown produce; direct dermal contact with outdoor soil; inhalation of outdoor vapour.

Commercial and industrial land use.

- A typical commercial or light industrial property consisting of a three-story office building (pre-1970) with a ground bearing floor slab at which employees spend most time indoors and are involved in office based or related light physical work. The critical receptor is a working female adult aged 16 – 65 years.
- Active exposure pathway is ingestion of outdoor soil, ingestion of indoor dust; direct dermal contact with outdoor soil and indoor dust; inhalation of outdoor dust and vapour and inhalation of indoor dust and vapour.

Soil Guideline Values

Based on the assumption of each land use type, the EA and DEFRA developed and published Soil Guideline Value (SGV) using the CLEA model for a number of principal contaminants and 'default' end-use scenarios of residential, allotments and commercial/industrial use. The primary purpose of the SGVs is as trigger value for the tolerable daily intake (TDI), below which it can be assumed that the soil does not pose an unacceptable risk to the identified receptor. Where soils contamination is present above this level further assessment may be required. SGVs were developed for the following contaminants:

- Heavy metals and other inorganic compounds: arsenic, cadmium, chromium, cyanide, lead (now withdrawn), mercury, nickel and selenium.
- Benzene, ethylbenzene, toluene and xylenes.
- Phenol.
- Dioxins and dioxin-like polychlorinated biphenyls (PCBs)
- Polycyclic aromatic hydrocarbons (PAHs) – 11 substances

LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment

In addition, in 2009 CIEH through LQM and EIC published generic assessment criteria (GACs) for 82 substances including metals, petroleum hydrocarbons, PAHs and explosive substances for a variety of soil types and the three 'default' land uses – (residential, allotments and commercial end-uses) as described in SR3 (EA, 2009). These have been superseded as described below.

Category 4 Screening Values

In 2013 "SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination" (CL:AIRE 2013) was issued which detailed findings of a research project undertaken by CL:AIRE to set out the framework by which potential Category 4 Screening Levels (pC4SL) may be derived for 6 contaminants of concern, Arsenic, Benzene, Benzo(a)pyrene, Cadmium, Chromium VI and Lead.

This was supplemented in 2014 by "SP1010: Development of Category 4 Screening Levels for the Assessment of Land Affected by Contamination – Policy Companion Document" (DEFRA, 2014). SP1010 proposed several updated toxicology information relating to contaminant behaviour updated assumptions relating to the modelling of human exposure to soil contaminants, derivation of separate C4SLs for residential with the consumption of home grown produce, residential without the consumption of home grown produce, and two new land uses: public open spaces near residential housing (POS resi) and public parks (POS park).

Public Open Space: Residential

- For public open space in close proximity to residential housing and the central green area around which houses are located, as on many housing estates from the 1930s to 1970s. It is also applicable for smaller areas commonly incorporated in newer developments as informal grassed areas or more formal landscaped areas with a mixture of open space and covered soil with planting. It is considered to be a generally grassed area up to 0.5ha with up to 50% bare soil. The land use is an important resource

for children and the area is near the homes. The critical receptor is a female child age >3 - <9 years old (CLEA age class 4 – 9) as younger children are unlikely to play outdoors unsupervised.

- Active exposure pathways are ingestion of outdoor soil, ingestion of indoor dust; direct dermal contact with outdoor soil and indoor soil derived dust; inhalation of outdoor and indoor dust and inhalation of outdoor vapour.

Public Open Space: Park

- A public park is defined as an area of open space provided for recreational use and usually owned and maintained by the Local Authority. It is anticipated the park could be used for a wide range of activities, including the following:
    - Family visits and picnics;
    - Children's play area;
    - Sporting activities such as football on an informal basis (i.e. not a dedicated sports pitch); and
    - Dog walking.
- The park is modelled as an area >0.5 ha of predominantly grasses open space with no more than 25% of exposed soil.
- The critical receptor is a female child with CLEA age classes 1 – 6.
- Active exposure pathways are: ingestion of outdoor soil; direct dermal contact with outdoor soil; inhalation of outdoor dust and inhalation of outdoor vapour.

Furthermore, the C4SLs are based on a different toxicological benchmark, the 'low level of toxicological concern' (LLTC). This difference in approach was adopted because the C4SLs were primarily intended for use under Part2A of the EPA 1990 to quickly screen out Category 4 sites where there is "*no risk or that the level of risk posed is low*". SGVs and LQM GACs are based on the more conservative 'minimal or tolerable level of risk' as defined in SR2 (EA, 2009) and were derived for assessment of contamination for the Planning process.

LQM/CIEH Suitable 4 Use Levels (S4ULs)

The publication of the C4SLs resulted in considerable and inconclusive debate about the applicability of the lower level of protection of the C4SL, which are underlain by the LLTC, outside of the Part 2A context for which they were derived. In 2014 LQM/CIEH presented a Suitable 4 Use Levels (S4ULs), which incorporate the updated assumption exposure derived for the production of the C4SLs but within the context of deriving screening criteria above which further assessment of the risks or remedial action may be needed. The S4ULs replace the 82 substances, species and fractions and congeners contained in the previous LQM/CIEH GACs issued in 2009. Additionally, following changes and new land uses proposed in the C4SL research project, S4ULs have also been derived for the majority of substances for which the EA derived SGVs in 2009 with the exception of lead (see below).

Lead

The C4SL for lead provides a technically robust and conservative assessment tool using significantly updated toxicological modelling than the withdrawn SGV and derived in line with current science of lead toxicology.

EIC/AGS/CL:AIRE Soil Generic Assessment Criteria (2010)

In some instances, EIC/AGC/CL:AIRE GACs for certain VOC / SVOC potential contaminants of concern have been used *in lieu* of available LQM / CIEH S4UL values.

