



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

TE1885-TE-00-XX-RP-GE-003-V02

16012-TRE-BRY-XXX-RP-EN-000003 REV.P02

01 APRIL 2025

FINAL

Prepared for:

Wilmott Dixon on behalf of Transport
for Greater Manchester

Prepared by: Alex Preston

Tier Environmental Ltd

Chester	London	Manchester	Bromsgrove	Bridgwater	Sheffield
HQ Telephone 01244 684900			Telephone 01925 818388		
Website: www.tieruk.com			Email: environmental@tieruk.com		
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GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : i of vi
Engineer: Alex Preston
Date: 01/04/2025

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.	PREVIOUS INVESTIGATION FINDINGS.....	5
3.1.	Preliminary Risk Assessment Report For Bury Interchange Phase 1 (Report Ref: TE1885-TE-00-XX-RP-GE-001-V01 dated 18 th December 2024)	5
3.2.	Preliminary Risk Assessment Report For Bury Interchange Phase 2 (Report Ref: TE1885-TE-00-XX-RP-GE-002-V01 dated 18 th December 2024)	7
4.	PRELIMINARY CONCEPTUAL SITE MODEL	10
4.1.	Uncertainties.....	10
5.	FIELDWORK	13
5.1.	Scope of Ground Investigation.....	13
5.2.	Geoenvironmental Testing	14
5.3.	Geotechnical Testing.....	15
6.	GROUND CONDITIONS	17
6.1.	Strata Descriptions.....	17
6.2.	Obstructions.....	18
6.3.	Visual and Olfactory Evidence of Contamination	18
6.4.	Groundwater Observations During Fieldwork	19
7.	PRELIMINARY GEOTECHNICAL ASSESSMENT	20
7.1.	Mining and Quarrying	20
7.2.	Determination of pH and Water-Soluble Sulphate.....	20
7.3.	Preliminary Geotechnical Parameters	25
7.4.	Earthworks	28
7.5.	Groundworks, Excavation Stability and Groundwater Dewatering	28
7.6.	Pavements and Highways	29
8.	HUMAN HEALTH RISK ASSESSMENT	30
8.1.	Data Interpretation Approach	30
8.2.	Selection of Generic Assessment Criteria (GAC)	30
8.3.	Human Health Risk Assessment.....	31



**GROUND INVESTIGATION REPORT FOR BURY
INTERCHANGE TRACKSIDE WORKS**

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	ii of vi
Engineer:	Alex Preston
Date:	01/04/2025

8.4.	Asbestos.....	31
8.5.	Utilities.....	31
8.6.	Construction and Maintenance Workers.....	31
9.	CONTROLLED WATERS RISK ASSESSMENT	32
9.1.	Introduction	32
9.2.	Controlled Waters Environment Conceptual Site Model Summary	32
9.3.	Soil Leachate Testing.....	32
10.	REVISED CONCEPTUAL SITE MODEL AND GENERIC QUANTITATIVE RISK ASSESSMENT OF POLLUTANT LINKAGES	34
11.	PRELIMINARY WASTE MATERIALS CLASSIFICATION AND WASTE DISPOSAL ROUTE DETERMINATION	36
11.1.	Introduction	36
11.2.	Preliminary Waste Materials Classification and Waste Disposal Route Determination	37
11.3.	Materials Re-Use.....	39
12.	CONCLUSIONS AND RECOMMENDATIONS	40
12.1.	Conclusions	40
12.2.	Recommendations	40
13.	REGULATORY APPROVALS	41
14.	REFERENCES	42
15.	GLOSSARY OF TERMS.....	45

TABLES

Table 2.1 Current Site Overview.	3
Table 4.1 Preliminary Assessment of Potential Pollutant Linkages (Continued on Next Page).	11
Table 5.1 Scope of Ground Investigation and Rationale.....	13
Table 5.2 Schedule of Chemical Testing for Human Health Risk Assessment and Preliminary Waste Soils Assessment.	14
Table 5.3 Schedule of Chemical Testing for Controlled Waters Risk Assessment.	15
Table 5.4 Geotechnical Laboratory Testing Schedule.	15
Table 6.1 Structures / Underground Services / Obstructions Summary Table	18
Table 6.2 Field Observations of Groundwater.	19
Table 7.1 Assessment for Potential Sulphide Bearing (e.g. Pyritic) Ground	23
Table 7.2 Oxidisable Sulphides Calculations	23
Table 7.3 Results of Soil pH Testing and Water-Soluble Sulphate Determination.....	24
Table 7.4 Summary of Natural Moisture Content and Atterberg Limits.....	26



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : iii of vi
Engineer: Alex Preston
Date: 01/04/2025