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Metals/metalloids																			
Arsenic	37			40			43			640			79			170			LQM (2014)
Beryllium	1.7			1.7			35			12			2.2			63			LQM (2014)
Boron	290			11000			45			240000			21000			46000			LQM (2014)
Cadmium	11			85			1.9			190			120			532			LQM (2014)
Chromium III	910			910			18000			8600			1500			33000			LQM (2014)
Chromium VI	6			6			1.8			33			7.7			220			LQM (2014)
Copper	2400			7100			520			68000			12000			44000			LQM (2014)
Lead	200			310			80			2330			630			1300			C4SL
Mercury (elemental)	1.2			1.2			21			58 (25.8)			16			30 (25.8)			LQM (2014)
Mercury (Inorganic)	40			56			19			1100			120			240			LQM (2014)
Methylmercury	11			15			6			320			40			68			LQM (2014)
Nickel	180			180			230			980			230			3400			LQM (2014)
Selenium	250			430			88			12000			1100			1800			LQM (2014)
Vanadium	410			1200			91			9000			2000			5000			LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Zinc	3700			40000			620			730000			81000			170000			LQM (2014)
Other																			
Total Sulphate	2,400			2,400			2,400			2,400			2,400			2,400			BRE (2005)
Water Soluble Sulphate (g/l)	0.5			0.5			0.5			0.5			0.5			0.5			BRE (2005)
PAHs																			
Acenaphthene	210	510	1100	3000 (57)	4700(141)	6000 (336)	34	85	200	84000 (57)	97000 (141)	100000	15000	15000	15000	29000	30000	30000	LQM (2014)
Acenaphthylene	170	420	920	2900 (86.1)	4600 (212)	6000 (506)	28	69	160	8300 (86.1)	97000 (212)	100000	15000	15000	15000	29000	30000	30000	LQM (2014)
Anthracene	2400	5400	11000	31000 (1.17)	35000	37000	380	950	2200	520000	540000	540000	74000	74000	74000	150000	150000	150000	LQM (2014)
Benzo(a)anthracene	7.2	11	13	11	14	15	2.9	6.5	13	170	170	180	29	29	29	49	56	62	LQM (2014)
Benzo(a)pyrene	2.2	2.7	3	3.2	3.2	3.2	0.97	2	3.5	35	35	36	5.7	5.7	5.7	11	12	13	LQM (2014)
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4	4	0.99	2.1	3.9	44	44	45	7.1	7.1	7.1	13	15	16	LQM (2014)
Benzo(g,h,i)perylene	320	340	350	360	360	360	290	470	640	3900	4000	4000	640	640	640	1400	1500	1600	LQM (2014)
Benzo(k)fluoranthene	77	93	100	110	110	110	37	75	130	1200	1200	1200	190	190	190	370	410	440	LQM (2014)
Chrysene	15	22	27	30	31	32	4.1	9.4	19	350	350	350	57	57	57	93	110	120	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Dibenz(a,h)anthracene	0.24	0.28	0.3	0.31	0.32	0.32	0.14	0.27	0.61	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4	LQM (2014)
Fluoranthene	280	560	890	1500	1600	1600	52	130	290	23000	23000	23000	3100	3100	3100	63	6300	6400	LQM (2014)
Fluorene	170	400	860	2800 (30.9)	3800 (76.5)	4500 (183)	27	67	160	63000 (30.9)	68000	71000	9900	9900	9900	20000	20000	20000	LQM (2014)
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	9.5	21	39	500	510	510	82	82	82	150	170	180	LQM (2014)
Naphthalene	2.3	5.6	13	2.3	5.6	13	4.1	10	24	190 (76.4)	460 (183)	1100 (432)	4900	4900	4900	1200 (76.4)	1900 (183)	3000	LQM (2014)
Phenanthrene	95	220	440	1300 (36)	1500	1500	15	38	90	22000	22000	23000	3100	3100	3100	6200	6200	6300	LQM (2014)
Pyrene	620	1200	2000	3700	3800	3800	110	270	620	54000	54000	54000	7400	7400	7400	15000	15000	15000	LQM (2014)
Coal Tar (BaP as surrogate marker)	0.79	0.98	1.1	1.2	1.2	1.2	0.32	0.67	1.2	15	15	15	2.2	2.2	2.2	4.4	4.7	4.8	LQM (2014)
BTEX and TPH																			
Benzene	0.087	0.17	0.37	0.38	0.7	1.4	0.017	0.034	0.075	27	47	90	72	72	73	90	100	110	LQM (2014)
Toluene	130	290	660	880 vap (869)	1900	3900	22	51	120	56000 vap (869)	110000 vap (1920)	180000 vap (4360)	56000	56000	56000	87000 vap (869)	95000 vap (1920)	100000 vap (4360)	LQM (2014)
Ethylbenzene	47	110	260	83	190	440	16	39	91	5700 vap (518)	13000 vap (1220)	27000 vap (2840)	24000	24000	25000	17000 vap (518)	22000 vap (1220)	27000 vap (2840)	LQM (2014)
Xylene - o	60	140	330	88	210	480	28	67	160	6600 (478)	15000 (1120)	33000 (2620)	41000	42000	43000	17000 (478)	24000 (1120)	33000 (2620)	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Xylene - m	59	140	320	82	190	450	31	74	170	6200 (625)	14000 (1470)	31000 (3460)	41000	42000	43000	17000 (625)	24000 (1470)	32000 (3460)	LQM (2014)
Xylene - p	56	130	310	79	180	430	29	69	160	5900 (576)	14000 (1350)	30000 (3170)	41000	42000	43000	17000 (576)	23000 (1350)	31000 (3170)	LQM (2014)
Aliphatic EC 5-6	42	78	160	42	78	160	730	1700	3900	3200 (304)	5900 (558)	12000 (1150)	570000 (304)	590000	600000	95000 (304)	130000 (558)	180000 (1150)	LQM (2014)
Aliphatic EC >6-8	100	230	530	100	230	530	2300	5600	13000	7800 (144)	17000 (322)	40000 (736)	600000	610000	620000	150000 (144)	220000 (322)	320000 (736)	LQM (2014)
Aliphatic EC >8-10	27	65	150	27	65	150	320	770	1700	2000 (78)	4800 (190)	11000 (451)	13000	13000	13000	14000 (78)	18000 (190)	21000 (451)	LQM (2014)
Aliphatic EC >10-12	130 (48)	330 (118)	760 (283)	130 (48)	330 (118)	760 (283)	2200	4400	7300	9700 (48)	23000 (118)	47000 (283)	13000	13000	13000	21000 (48)	23000 (118)	24000(283)	LQM (2014)
Aliphatic EC >12-16	1100 (24)	2400 (59)	4300 (142)	1100 (24)	2400 (59)	4300 (142)	11000	13000	13000	59000 (24)	82000 (59)	90000 (142)	13000	13000	13000	25000 (24)	25000 (59)	26000 (142)	LQM (2014)
Aliphatic EC >16-35	65000 (8.48)	92000 (21)	110000	65000 (8.48)	92000 (21)	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000	LQM (2014)
Aliphatic EC >35-44	65000 (8.48)	92000 (21)	110000	65000 (8.48)	92000 (21)	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000	LQM (2014)
Aromatic EC 5-7	70	140	300	370	690	1400	13	27	57	26000 (1220)	46000 (2260)	86000 (4710)	56000	56000	56000	76000 (1220)	84000 (2260)	92000 (4710)	LQM (2014)
Aromatic EC >7-8	130	290	660	860	1800	3900	22	51	120	56000 (869)	110000 (1920)	180000 (4360)	56000	56000	56000	87000 (869)	95000 (1920)	100000 (4360)	LQM (2014)
Aromatic EC >8-10	34	83	190	47	110	270	8.6	21	51	3500 (613)	8100 (1500)	17000 (3580)	5000	5000	5000	7200 (613)	8500 (1500)	9300 (3580)	LQM (2014)
Aromatic EC >10-12	74	180	380	250	590	1200	13	31	74	16000 (364)	28000 (899)	34000 (2150)	5000	5000	5000	9200 (364)	9700 (899)	10000	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Aromatic EC >12-16	140	330	660	1800	2300 (419)	2500	23	27	130	36000 (169)	37000	38000	5100	5100	5000	10000	10000	10000	LQM (2014)
Aromatic EC >16-21	260	540	930	1900	1900	1900	46	110	260	28000	28000	28000	3800	3800	3800	7600	7700	7800	LQM (2014)
Aromatic EC >21-35	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
Aromatic EC >35-44	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
Aromatic EC >44-75	1600	1800	1900	1900	1900	1900	1200	2100	3000	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
VOCs																			
1,2-dichloroethane (1,2-DCA)	0.0071	0.011	0.019	0.0092	0.013	0.023	0.0046	0.0083	0.016	0.67	0.97	1.7	29	29	29	21	24	28	LQM (2014)
1,1,1-trichloroethane	8.8	18	39	9	18	40	48	110	240	660	1300	3000	140000	140000	140000	57000 (1425)	76000 (2915)	100000 (6392)	LQM (2014)
1,1,2,2,tetrachloroethane	1.6	3.4	7.5	3.9	8	17	0.41	0.89	2	270	550	1100	1400	1400	1400	1800	2100	2300	LQM (2014)
tetrachloroethene	0.18	0.39	0.9	0.18	0.4	0.92	0.65	1.5	3.6	19	45	95	1400	1400	1400	810 (424)	1100 (951)	1500	LQM (2014)
tetrachloromethane (Carbon tetrachloride)	0.026	0.056	0.13	0.026	0.056	0.13	0.45	1	2.4	2.9	6.3	14	890	920	950	190	270	400	LQM (2014)
Trichloroethene	0.016	0.034	0.075	0.017	0.036	0.08	0.041	0.091	0.21	1.2	2.6	5.7	120	120	120	70	91	120	LQM (2014)
Trichloromethane (chloroform)	0.91	1.7	3.4	1.2	2.1	4.2	0.42	0.83	1.7	99	170	350	2500	2500	2500	2600	2800	3100	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Chloroethene (Vinyl chloride)	0.00064	0.00087	0.0014	0.00077	0.001	0.0015	0.00055	0.001	0.0018	0.059	0.077	0.12	3.5	3.5	3.5	4.8	5	5.4	LQM (2014)
2,4,6 Trinitrotoluene (TNT)	1.6	3.7	8.1	65	66	66	0.24	0.58	1.4	1000	1000	1000	130	130	130	260	270	270	LQM (2014)
RDX	120	250	540	13000	13000	13000	17	38	85	210000	210000	210000	26000	26000	27000	49000 (18.7)	51000	53000	LQM (2014)
HMX	5.7	13	26	6700	6700	6700	0.86	1.9	3.9	110000	110000	110000	13000	13000	13000	23000 (0.35)	23000 (0.39)	24000 (0.48)	LQM (2014)
Aldrin	5.7	6.6	7.1	7.3	7.4	7.5	3.2	6.1	9.6	170	170	170	18	18	18	30	31	31	LQM (2014)
Dieldrin	0.97	2	3.5	7	7.3	7.4	0.17	0.41	0.96	170	170	170	18	18	18	30	30	31	LQM (2014)
Atrazine	3.3	7.6	17.4	610	620	620	0.5	1.2	2.7	9300	9400	9400	1200	1200	1200	2300	2400	2400	LQM (2014)
Dichlovos	0.032	0.066	0.014	6.4	6.5	6.6	0.0049	0.01	0.022	140	140	140	16	16	16	26	26	27	LQM (2014)
Alpha-Endosulfan	7.4	18	41	160 (0.003)	280 (0.007)	410 (0.016)	1.2	2.9	6.8	5600 (0.003)	7400 (0.007)	8400 (0.016)	1200	1200	1200	2400	2400	2500	LQM (2014)
alpha-Hexachlorocyclohexane	0.23	0.55	1.2	6.9	9.2	11	0.035	0.087	0.21	170	180	180	24	24	24	47	48	48	LQM (2014)
beta-hexachlorocyclohexanes	0.085	0.2	0.46	3.7	3.8	3.8	0.013	0.032	0.077	65	65	65	8.1	8.1	8.1	15	15	16	LQM (2014)
gamma-hexachlorocyclohexanes	0.06	0.14	0.33	2.9	3.3	3.5	0.0092	0.023	0.054	67	69	70	8.2	8.2	8.2	14	15	15	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Chlorobenzene	0.46	1	2.4	0.46	1	2.4	5.9	14	32	56	130	290	11000	13000	14000	1300 (675)	2000 (1520)	2900	LQM (2014)
1,2-Dichlorobenzene	23	55	130	24	57	130	94	230	540	2000 (571)	4800 (1370)	11000 (3240)	90000	95000	98000	24000 (571)	36000 (1370)	51000 (3240)	LQM (2014)
1,3-Dichlorobenzene	0.4	1	2.3	0.44	1.1	2.5	0.25	0.6	1.5	30	73	170	300	300	300	390	440	470	LQM (2014)
1,4-Dichlorobenzene	61	150	350	61	150	350	15	37	88	4400 (224)	10000 (540)	25000 (1280)	17000	17000	17000	36000 (224)	36000 (540)	36000 (1280)	LQM (2014)
VOCs Continued																			
1,2,3-Trichlorobenzene	1.5	3.6	8.6	1.5	3.7	8.8	4.7	12	28	102	250	590	1800	1800	1800	770 (134)	1100 (330)	1600 (789)	LQM (2014)
1,2,4-Trichlorobenzene	2.6	6.4	15	2.6	6.4	15	55	140	320	220	530	1300	15000	17000	19000	1700 (318)	2600 (786)	4000 (1880)	LQM (2014)
1,3,5-Trichlorobenzene	0.33	0.81	1.9	0.33	0.81	1.9	4.7	12	28	23	55	130	1700	1700	1800	380 (36.7)	580 (90.8)	860 (217)	LQM (2014)
1,2,3,4-Tetrachlorobenzene	15	36	78	24	56	120	4.4	11	26	1700 (122)	3080 (304)	4400 (728)	830	830	830	1500 (122)	1600	1600	LQM (2014)
1,2,3,5-Tetrachlorobenzene	0.66	1.6	3.7	0.75	1.9	4.3	0.38	0.9	2.2	49 (39.4)	120 (98.1)	240 (235)	78	79	79	110 (39)	120	130	LQM (2014)
1,2,4,5-Tetrachlorobenzene	0.33	0.77	1.6	0.73	1.7	3.5	0.06	0.16	0.37	42 (19.7)	72 (49.1)	96	13	13	13	25	26	26	LQM (2014)
Pentachlorobenzene	5.8	12	22	19	30	38	1.2	3.1	7	640 (43)	770 (107)	830	100	100	100	190	190	190	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	**1%**	**2.50%**	**6%**	
Hexachlorobenzene	1.8 (0.2)	3.3 (0.5)	4.9	4.1 (0.2)	5.7 (0.5)	6.7 (1.2)	0.47	1.1	2.5	110 (0.2)	120	120	16	16	16	30	30	30	LQM (2014)
Phenol	280	550	1100	750	1300	2300	66	140	280	760 dir (31000)	1500 dir (35000)	3200 dir (37000)	760 dir (31000)	1500 dir (35000)	3200 dir (37000)	760 dir (31000)	1500 dir (35000)	3200 dir (37000)	LQM (2014)
Chlorophenols (excluding pentachlorophenol)	0.87 (g)	2	4.5	94	150	210	0.13 (g)	0.3	0.7	3500	4000	4300	620	620	620	1100	1100	1100	LQM (2014)
Pentachlorophenol	0.22	0.52	1.2	27 (16.4)	29	31	0.03	0.08	0.19	400	400	400	60	60	60	110	120	120	LQM (2014)
Carbon Disulphide	0.14	0.29	0.62	0.14	0.29	0.62	4.8	10	23	11	22	47	11000	11000	12000	1300	1900	2700	LQM (2014)
Hexachlorobutadiene	0.29	0.7	1.6	0.32	0.78	1.8	0.25	0.61	1.4	31	66	120	25	25	25	48	50	51	LQM (2014)