Table 7.5 Soil Classification Test Results for Till.	27
Table 9.1 Summary of Measured Concentrations of Soil Leachate Potential Contaminants of Concern in Excess of WQS Values	32
Table 10.1 Revised Assessment of Potential Pollutant Linkages (Continued on Next Page).	35
Table 11.1 Preliminary Materials Waste Classification and Waste Disposal Route Determination	38

FIGURES

Figure 2.1 Phase Plan	4
Figure 7.1 Site Location Plotted on Principal Sulphate and Sulphide Bearing Strata in England and Wales (Extracted from BRE SD1).....	21
Figure 7.2 Site Location Plotted Relative to Coal Mining Areas of Great Britain (Extracted from BRE SD1)	22

APPENDICES

Appendix A - Drawings
Appendix B - Exploratory Hole Logs
Appendix C - Geoenvironmental Soil Laboratory Results
Appendix D - Geotechnical In Situ Fieldwork and Laboratory Results
Appendix E - Definitions of Terms Used in Qualitative and Quantitative Risk Assessments
Appendix F - Human Health Assessment Criteria
Appendix G - Controlled Waters Risk Assessment
Appendix H - Assessment Criteria Applied for Ground Gas
Appendix I - Chemical and Geotechnical Test Sampling



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : iv of vi
Engineer: Alex Preston
Date: 01/04/2025

EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by Wilmott Dixon on behalf of Transport for Greater Manchester to undertake a Ground Investigation in support of a full planning application for the redevelopment of Bury Interchange. This investigation focused solely on the trackside areas. 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. In accordance with Land Contamination Risk Management (LCRM) Environment Agency October 2020 the site is classified as a commercial development. It is anticipated that further detailed developmental specific ground investigation reports will need to be produced to aid with the different phases of development across the site.
Proposed land use	The Bury Interchange project comprises two phases: 1. Southern Access - construction of a new pedestrian footbridge with access between Union Square, the existing Metrolink platform and Pyramid Park to enable Bury Tram Stop to continue operating during Phase 2 works. This phase of work also includes refurbishing the existing Metrolink platforms including replacement of the existing platform canopy and enhanced passenger amenities/facilities. 2. Bury Interchange - demolition and replacement of the existing Interchange Building. A planning application for the second phase comprising the interchange is to be prepared for an anticipated submission in early-to-mid 2026.
Site location and surrounding land uses	The site is located at Bury Interchange, Bury, BL9 0AY. The site comprises an active railway station (Bury Interchange) and line of track running south. The application site is bounded by Pyramid Park/Market Street to the east, East Lancashire railway line to the south, Duke Street/Knowsley Place to the west and Bury Interchange to the north (platforms located below interchange building and associated road infrastructure including Angouleme Way). The site comprises three distinct elements: 1. Knowsley Place/Union Square (west of Metrolink) - Premier Inn, offices and Q park 2. Metrolink corridor and platform 3. Pyramid Park (east of Metrolink) - vacant park which is subject to planning permission (LPA ref. 70903/Full) for comprehensive remediation. There is also a small area of the existing surface car park to the west of the interchange building which is identified for the location of a temporary contractor compound. In terms of the wider interchange (second phase of the scheme), this part of the site is bounded by Kay Gardens to the north, Haymarket Street to the west and Angouleme Way to the south.
Site history	The majority of the north of the site is undeveloped from earliest record with the north, east and northwest are abutted by mixed commercial and residential buildings of Bury; a sand pit is recorded in the north of the site. The southern spit of the site is occupied by railway sidings. By 1890 the western edge of the site is shown to be a cutting which bends into the area of the sidings in the south. An abattoir is located in the centre of the site by 1890 though to 1976. Other site uses included a garage in the east of the site, on the eastern edge of Market Street, from 1937. Widespread redevelopment through 1975-1980 sees the north as carpark and then Bury Interchange station, railway cuttings are infilled and a new cutting, immediately east of the site, forms a new north-south rail from Bury Interchange. A new road layout sees Angouleme Way form an overpass through the centre of the north of the site. The southern spit of the site is within a new park area (Townside Field) with residual railway line on the southern boundary, disused by 1992, and reconstructed by 1994. By 2013 the land in the west of the site (now known as union square) is undergoing development into a hotel/office space in both the car park and grassed area.
Potential contaminative features	Made Ground associated with historic land uses as railway sidings and goods sheds with potential for associated tank features, and a predominantly off-site abattoir. The Department of the Environment Industry Profile for animal processing works, for the adjacent and partly on-site historic abattoir, suggest pathogens, solvents, bleaches and fuel oils as potential contaminants associated with this industry. Consideration has been given to the widespread redevelopment of the local area from the mid 1970 including construction of a new road (Angouleme Way) and car park within the historic abattoir site whereby a degree of Made Ground removal or remediation may have taken place though no records can confirm this. Local Authority landfill records show a known landfill centred at E 380314 ,N 410400 on the provided plan, which places it within the western boundary of the site, now known as union square. This is understood to be filled with inert subsoil as part of a Reclamation scheme in 1973 and since redeveloped in late 2000s and early 2010s as a hotel, offices and car park with remedial measures.
Mining and quarrying	The site is located within a coal mining area as defined by the Mining Remediation Authority (formerly the Coal Authority). A Consultants Coal Mining Report (CON29M) was ordered to further assess coal mining issues at the site. Results of this report do not indicate the site is at risk from past coal mining activity.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : v of vi
Engineer: Alex Preston
Date: 01/04/2025

Previous investigations	Two previous reports have been produced by Tier Environmental for the site and referenced below: - Preliminary Risk Assessment Report For Bury Interchange Phase 1 (Report Ref: TE1885-TE-00-XX-RP-GE-001-V02 dated 1st April 2025) - Preliminary Risk Assessment Report For Bury Interchange Phase 2 (Report Ref: TE1885-TE-00-XX-RP-GE-002-V02 dated 1st April 2025) A Detailed UXO Desk Study was completed by EOD Contracts Ltd (Ref: EOD/24/24140/DTS, dated November 2024) for the combined Phase 1 and Phase 2 site boundaries.
Fieldwork	The investigation was supervised by a Tier Environmental Geo-environmental Engineer and took place on 3rd November 2024. The investigation comprised: 2 No. hand dug pits to depths between 0.80m and 1.10m bgl. 4 No. window sample boreholes to depths between 1.32m and 1.99m bgl.
Laboratory testing	Samples of soil and soil leachate 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	Made Ground was encountered at depths typically between ground level and 1.31m and 1.95m bgl, comprising generally granular materials that constitute the build-up of the railway track bed. Railway ballast, overlying sand overlying a dense gravel sub-base was observed in all locations. Locally cohesive reworked Possible Made Ground was encountered in the northeast of the site. Underlying the Made Ground, observed in all exploratory location that penetrated the stratum were natural materials of cohesive Till. These were recovered to a maximum observed depth of 1.99m bgl. The Till strata comprised a stiff dark brown silty sandy, slightly gravelly clay.
Foundations and floor slabs	Due to the proposed nature of the development, the foundation solution required will be a detailed bespoke design for each different element. The investigations detailed in this report were preliminary and solely undertaken to obtain ground conditions in the trackside areas. Further extensive investigations are proposed which will allow a detailed foundation appraisal to be undertaken.
Sulphate class	It is considered that a Design Sulphate Class of DS-1 and ACEC Class AC-2z is appropriate for buried concrete at the site. At this stage the assessment should be considered preliminary and will be updated following further investigations.
Contamination – human health	No measured soil concentrations of potential contaminants of concern have been reported in excess of Generic Assessment Criteria (GACs) protective of human health appropriate to the proposed land use. On this basis, it is not considered that the site represents a potential risk to end-users. The human health risk assessment will be updated once further investigations have taken place across the wider site and should be considered preliminary at this stage.
Contamination – controlled waters	Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Pennine Lower Coal Measures Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an artificial lake within pyramid park circa 100m east of the site though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 675m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate. Measured leachable concentrations of Iron have been reported only in excess of the WQS protective of the controlled waters environment by up to two orders of magnitude. Given the marginal nature of these exceedances, the potential for significant dilution within the groundwater beneath the site, the historical commercial / industrial heritage of the wider area surrounding the site, the absence of a continuous groundwater body beneath the site, the Low/Moderate sensitivity of the controlled waters environment as described in Section 9.2, the localised nature of those soil leachate concentrations in excess of the WQS and the absence of any reported widespread leachable concentrations and the fact that the site will incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils, the exceedances are not considered to pose a risks to controlled waters. The controlled waters risk assessment will be updated once further investigations have taken place across the wider site and should be considered preliminary at this stage.
Gas protection	A detailed ground gas risk assessment will be undertaken during the future proposed investigations.
Radon requirements	Basic radon protection measures are not currently required for the proposed development on this site.
Waste soils classification	Basic waste characterisation has determined that Made Ground soils should be disposed to a non-hazardous landfill with the following exceptions: - The results of WAC tests have confirmed that Made Ground in the vicinity of BH-P2-101, HDP-P2-102 and BH-P2-107 should be disposed to an inert waste landfill. - It is anticipated that natural soils will be suitable for disposal to an inert landfill. A updated waste soils assessment will be produced following the completion of further works across the wider site.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : vi of vi
Engineer: Alex Preston
Date: 01/04/2025