(g) derived based on 2,3,4,6-tetrachlorophenol; dir - based on a threshold protective of direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustration only); (vap) calculated for vapour phase only. SOM – Soil Organic Matter; (4.5) solubility.

APPENDIX K - CONTROLLED WATERS RISK ASSESSMENT

CURRENT GUIDANCE FOR CONTROLLED WATERS RISK ASSESSMENT

Regulatory Context

Government policy is based upon a "suitable for use approach," which is relevant to both the current use of land and also to any proposed future use. When considering the current use of land, Part IIA of the Environment Protection Act 1990 (EPA 1990) provides the regulatory regime, which was introduced by Section 57 of the Environment Act 1995, which came into force in England on 1 April 2000. The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health, controlled waters or the wider environment given the current use and circumstances of the land. Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

> *"any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:*
>
> *(a) Significant harm is being caused or there is a significant possibility of such harm being caused; or*
>
> *(b) Pollution of controlled waters is being, or is likely to be, caused."*

Part IIA provides a statutory definition of the pollution of controlled waters under Section 78A(9) as:

> *"the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter"*

Controlled Waters are defined Section 104 of the Water Resources Act 1991. In summary, the comprise relevant territorial waters which extend seaward for three miles from the low-tide limit from which the territorial sea adjacent to England and Wales is measured.

The Environment Agency has powers under Part 7 of The Water Resources Act (1991) to take action to prevent or remedy the pollution of controlled waters, including circumstances where the pollution arises from contamination in the land. This is reinforced in The Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, 2012) which came into force in early April 2012.

Part IIA introduces the concept of a contaminant linkage; where for potential harm to exist there must be a connection between the source of the hazard and the receptor via a pathway. Risk assessment in contaminated land is therefore directed towards identifying the contaminants, pathways and receptors that can provide contaminant linkages. This is known as the contaminant-pathway-receptor link (CPR or contaminant linkage).

Part IIA places contaminated land responsibility as a part of the planning and redevelopment process, rather than Local Authority or Environment Agency directly, except in cases of very high pollution risk or where harm is occurring. In the planning process, guidance is provided by National Planning Policy Framework (NPPF) of March 2012. The NPPF requires that a site which has been developed shall not be capable of being determined "contaminated land" under Part IIA. Therefore, appropriate risk-based investigation is required to identify the contaminant linkages that can then be assessed, and then mitigated using methods that can be agreed with the planners.

Source Protection Zones

Source Protection Zones (SPZs) are defined by the Environment Agency (for England and Wales), SEPA (Scotland) and the Environment and Heritage Service (Northern Ireland) for groundwater sources such as wells, boreholes and springs that are used for public drinking water supply. The zones show the risk of contamination from activities that might cause groundwater pollution in the area. The size and shape of a zone depends upon subsurface conditions, how the groundwater is removed, and other environmental factors.

SPZs are classified into four categories:

- **Zone 1 (Inner protection zone).** Any pollution that can travel to the abstraction point within 50 days from any point within the zone is classified as being inside Zone 1. This applies at and below the groundwater table. This zone also has a minimum 50m protection radius around the abstraction point. These criteria are designed to protect against the transmission of toxic chemicals and water-borne disease.
- **Zone 2 (Outer protection zone).** The outer zone covers pollution that takes up to 400 days to travel to the abstraction point, or 25% of the total catchment area, whichever area is the largest. This travel time is the minimum period over which the Environment Agency considers that pollutants need to be diluted, reduced in strength or delayed by the time they reach the abstraction point.
- **Zone 3 (Total catchment).** This is the total area needed to support removal of water from the abstraction point, and to support any discharge from this.
- **Zone of special interest.** This may occasionally be defined as a special case. This is usually where local conditions mean that industrial sites and other potential sources of contamination could affect the groundwater source, even though they are outside the normal catchment area.

Groundwater Vulnerability Assessments

From 1 April 2010 The Environment Agency Groundwater Protection Policy began to use aquifer designations which are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The aquifer designation data is based on geological mapping provided by the British Geological Survey. It is updated regularly to reflect their ongoing programme of improvements to these maps. The maps are split into two different type of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.
- Bedrock -solid permeable formations e.g. sandstone, chalk and limestone.

The maps display the following aquifer designations:

Table 1. Aquifer Classification ("Geological Classification").

Classification	Definition
Principal Aquifers (Highly Permeable)	These are layers 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	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	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Secondary Undifferentiated Aquifers	This has been 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 minor and non-aquifer in different locations due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Environment Agency Guidance

The Environment Agency's stance on groundwater resources is:

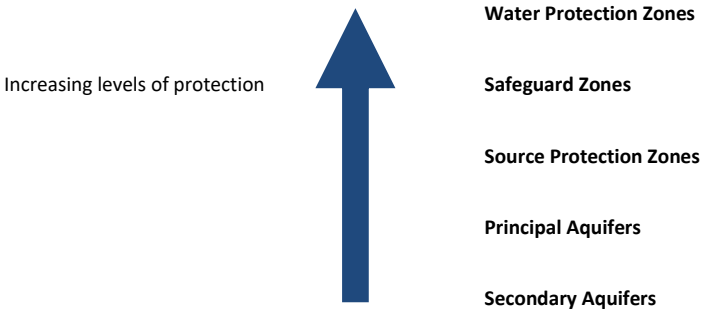
> *"to protect and manage groundwater resources for present and future generations in ways that are appropriate for the risks we identify"* (Groundwater Protection: Policy and Practice GP3, 2012).

At present, the legislation and guidance pertaining to the protection of controlled waters in the UK is complex; however, the core objectives seek to enforce the position given above.

In 1992, the National Rivers Authority published their Policy and Practice for the Protection of Groundwater (PPPG), this document introduced areas of focus for developments such as Source Protection Zones (SPZs) and Groundwater Vulnerability Maps. The Policy was revised in 1998, since which there have been substantial changes in legislation, driven by key European Directives relating to groundwater include the Groundwater Directive (80/68/EEC) and the Water Framework Directive (2000/60/EC). Aspects of these directives are controlled by primary UK legislation such as the Water Resources Act 1991 as amended by the Water Act 2003. Gaps in the 1998 PPPG that emerged as the result of further legislative changes were addressed in the Environment Agency Policy document Groundwater Protection: Policy and Practice (GP3), Version 1 of November 2012. The three main parts of GP3 were:

- Groundwater principals;
- Position statements and legislation; and
- Technical information.

The Environment Agency has a tiered risk based approach to drinking water protection as summarised below:



Controlled Waters Risk Assessment

A number of tools are available (as detailed in GP3) in order for a developer of a potentially contaminated site to fulfil their obligations under the legislation. A site assessment would be required in order to identify any potential risks to controlled waters and to derive suitable clean up criteria, if required, to ensure the protection of controlled waters.

There are three main stages to any risk assessment of controlled waters:

1. Risk Screening (devise Conceptual Site Model, making reference to groundwater vulnerability maps, site setting, controlled waters context etc)
2. Generic Risk Assessment (EA Remedial Targets Methodology Tier 1 / Comparison of groundwater data with relevant standards)
3. Detailed Quantitative Risk Assessment (Consideration of aquifer properties and site specific parameters, EA Remedial Targets Methodology Tiers 2 & 3)

Risk Screening

Here, the Conceptual Site Model (CSM) is a critical tool to assessing any potentially contaminated site. The information from a robust CSM can be used to establish any pathways or receptors that do not require further assessment at an early stage. For example, it may be possible to confirm the absence of a particular sensitive controlled water receptor (such as a surface water feature) within the vicinity of the site thereby breaking the associated source-pathway-receptor pollutant linkage. Information from subsequent tiers of risk assessment, such as following intrusive investigations, are used to update the CSM accordingly.

Generic Risk Assessment - England and Wales

When undertaking the Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Tier 1), comparison of chemical analytical results is made with those screening criteria.

In accordance with Part 2A of the Environmental Protection Act 1990, Tier Environmental has made regard to all of the Water Quality Standards (WQS) that are relevant to the specific site and a judgment has been made against the most stringent of those relevant standards:

- EQS Directive 2008/105/EC
- Priority Substances Directive 2013/39/EU
- Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- UK Drinking Water Standards (UK DWS)
- World Health Organisation (WHO Guidelines) for Drinking Water Quality
- Council Directive 98/83/EC on the quality of water intended for human consumption (Drinking water directive)

In some instances, the laboratory method detection limit is greater than the appropriate EQS/UKDWS value. In these instances, only measured concentrations in excess of the laboratory method detection limit have been considered likely to potentially represent a possible significant risk to controlled waters.

Please note that there is no quantitative criterion for total petroleum hydrocarbons (TPH), or speciated TPH fractions. Historically, standards provided for petroleum hydrocarbons ranges from 10µg/l (Private Water Supply Regulations 1991, removed from the 2009 regulations) to 50µg/l-1000µg/l (Surface Waters (Abstraction for Drinking Water) Regulations 1989) which related to the degree of treatment of water prior to use as drinking water. Over time, the legislative standards have been rescinded and no alternative standard provided, although the Environment Agency planned to release speciated TPH criteria (Fretwell et al., 2009).

In order to assess whether there is a potentially unacceptable risk of pollution of controlled waters, the results of the groundwater chemical analysis for TPH and BTEX were evaluated against Water Quality Standards (WQS) appropriate to the conceptual model for the site:

Table 2. Summary of Selected TPH and BTEX Water Quality Standards Selected for Tier 1 Screening

Determinand	Units	WQS Selected	Source of WQS
Aliphatics >C5-C6	µg/l	15000	Table 5.4 of CL:AIRE 2017#
Aliphatics >C6-C8	µg/l	15000	Table 5.4 of CL:AIRE 2017#
Aliphatics >C8-C10	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C10-C12	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C12-C16	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C16-C21	µg/l	-	Table 5.4 of CL:AIRE 2017#
Aliphatics >C21-C35	µg/l	-	Table 5.4 of CL:AIRE 2017#
Aromatics >C5-EC7	µg/l	10	Table 5.4 of CL:AIRE 2017#
Aromatics >EC7-EC8	µg/l	700	Table 5.4 of CL:AIRE 2017#
Aromatics >EC8-EC10	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aromatics >EC10-EC12	µg/l	100	Table 5.4 of CL:AIRE 2017#

Aromatics >EC12-EC16	µg/l	100	Table 5.4 of CL:AIRE 2017#
Aromatics >EC16-EC21	µg/l	90	Table 5.4 of CL:AIRE 2017#
Aromatics >EC21-EC35	µg/l	90	Table 5.4 of CL:AIRE 2017#
Benzene	µg/l	10	Priority Substance Water Framework Directive 2015 and Table 5.3 of CL:AIRE 2017#
Toluene	µg/l	74	Table 1 Water Framework Directive 2015 and Table 5.3 of CL:AIRE 2017#
Ethylbenzene	µg/l	20	R&D Technical Report P2-115/TR4, 2002
Total xylenes	µg/l	30	DoE (1997c) Hedgecott S. and Lewis S, An update on proposed environmental quality standards for xylenes in water, final report to the Department of the Environment. Report No. DoE 4273/1. Medmenham: WRc; and; Table 5.3 of CL:AIRE 2017#

Notes - # = CL:AIRE document 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies' (ISBN 978-1-905046-31-7, dated 2017),

Table 5.3 was referenced in the first instance from the CL:AIRE document 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies' (ISBN 978-1-905046-31-7, dated 2017), the to select appropriate Freshwater EQS values for benzene, toluene and total xylenes. The selected value for Ethylbenzene was derived from the proposed EQS value of 20µg/l from the Environment Agency R&D Technical Report P2-115/TR4, 2002. This represents a more conservative value than the 300µg/l value in Table 5.3.

With respect to speciated TPH CWG fractions, Table 5.3 states and refers the reader to 'See Table 5.4'. On this basis, Tier Environmental selected the World Health Organization (WHO) guide values for TPHCWG fractions in drinking water that are presented in Table 5.4 which may be considered appropriately protective of the controlled waters environment based on the conceptual site model.

Generic Risk Assessment is generally undertaken via comparison of reported leachate and/or groundwater concentrations against selected assessment criteria for the potential contaminants of concern identified for the site from a preliminary desk based assessment.

The selected Generic Assessment Criteria (GAC) derived from a Water Quality Standard (WQS) for any specific substance may not necessarily be a simple number and can often be found to be expressed as:

- Annual mean concentration;
- Maximum allowable concentration;
- 95th percentile concentration for *n* samples;
- Total concentration;
- Dissolved concentration (applicable to filtered samples)

The values may sometimes be expressed for individual substances (e.g. arsenic or for groups of substances e.g. total xylenes or sums of certain PAHs).

Environmental Quality Standards (EQS) have been used where available for Priority Substances and Priority Hazardous Substances set at a European level:

- Priority Substances Directive 2013/39/EU;
- Amending 2008/105 and 2000/118/EC

In addition, EQS values derived for Specific Pollutants have been used as presented in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

For assessing risks to potable water abstraction supplies, UK Drinking Water Standards presented in the Water Supply (Water Quality) Regulations 2000 (SI/2000/3184) (as amended) have been applied.

In selecting a GAC for a particular site, Tier Environmental considers the following factors:

- Current use/function of the groundwater (e.g. drinking water, irrigation water, industrial use, base-flow to rivers and streams);
- Plausible, proposed or planned future uses of the water and nearby waters;
- Sensitivity of the critical receptor (e.g. human health, aquatic life); and,
- Requirements to trigger action under the legal context.

In accordance with Part 2A:

> *"in deciding whether pollution of controlled waters is occurring, the assessor will have regard to all of the water quality standards that are relevant to the specific site and make a judgment against the most stringent of those relevant standards."*

Should the Level 1 or 2 assessments indicate threshold levels to be exceeded, then there are three alternative ways in which to proceed:

- To devise suitable remedial solutions;
- To carry out more investigation, sampling and analysis;
- To conduct a site-specific Detailed Quantitative Risk Assessment (DQRA) to whether or not the soil materials are suitable for their site-specific intended use or to devise a site-specific clean-up level.

Detailed Quantitative Risk Assessment (DQRA)

The decision to carry out a DQRA will be informed by the initial qualitative and generic assessment. The scope of any such assessment will be accurately defined by the outcomes of the former two stages. The robust CSM will be sufficiently refined by this stage that only certain contaminants of concern, certain pathways and certain receptors will require further assessment.

Additional site specific data is normally required for this stage of assessment, as explained above, more processes that are capable of affecting contaminant concentrations are considered (such as dilution and attenuation).

Remediation criteria derived will therefore be specific to each site and will be based on a detailed assessment of the potential impact at the identified receptor or compliance point. A greater level of confidence can be placed on the predicted impact on the compliance point following a DQRA.

Hazardous and Non Hazardous Substances

The Groundwater (England and Wales) Regulations 2009 control the disposal to the hydrogeological environment of potentially polluting substances which are divided into Hazardous Substances and Non-hazardous Contaminants (this roughly approximates to the former List 1 and List 2 substances).

Hazardous Substances are the most damaging and toxic and must be prevented from directly or indirectly entering the groundwater environment. Hazardous Substances include mineral oils and hydrocarbons, pesticides, biocides, herbicides, solvents and some metals. Discharge of Hazardous Substances to Controlled Waters must be prevented.

Non-hazardous Pollutants are any contaminants other than Hazardous Substances. Non-hazardous Pollutants are potentially toxic but are less harmful than Hazardous Substances, but their direct discharge to groundwater is generally not permitted and any indirect discharge to groundwater must be limited and be controlled by technical precautions in order to prevent pollution. Non-hazardous Pollutants include ammonia and nitrites, many metals and fluorides.

APPENDIX L - ASSESSMENT CRITERIA APPLIED FOR GROUND GAS

Ground Gas Monitoring Methodology

Monitoring for the following is generally performed as part of ground gas assessment:

- Methane (CH_4): an odourless, flammable gas. Mixtures of methane with air containing between 5 and 15% v/v methane are explosive.
- Carbon dioxide (CO_2): an asphyxiant at elevated concentrations. Denser than air, it can accumulate in excavations, and within low points inside buildings.
- Oxygen (O_2): important in the assessment of the potential formation of explosive mixtures with methane. Monitoring normally measures both methane and oxygen concentrations in ground gas to derive an indication of the risk of explosive mixture formation, expressed as a percentage of the Lower Explosive Limit (LEL). Low concentrations of oxygen in ground gas can also exacerbate the risk of CO_2 asphyxiation.
- Hydrogen sulphide (H_2S): odorous and toxic, capable of forming flammable mixtures with air.

In addition, depending on the Conceptual Site Model, monitoring may also include for measurements of Volatile Organic Compounds (VOCs); present as chemical contaminants of soil and sometimes also biologically produced in low concentrations.

Assessment of methane (CH_4) and carbon dioxide (CO_2)

Methane and carbon dioxide can arise from natural geological sources, mine workings, rotting organic matter (peat, landfilled materials, etc.) and/or contaminant biodegradation. Assessment of ground gas composition and flows is therefore an essential part of site assessment. The need to adequately address potential risks from ground gas on development sites is therefore required under the planning regime.

In order to appropriately assess the site risks, the Construction Industry Research and Information Association (CIRIA) and others have issued several guidance documents on landfill and ground gas that are intended to provide advice on how to investigate and deal with gas contaminated ground with respect to development. These are:

- Report 149: 'Protecting Development from Methane' (CIRIA, 1995a)
- Report 150: 'Methane Investigation Strategies' (CIRIA, 1995b)
- Report 151: 'Interpreting Measurement of Gas in the Ground' (CIRIA, 1995c)
- Report 152: 'Risk Assessment for Methane and Other Gases from the Ground' (CIRIA, 1995d)

More recent guidance has been published to update the documents detailed above to collaborate and promote industry 'good practice'. These are:

- CIRIA Report 665: 'Assessing risks posed by hazardous ground gases to buildings (CIRIA, 2008)
- NHBC: 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (NHBC, 2007)
- BS8485:201+A1:2019: Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (BSI Group, 2019)
- BS8576:2013: Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs) (BSI Group, 2013)
- SoBRA Report Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater (Feb 2017)
- CL:AIRE Technical Bulletin TB17 Ground Gas Monitoring and 'Worst Case' Conditions (CL:AIRE Aug 2018)

The earlier CIRIA 149 approach is now considered to be too conservative. A more realistic measure of the risk posed by methane and CO2 in ground gas can be established by determining an appropriate Gas Screening Value (GSV), using the methods described in the NHBC and CIRIA 659 documents. These values are based upon earlier work undertaken by Wilson and Card (1999).

GSVs are calculated by multiplying the borehole flow rate (l/hr) by the percentage (% v/v) concentration in the gas stream of the specific component, i.e.:

GSV = (Concentration / 100) x Flow rate.

A risk-based methodology for deriving GSVs is defined for two situations (designated A and B), which are adequate for the great majority of site cases (as per CIRIA 665 Section 8.3):

- **Situation A**: Any development other than Situation B, e.g. factories, shops, commercial, warehouses, schools, cinemas, sports centres, stadiums, high rise housing, housing with basements, etc
- **Situation B**: Low rise building with minimum ventilated under floor void (min 150mm)

Under Situation A, classification of the scope of protection required is determined from the site GSV, summarised in Table 1. For Situation B, GSVs derived are used in a 'Traffic Light' classification (summarised in Table 2) which determines the required level and scope of protection measures. Tables 1 and 2 are summaries only: the details provided in the body text, footnotes and appendices of the above-referenced documents should be read in conjunction with the results to determine the appropriate level of protection.

For conservatism, Tier Environmental **initially** uses the maximum concentration and gas flow rate of methane detected in any borehole during all of the monitoring visits in deriving recommendations on appropriate protection measures. This represents the worst-case risk of forming an explosive mixtures. For carbon dioxide, steady state concentrations and flow data are applied, as these determine the development of an asphyxiating mixture. All values are selected whether or not they occurred in the same borehole or during the same monitoring event.

Exceedances of the maximum concentrations used in a Tier 1 Gas Risk Assessment can be tolerated, when the conceptual site model indicates that it is safe to do so. However, appropriately derived GSV values must never be exceeded - where site-specific circumstances permit the derivation of alternative GSVs according to the defined conceptual model, then the appropriate GSV values should be applied.

Table 1. GSV Categories Defined for Situation A (Summarised from CIRIA Report 665).

Risk classification	GSV (CH4 or CO2; l/hr)	Additional factors	Characteristic Situation
Very low	<0.07	Typically methane <=1% and/or CO_2 <=5%, otherwise consider increase to Low Risk.	1
Low	<0.7	Typically borehole ground gas flow rate <=70 l/hr; otherwise consider increase to Moderate Risk.	2
Moderate	<3.5	---	3
Moderate to high	<15	QRA required to evaluate scope of remediation measures.	4
High	<70	---	5
Very high	>70	---	6

Table 2. GSV Categories Defined for Situation B (Summarised from NHBC, 2007).

Methane		CO_2		"Traffic light" classification
Typical max. conc. (% v/v)	GSV (l/hr)	Typical max. conc. (% v/v)	GSV (l/hr)	
				Green
1	0.13	5	0.78	Amber 1
5	0.63	10	1.60	Amber 2
20	1.60	30	3.10	Red

Assessment of hydrogen sulphide (H2S)

H2S is toxic and highly odorous ("rotten eggs") gas. It is often a minor component within mine gases, in ground gas within or overlying strata rich in pyrites or other sulphide-rich ores, and in most natural gas fields.

H2S can be generated biologically in significant concentrations by the decomposition by sulphate-reducing bacteria of natural or anthropogenic organic matter under oxygen-free conditions. Its potential generation will be greater in environments containing elevated sulphate concentrations (including sea water). H2S is therefore common within the gas arising from estuarine and marine sediments, pond sediment, stagnant water bodies, bogs and marshlands and landfilled waste, for example.

It must be noted that H2S normally occurs together with other potentially hazardous ground gases. The measures adopted for protection against these will prove equally protective against H2S.

There are no standards by which H2S concentrations in ground gas can be assessed directly. Therefore, the significance of measured H2S concentrations in ground gas must be evaluated on a case-by-case basis, taking into account the measured concentrations of other components and the specific conceptual site and exposure models. To assist in this process, the following standards and guidance may be applied.

General protection of land users

There are no UK air quality standards for general exposure to H2S. The World Health Organisation has derived ambient air quality standards (WHO, 2000) for this gas, which may be used to inform risk assessment and decision-making:

The 24 hour average exposure guideline value for ambient air: 0.15mg/m3 (0.1 ppmv, approx.; this was derived by the application of a 100x safety factor to the LOAEL for long-term exposure).

This is significantly above the odour threshold, which is typically around 0.01 mg/m3. To avoid substantial nuisance odour complaints, WHO (2000) recommends that the 30 minute average H2S concentration in ambient air should not exceed: 0.007 mg/m3 (0.005 ppmv, approx.).

Occupational exposures

For occupational exposure, the HSE (2005) limits for H2S are applicable:

- 8 hour time weighted average occupational exposure limit: 5 ppmv (7 mg/m3).
- Short-term exposure limit (15 minute reference period): 10 ppmv (14 mg/m3).

VOC Data Collection, Sampling and Assessment

BS8576 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs).

Volatile organic compounds (VOCs) include, for example, halogenated hydrocarbons such as trichloroethene, non-halogenated hydrocarbons such as benzene, and organosulfur compounds such as thiols (mercapatans). They can occur as a component of ground gas originating from historically contaminated ground, spills and leaks from industry, commercial or residential properties (e.g. from pipelines, storage facilities, and at the point of use or dispensing), land-filled wastes and from naturally occurring sources.

The migration of VOCs in ground gas can be via three primary mechanisms:

- diffusive flow (movement of constituent along a concentration gradient);
- advective flow (movement of constituent due to motion of a transporting fluid);
- dispersion (transport resulting from local variations in fluid flow, e.g. due to friction effects in the matrix).

The choice of sampling and monitoring techniques should be based upon the conceptual model and be designed to achieve the objectives of the investigation, bearing in mind the requirements of any subsequent analytical procedures and the need to provide relevant data of sufficient quantity and quality. Consideration should also be given to the nature of ground under investigation, as well as the nature and distribution of contamination, the geology and the hydrogeology. Every effort should be made to avoid cross-contamination and at no point should underlying aquifers be put at risk.

Where the response zone extends below the water table, gas present in the groundwater will tend to produce an equilibrium concentration in the well headspace. This applies to both permanent gases and VOCs but can be particularly misleading in the latter case. Testing for dissolved gases in groundwater is useful to help interpret monitoring results in such a situation. Similarly, any VOCs in a floating non-aqueous hydrocarbon layer will produce an equilibrium concentration in the well headspace.

The monitoring period and frequency of monitoring for VOCs in ground gases should be developed on a site-specific basis from the conceptual site model and investigation data quality objectives.

Ground gas samples can be collected from the unsaturated zone adjacent to, or above, the known or suspected source of VOCs in ground gas through installation of a ground gas monitoring point in the unsaturated zone (see 10.2), and from a near-surface location beneath hardstanding or a floor or foundation slab through installation of a near- or sub-slab monitoring point (see 10.3). For monitoring of VOCs in ground gas the monitoring well should be installed into unsaturated ground to allow sampling for VOCs to take place. The borehole should not be progressed below the groundwater table or the surface of any floating non-aqueous layer. The borehole should be progressed to the target sampling depth within the unsaturated zone. Full details can be found in BS8576 Section 10.2 onwards.

Assessment of VOC concentrations have been made for limited number of VOCs by SoBRA with the Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater in Feb 2017.

The assessment of VOC concentrations is not covered by above-referenced reports. These data can be used to inform the human health risk assessment for site occupants but should not be relied upon to assess human health risk due to uncertainties in the ground gas flow regime, variability in the (generally low) contaminant concentrations measured and inaccuracies in the concentrations measured by PID instruments.

Data on the VOC concentration in ground gas can also help inform potential occupational exposure risks to construction and similar workers. For this purpose, the measured values can be compared to the relevant occupational exposure limit (OEL) for the contaminant(s) of concern, as given in HSE (2005). In cases of doubt as to the identity of the organic contaminants within the ground gas or when these are present as a complex mixture, then the 8 hour time-weighted average (TWA) exposure limit for benzene (1 ppmv) will be applied for screening purposes. This is a reasonably conservative approach since the OEL for benzene is lower than that for the great majority of organic contaminants commonly encountered in soil and groundwater at contaminated sites.

APPENDIX M - CHEMICAL AND GEOTECHNICAL TEST SAMPLING

Samples were selected by a representative of Tier Environmental during the site investigation works in accordance with the sampling approach described elsewhere in this report.

Samples for geotechnical and related testing

Bulk samples were placed within robust heavy duty plastic bags and sealed, together with small-disturbed samples, within airtight 1 litre plastic containers.

100mm diameter 'undisturbed' samples ("U100 samples") were obtained where possible from cable percussive and large diameter window sample boreholes within cohesive materials.

Samples for chemical analysis

All samples for chemical analysis were placed into clean new containers as summarised in Table 1. Unless explicitly stated elsewhere in this report, no preservatives were used to eliminate the risk that preservatives cause contaminant dissolution or analytical interference. Containers for VOC analysis were fully filled to exclude headspace.

Soil samples were dispensed as soon as possible after collection using reusable stainless steel spatulas, trowels or similar implements.

Ground water samples were collected from boreholes using single-use Teflon bailers or dedicated Waterra tubing with foot valves, except as otherwise noted within this report. Caution was taken to avoid excessive agitation during collection.

New disposable gloves were used by the engineer for the collection of each sample.

Reusable equipment was washed down with distilled or deionised water between samples, except where tarry or similarly sticky materials were present. In such cases specific cleaning procedures were adopted as specifically described elsewhere in this report.

All sub-samples taken for chemical analysis were placed into refrigerators or cool boxes containing frozen ice packs immediately after aliquoting. All samples were transferred in cool boxes containing frozen ice packs to the relevant UKAS/MCERTS accredited laboratory as soon as possible. Recommended maximum holding times before analysis are summarised in Table 1.

Table 1. Sample containers and holding times.

Analysis	**Container/special requirements**	**Max. holding time at 4°C before analysis**
Soil and sediment samples		
VOCs	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner. Must be fully filled.	14 days
TPHCWG	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner **PLUS** 250-500 g brown or green glass jar with unwaxed cap liner.[1] The former must be fully filled.	14 days
All other organics	250-500 g brown or green glass jar with unwaxed cap liner.	7 days
Inorganics	Air-tight 0.5-2.0 kg plastic container (250-500 g brown or green glass jar may also be used).	14 days[2]
Water samples		
VOCs	40-50ml glass vial with VOC resistant screw cap and inert liner. Must be fully filled.	14 days
TPHCWG	40-50ml glass vial with VOC resistant screw cap and inert liner **PLUS** 500-1000ml brown or green glass bottle with screw cap and unwaxed liner.[1] The former must be fully filled, the latter should be filled if possible.	14 days
All other organics	500-1000ml brown or green glass bottle with screw cap. Fill if possible.	7 days
Inorganics	500-1000ml translucent or opaque screw cap plastic *or* brown or green glass bottles. Fill if possible.	14 days[3]

1 The smaller vessel is used for analysis of the volatile components within the TPH mixture and the larger one is for the non-volatile components.

2 14 days is set as a reasonable limit for all routine analyses of soil for those inorganic components vulnerable to chemical and/or biological breakdown. Samples for sulphate analysis are vulnerable to biological sulphate-reduction but can be held for up to 28 days. For total metals, a holding period of up to 6 months is acceptable.

3 14 days applies for all routine analyses of most inorganic components that may be vulnerable to chemical and/or biological reactions. In the specific cases of sulphide, nitrite, nitrate and phosphate analyses, storage time must not exceed 48 hours. For total metals, a holding time of up to 6 months is acceptable.

Tier Environmental standard analytical suites

The analyses included with Tier Environmental's standard analytical suites for soil, soil leachate and water samples are presented in Table 2. Other individual analyses were specified as described within this report.

Table 2. Tier Environmental Standard Analytical Suites.

Parameter	**Sample type**					
	Soil		**Leachate[1]**		**Water**	
		LoD[2] (mg/kg or as stated)		**LoD (µg/l or as stated)**		**LoD (µg/l or as stated)**
Metals and metalloids						
Arsenic	✓	1	✓	10	✓	10
Cadmium	✓	1	✓	5	✓	5
Chromium	✓	1	✓	5	✓	5
Mercury	✓	1	✓	1	✓	1
Lead	✓	1	✓	4	✓	4
Selenium	✓	2	✓	10	✓	10
Copper	✓	1	✓	1	✓	1
Nickel	✓	1	✓	50	✓	50
Zinc	✓	1	✓	8	✓	8
Other inorganics						
Ammonia (as NH_4-N)					✓	15
Total sulphate	✓	100			✓	50 mg/l
Water-soluble sulphate	✓	0.1 g/l				
Hardness (as $CaCO_3$)					✓	1 mg/l
Organics						
Monohydric phenol	✓	1	✓	0.5	✓	0.5
Speciated PAHs (USEPA 16)	✓	0.1	✓	0.01	✓	0.01
Total Organic Carbon	✓	0.1 wt%				
Others						
Electrical conductivity					✓	NA
pH	✓	NA	✓	NA	✓	NA

NA - Not applicable

1 Leachate preparation according to NRA (1994), 10:1 liquid to solid ratio.

2 The table presents the desired limit of detection for the analysis. Higher LoDs may be reported on analytical data sheets due to interference between analytes within specific samples or if the laboratory needed to dilute samples to achieve results within the calibrated range for that instrument.

Analytical QA procedures

Introduction

Quality Assurance (QA) is a system of review and audit that assesses the effectiveness of that product and assures the producer and user that defined standards of quality have been met. If we consider site investigation and chemical analysis, QA is the management system that ensures these measures are in place and working as intended.

QA within the laboratory form part of relevant certification programmes (such as UKAS and MCERTS) and, indeed, will be undertaken in some form by any reputable analyst, whether for a certified technique or not. Laboratory QA/QC is beyond the control of Tier Environmental and will not be considered further in this document, although the relevant laboratory documentation can be obtained upon request. QA must also form part of the design and execution of a site investigation.

Two parameters often used to assess measurement quality objectives are bias and precision. Bias is a systematic deviation in the data. For example, a positive bias (concentrations higher than in reality) would be introduced if sampling bottles were a source of the analyte and this fact was unknown. Precision is the variation in the measurements around a central 'expected' value. This could be due both to real variability in the environmental medium being measured and random errors in the analytical process. Both precision and bias can be assessed by the use of appropriate blanks and replicates within the site investigation programme.

The objectives of the QA activities undertaken in this present site investigation were to recognise and quantify systematic bias within the analytical dataset and to obtain an indication of precision. In environmental samples, much of the observed variability is likely to result from heterogeneity in the sampled medium, particularly for soil and sediment samples.

Such QA practice within the sampling programme is required by current guidance (e.g., Environment Agency report P5-065/TR (2000); Environment Agency LFTGN02 (2002); BS 10175:2001).

Alternative QA procedures to the generic approach presented in this appendix may be specified for a project, provided case-specific justification is given.

QA checking procedure (data validation)

The responsible Engineer and Project Reviewer are required to undertake data validation and provide comment on data quality within the main body of the report(s) issued, when noteworthy matters arise. This QA checking should involve:

Confirming that data reported by the laboratory have achieved the standards specified by the certification scheme (MCERTS or UKAS). This will be indicated on the analytical certificates issued by the laboratory.

Checking that the limit of detection (LoD) and limit of quantification (LoQ) achieved by the laboratory for an individual analyte is appropriate for the purposes of the report. LoD and LoQ will vary dependent upon analyte concentrations, sample matrix properties and interference from co-contaminants.

A check that the reported range of concentrations are reasonable for the analyte. For example, the dissolved concentration of an analyte in a water sample should not exceed saturation. If it does, then this merits further consideration (e.g., was colloidal organic matter or other solid-phase material present or could there have been unobserved free-phase organic liquid?) and explicit comment. At its simplest, there may be a unit error.

Where analysis involves reporting of Tentatively Identified Compounds (TICs; normally by mass spectrometry), the reviewers should check that these might reasonably be expected at the site under consideration. The uncertainties in identification by MS mean that it is not uncommon that TICs are incorrectly assigned. In cases of doubt, the analytical laboratory can re-check the raw data and confirm.

A review of the analytical precision by comparing data obtained for duplicate samples. There is no absolute threshold - variability is entirely dependent upon the sample matrix and manner in which the contaminant has entered the sample. Variability that cannot reasonably be assigned to such factors (for example a very high apparent variability in data for sediment-free water samples) should be reviewed with the laboratory. Variability that is attributable to the sample matrix can nevertheless provide important pointers to improve understanding of contaminant transport pathways and the risks posed by pollutant linkages (e.g., soil heterogeneity, the association of contamination with particular soil fractions, the presence of residual NAPL within soil pores or the role of suspended sediments in contaminant transport).

Confirmation that no errors have been introduced by data transcription, unit conversion or corrections between preliminary and certificates issued by the laboratory. The reviewer should audit a proportion (typically 5-10%) of all data from the original (final) certificates of analysis through to the equivalent values in the report for those specific samples.

In is important to consult the analytical laboratory if apparent QA issues arise. Many apparent concerns can be adequately resolved on the basis of revisiting the raw analytical data or by obtaining a better understanding of the inherent limitations of the analysis for a particular matrix or sample type.

APPENDIX N - COAL TAR CONTAINING ASPHALT CONSIDERATIONS

Tier Environmental Approach to Coal Tar in Asphalt

This appendix outlines a summary of available guidance and describes the Tier Environmental interpretation of available information to inform, in a robust manner, the approach adopted to consider on, or both of the following objectives:

- If asphalt is present on site, what the waste classification and waste disposal route should be if there is an intention to grub up and dispose of either some, or all, of the asphalt;
- If asphalt is present and there is an intention (subject to suitability for re-use assessment) for re-use, then to determine how that may be achieved.

In order to info the decision making with respect to the above, the following guidance documents and articles have been referenced:

- Waste Classification - Guidance on the classification and assessment of waste (1st Edition v1.2.GB) Technical Guidance WM3. Environment Agency, Scottish Environmental Protection Agency and Natural Resources Wales;
- Managing Reclaimed Asphalt Highways And Pavements - An ADEPT & Construction Demolition Waste Forum Guidance Note (Version 2019 Revision 1, August 2019);
- Environment Agency Regulatory Position Statement 075: 'The movement and use of treated asphalt waste containing coal tar';
- Environment Agency Regulatory Position Statement 157: 'Storing and treating asphalt waste: RPS 157' (Updated 4th February 2020);
- Environment Agency WRAP Quality Protocol - Aggregates from inert waste. End of waste criteria for the production of aggregates from inert waste;
- CIRIA Sustainable management of surplus soil and aggregates from construction, CIRIA, C809, dated 2023;
- Contaminated Land: Applications in Real Environments (CL:AIRE) (2011) Definition of Waste Code of Practice (version 2);
- SEPA Guidance on the Production of fully Recovered Asphalt Road Planings (Scotland);
- AGS magazine – article entitled 'Coal Tar: Analysis and Detection' (March 2023 edition)

COAL TAR CONTAINING ASPHALT

WM3 includes the following text with regards to ascertaining the correct EWC code for waste asphalt:

> ***Waste containing coal tar***
>
> *This example provides guidance on the classification of road asphalt waste containing coal tar (AWCCT) and other construction and demolition wastes containing coal tar and related materials. This does not apply to wastes where coal tar is known not to be present.*
>
> *Coal tar and many coal tar distillates are potentially carcinogenic hazardous substances. If the concentration of such materials is at or above 0.1% the waste would possess the hazardous property HP 7 carcinogenic. Coal tar is complex mix of hydrocarbon compounds which have to be added to together to determine the concentration of coal tar. Therefore the 0.1% concentration must be applied to all fractions of the coal tar. Assessments based on PAH's alone are not consistent with the legislation and cannot be used to classify a waste as non-hazardous. However, if the concentration of coal tar is known, the MCL under the GB CLP uses benzo[a]pyrene (BaP) as a marker compound for carcinogenicity for certain coal tar entries. Where the concentration of BaP is less than 0.005% of the concentration of the coal tar (rather than in the waste as a whole), the coal tar is not carcinogenic and does not need to be considered for HP7.*
>
> *'Black top' (road surface) waste*
>
> *The following applies only to Asphalt material classified in the List of Wastes as*
>
> - *17 03 01* bituminous mixtures containing coal tar*
> - *17 03 02 bituminous mixtures other than those mentioned in 17 03 01*
>
> *Where the concentration of benzo[a]pyrene is at or above 50 ppm (mg/kg) in the black top alone (excluding other material) then the amount of coal tar should be considered to be sufficient (0.1% or more) for the material to be hazardous and thus coded 17 03 01*. Any sampling of black top would need to ensure that layers with different concentrations of benzo[a]pyrene are identified and sampled.*

Tier Environmental have observed third party assessments that have determined 'black top' (road surface) waste as non-hazardous when benzo(a)pyrene is at or below 50mg/kg; however, it is considered that this represents a misunderstanding of WM3 guidance for the following reasons:

1) The first paragraph in the 'Waste containing coal tar' section of WM3 is clear to state that *'This example provides guidance on the classification of road asphalt waste containing coal tar (AWCCT) and other construction and demolition wastes containing coal tar and related materials.';*
2) It also states, explicitly that *"Assessments based on PAH's alone are not consistent with the legislation and cannot be used to classify a waste as non-hazardous"*. Tier Environmental consider this statement is tacit to include road asphalt waste containing coal tar (AWCCT) as it is mentioned in the previous paragraph;
3) The 'Black top' (road surface) waste sub-section states *"Where the concentration of benzo[a]pyrene is at or above 50 ppm (mg/kg) in the black top alone (excluding other material) then the amount of coal tar should be considered to be sufficient (0.1% or more) for the material*

to be hazardous and thus coded 17 03 01"*. However, this does not mean that benzo(a)pyrene concentrations less than 50mg/kg can be classed as non-hazardous when you take into consideration the text in Item 2), above. This either suggests a contradiction in the guidance, or that benzo(a)pyrene alone can only be used to prove the whether the AWCCT is hazardous but that the opposite does not classify the material as non-hazardous such that to prove non-hazardous you would still require the concentration of the coal tar to be determined.

The AGS article (March 2023) states that for determining whether asphalt waste is hazardous waste that "we *also* have to consider [B(a)P being greater than or equal to 50mg/kg]" suggesting that is consistent with the Tier Environmental interpretation. However, a bit further down the article states that the ADEPT Guidance reiterates and references WM3 and *"the use of the 50mg/kg level for measuring B(a)P should the total coal tar concentration values not be available for measurement"*. Tier Environmental's interpretation of WM3 is that it does not make reference to the 50mg/kg B(a)P level being used as a threshold *in lieu* of a coal tar concentration value being available.

So if, in order to determine whether asphalt is non-hazardous waste, there is a requirement for the concentration of coal tar to be analysed then a decision needs to be made as to what type of coal tar test is adequate. The AGS article (March 2023) highlights that *"One of the challenges facing laboratories is the lack of standardization in the specification from clients and, also, the analysis itself".* The article explains that a review by the AGS Laboratory Working Group revealed a range of techniques and *"a potentially confusing landscape for the industry to navigate"*.

The ADEPT Guidance states there is data corroborating this assertion that 50mg/kg correlates to around 1000mg/kg road tar, this data is presented in Appendix D4.0. of the ADEPT Guidance document; however, Tier Environmental notes that the ADEPT Guidance states *"This guidance is not intended as a complete guide to managing waste materials and should be read in conjunction with Regulations and guidance issued by the relevant Regulator, these will take precedence over this guidance in all cases"*. As such, with respect to waste classification WM3 takes precedence over the ADEPT Guidance and WM3 does not provide details of any corroboration between B(a)P and road tar.

RE-USE OF ASPHALT

The AGS article (March 2023) summarises the ADEPT Guidance as follows:

> The ADEPT guidance provides more specific focus on the managing of reclaimed asphalt and provides information in to the classification of waste. It reiterates and references WM3 and the 0.1% threshold for coal tar and also the use of the 50mg/kg level for measuring B(a)P should the total coal tar concentration values not be available for measurement [see Tier Environmental comment above regarding this statement].
>
> What the ADEPT guidance then gives, is a clear and defined protocol for sampling, sample preparation, sample volumes and data review with also indication of analytical requirements and basic principles. The document gives details and refences to specific British Standards for the sampling and preparation of road plannings and road cores (BS 932 and BS 12697), and then recommends the following testing:
>
> - PAH analysis in the laboratory by gas chromatography mass spectrometry (GCMS) for the USEPA16 suite of PAHs, though only B(a)P may be necessary. It is worth noting here that labs will test for the full suite in a single process so requesting B(a)P only will usually give no cost or speed benefit. Should further characterisation for landfill disposal be required then the USEPA17 suite inclusive of coronene should be used,
> - Screening methods such as PAK marker sprays or Acrylic White sprays can be used but validated by the use of frequent 'full' analysis,
> - Specifies the use of Monohydric Phenol (Phenol Index) testing, with a potential requirement to speciate the individual compounds (Phenol, Cresols and Xylenols) should the levels be sufficiently high.
>
> In terms of data review the 3 potential outcomes are:
>
> 1) Classed as Inert for the purposes of the Quality Protocol for Aggregates from Inert Waste if:
>   a. The guidance of sample numbers has been observed,
>   b. All the B(Aa)P results are below 25mg/ kg,
>   c. There are ≥3 results.
> 2) Classed as Hazardous and treated accordingly is:
>   a. All the B(a)P results are above 50mg/kg Note: If there are limited results and close to the threshold then further investigation is required.
> 3) Full statistical analysis required to make assessment if:
>   a. Some or all results are above 25mg/kg and below 50mg/kg.

Tier Environmental once again notes that the ADEPT Guidance states *'This guidance is not intended as a complete guide to managing waste materials and should be read in conjunction with Regulations and guidance issued by the relevant Regulator, these will take precedence over this guidance in all cases'*. As such, with respect to *waste classification* WM3 takes precedence over the ADEPT Guidance.

ENVIRONMENT AGENCY REGULATORY POSITION STATEMENTS 075 AND 157

The ADEPT Guidance describes that these documents allow the treatment, movement and use of asphalt waste containing coal tar in construction operations for hard paving structures in England only. They do not enable the producer to demonstrate that end of waste criteria has been met, but they do state that if followed correctly, the EA will not pursue an application for an environmental permit.

CIRIA C809 states the following:

RPS 75 (EA, 2014d) allows the use of treated asphalt waste containing coal tar (AWCCT) (i.e. classified as hazardous) in specific construction operations for hard paving structures such as roads, pavements, footways, car parks and airfields.

While AWCCT is commonly treated by crushing, grinding, and screening, the treatment of AWCCT is not covered by this RPS. The AWCCT needs to meet the requirements of the Specification for Highways Works and can only be used in bound sub-surface layers, e.g. sub- base, base and binder layers.

SEPA GUIDANCE ON THE PRODUCTION OF FULLY RECOVERED ASPHALT ROAD PLANINGS (SCOTLAND)

The ADEPT Guidance describes that this document provides approved methodology that allows producers to demonstrate when aggregate produced from asphalt has been fully recovered and has ceased to be a waste. This guidance is only applicable in Scotland. However, it is not applicable to tar bound aggregates, asphalt contaminated with other substances or asphalt removed/processed by any other method than a road planer.

WRAP QUALITY PROTOCOL - AGGREGATES FROM INERT WASTE. END OF WASTE CRITERIA FOR THE PRODUCTION OF AGGREGATES FROM INERT WASTE

The ADEPT Guidance summarises that this document is applicable to England, Northern Ireland and Wales. It identifies that certain specified inert wastes (including uncontaminated asphalt) may achieve end of waste status through treatment and use in compliance with the Quality Protocol for recycled aggregates from inert waste.

RE-USE UNDER DOWCOP

Tier Environmental consider that *in situ* asphalt may be reasonably considered for re-use under DoWCoP, (subject to following DoWCoP fully including conducting site-specific risk assessments to demonstrate suitability for use) as it would constitute "*Source segregated aggregate material arising from demolition activities….*".

If the asphalt materials are coal tar containing then it would be necessary to consider the potential risks to human health and controlled waters carefully and agreement with the Local Authority (via Contaminated Land Officer or equivalent), Environment Agency / Natural Resources Wales local waste team / groundwater team would be necessary.

Due consideration may also need to be given to Series 600 if the materials is to be combined with other materials to form an engineering material.

APPENDIX O - COMPLYING WITH CONTROL OF ASBESTOS REGULATIONS 2012

Complying with Control of Asbestos Regulations (CAR): Risk Assessments, Licensing and Training

This appendix outlines CAR risk assessments and where they should be applied in relation to assessing and remediating brownfield sites. The information below details the different classifications of work with asbestos under CAR, summarises the legal requirements for asbestos awareness training for all involved in the investigation and management of asbestos containing soil (ACS), and details the potential requirements for suitable proficiency training relating specifically to ACS.

CAR RISK ASSESSMENTS

A CAR Risk Assessment is required for any work which may expose employees to asbestos. It is recommended that a precautionary approach is adopted if there is any doubt about risks associated with asbestos.

There are three main activities for potential asbestos exposure during work on brownfield sites:

- Site reconnaissance visits;
- Site investigation works; and
- Site remediation.

CAR risk assessments are needed at each stage but may be incorporated during the site investigation stage into the overarching health and safety risk assessments.

The CAR risk assessment must:

- Identify the type of asbestos to which employees are liable to be exposed, where possible, or assume it is present in different forms;
- Determine the type and extent of exposures to asbestos that may occur during the work.
- Identify the steps to be taken to prevent exposure or reduce it to the lowest level reasonably practicable; and,
- Consider the effects of control measures that have been or will be taken.

The CAR risk assessment should include any information used to inform the risk assessment such as asbestos reports or desk study information. In the event that this information is not available, the assessor should be assumed that all forms of asbestos may be present on site.

For all investigation and remediation of ACSs, a detailed written work plan should he produced and followed as detailed on the HSE website and in the CAR.

The CAR risk assessments for specific investigations or remediation projects, will determine whether or not work is 'licensable work' (LW)**,** notifiable non-licensable work' (NNLW) or 'non-licensed work' (NLW). In addition, training requirements are also defined by the CAR risk assessment.

Some examples of control measures that apply during site reconnaissance, site investigation works, and site remediation are given below and should be applied depending on the asbestos risks identified for the site at each stage of investigation:

- Avoiding stirring up dust;
- Cleaning footwear after site works;
- Removing and bagging any overalls for disposal/laundering;
- Respirators and hygiene facilities for high risk sites;
- Segregated welfare units;
- Wetting ground
- Minimising soil disturbances;
- Implementation or retention of capping/break layers;
- Implementation of awareness training;
- Air monitoring;
- Managing stockpiles;
- Area segregation;
- Wheel washing
- Road washing/cleaning

It is important to note that during site reconnaissance visits, site investigation works and site remediation that asbestos should not be considered in isolation and control measures are likely to form part of a wider health and safety precautions.

Respiratory protective equipment (RPE)

RPE is the last line of defence and its requirement would be defined by the CAR risk assessment. HSE (2013b) advises that RPE should have an assigned protection factor of 20 or more for all work with asbestos. In certain instances, full face-piece, positive pressure respirators with a protection factor of 40 are necessary (to EN 12942:1998, TM3).

Suitable types of RPE for most ***short*** duration non-licensed asbestos work:

- Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3)
- Half mask respirator (to standard EN140) with P3 filter
- Semi-disposable respirator (to EN405) with P3 filter

These filters are not suitable for people with beards/stubble or for long or continuous use.

LICENSING

CAR defined certain types of activities involving asbestos as 'licensable work' (LW) or as 'notifiable non-licensable work' (NNLW). All other work would be 'non-licensable work' (NLW).

LW is defined as:

- work where exposure is not 'sporadic and low intensity'.
- work where the risk assessment cannot demonstrate that the control limits (four hour and 10 minute limits) will not be exceeded.
- work on asbestos coating
- work on AIB or insulation where risk assessment is either of first two points above or not of short duration (where short duration is defined for any work liable to disturb asbestos as taking less than two hours per week (including ancillary work) and no one person carries out that work for more than one hour').

NNLW includes work with:

- AIB or asbestos insulation of short duration that is not licensable.
- fire-damaged asbestos cement or asbestos cement damaged so as to create significant dust and debris.
- asbestos ropes, yarns, woven cloths in poor condition or handling cutting or breaking up the materials.
- asbestos papers, felts and cardboard in poor condition, unencapsulated or not bound into another material.

Work with weathered asbestos cement, air monitoring and collecting samples of ACM in buildings would not normally be notifiable.

It is impossible to specify definitively what activities will and will not be licensable. This decision should be made as part of the CAR risk assessment. CAR is not primarily aimed at work with ACSs and there is little published information on airborne asbestos concentrations during work with ACSs. Nevertheless, CAR will require some remediation projects, and occasionally site investigations, to be LW. Investigations on other sites may involve NNLW. The decision as to whether work is LW or NNLW should be made during the CAR risk assessment by those in charge of the brownfield site investigations and remediation projects.

TRAINING REQUIREMENTS

Asbestos health and safety courses are offered by a number of providers in the UK. Training courses that include the problem of identifying ACMs in soil should be undertaken at regular intervals by those involved in the investigation, assessment and management of sites where ACs are known or suspected. It is the role of the employer to identify the level of training required for an employee based on their role, experience and duties. Reference to Regulation 10 of CAR should be referred to for more information on training requirements.

Recognising asbestos within soils is challenging due to the heterogeneity of such soils and the discolouration of asbestos by smeared soil. Specific training for ground workers should include understanding fibre release potential, potential control measures in the field, how to take representative ACSs safely, sample labelling and what analytical tests are available and when the y should be implemented.

Health and safety training required under CAR includes asbestos awareness, non-licensable work (including notifiable non-licensable work) and licensable work with asbestos.

In addition to health and safety training, some staff involved in the technical identification on site of ACMs, sampling and analysis may require technical proficiency training (competency training).

Training vs. Competence

HSE (2005) identifies that 'training alone does not make people competent. Training must be consolidated by practical experience so that the person becomes confident, skilful and knowledgeable in practice on the job'. It is critical that ACS surveyors demonstrate competency with details of relevant field experience alongside training and examples of previous works/references.