Materials re-use	Subject to volumetric cut and fill requirements all of Made Ground materials and all of natural soil materials and may be considered chemically suitable for potential re-use without remediation 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 11.3 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	Intrusive works across the wider site area should be undertaken and should adhere to the Site Investigation Scope produced by Renaissance (Dated October 2024) presented in drawing BURY-REN-XX-XX-SK-S-01000-P03 and 01001-P03.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 1 of 46
Engineer: Alex Preston
Date: 01/04/2025

1. INTRODUCTION

Tier Environmental was commissioned by Wilmott Dixon on behalf of Transport for Greater Manchester to undertake a Ground Investigation on an area of land referred to as Bury Interchange Trackside Works, located at Bury, BL9 0AY. (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

This report pertains solely to the trackside area of Bury Interchange. It is anticipated that further detailed developmental specific ground investigation reports will need to be produced to aid with the different phases of development across the site. The conclusions presented within this report should be considered preliminary and not representative of conditions across the wider site area.

1.1. Proposed Development

Under current proposals the development will comprise the construction of a new Transport Interchange in Bury Town Centre. The Bury Interchange project comprises two phases:

- 1. Southern Access - construction of a new pedestrian footbridge with access between Union Square, the existing Metrolink platform and Pyramid Park to enable Bury Tram Stop to continue operating during Phase 2 works. This phase of work also includes refurbishing the existing Metrolink platforms including replacement of the existing platform canopy and enhanced passenger amenities/facilities.
- 2. Bury Interchange - demolition and replacement of the existing Interchange Building.

A planning application for the second phase comprising the interchange is to be prepared for an anticipated submission in early-to-mid 2026.

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.

This report pertains solely to the trackside element of ground investigation works.

1.2. Previous Reports

Two previous reports have been produced by Tier Environmental for the site and referenced below:

- Preliminary Risk Assessment Report For Bury Interchange Phase 1 (Report Ref: TE1885-TE-00-XX-RP-GE-001-V01 dated 18th December 2024)
- Preliminary Risk Assessment Report For Bury Interchange Phase 2 (Report Ref: TE1885-TE-00-XX-RP-GE-002-V01 dated 18th December 2024)



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	2 of 46
Engineer:	Alex Preston
Date:	01/04/2025

A Detailed UXO Desk Study was completed by EOD Contracts Ltd (Ref: EOD/24/24140/DTS, dated November 2024) for the combined Phase 1 and Phase 2 site boundaries.

Multiple third-party historic reports were reviewed and summarised within the above Tier Environmental reports.

1.3. Objectives

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

- To determine the historical and current land use.
- To establish 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.
- Provide preliminary outline remedial measures to manage any identified risks.
- To provide preliminary geotechnical parameters to inform floor slab and foundation recommendations.

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 as 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 preliminary risk assessments, review of third-party information, 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.

This report has been prepared for the sole use of Wilmott Dixon & Transport for Greater Manchester. 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.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 3 of 46
Engineer: Alex Preston
Date: 01/04/2025

2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Trackside Works Bury Interchange
Site address	Bury Interchange, Bury, BL9 0AY. A site location plan is included as Drawing No. TE1885-TE-00-XX-RP-001-V01 within Appendix A. The application site is bounded by Pyramid Park/Market Street to the east, East Lancashire railway line to the south, Duke Street/Knowsley Place to the west and Bury Interchange to the north (platforms located below interchange building and associated road infrastructure including Angouleme Way). The site comprises three distinct elements: 1. Knowsley Place/Union Square (west of Metrolink) - Premier Inn, offices and Q park 2. Metrolink corridor and platform 3. Pyramid Park (east of Metrolink) - vacant park which is subject to planning permission (LPA ref. 70903/Full) for comprehensive remediation. There is also a small area of the existing surface car park to the west of the interchange building which is identified for the location of a temporary contractor compound. In terms of the wider interchange (second phase of the scheme), this part of the site is bounded by Kay Gardens to the north, Haymarket Street to the west and Angouleme Way to the south.
National Grid Reference (NGR)	380399 410392
Approximate site area	1.032ha
Site shape	The site is an irregular elongate shape.
Current land use on the site	The site forms part of Bury Interchange station, with station and platform buildings in the north of the site, and railway lines extending south just east of the site boundary. Underground service drawings have not been provided to Tier Environmental; however, there remains a potential for such features to be present beneath the site.
Surrounding land uses	The site is set within a mixed commercial and residential area with the wider Bury Interchange to the north, car parking and commercial buildings including a hotel to the west and Bury College and a disused park to the east.
General topography and ground levels	The track level of the within the cutting is at approximately 86m AOD, with levels to the west at 91.4m AOD and to the east circa 94m AOD; the overpass is at circa 95m AOD.

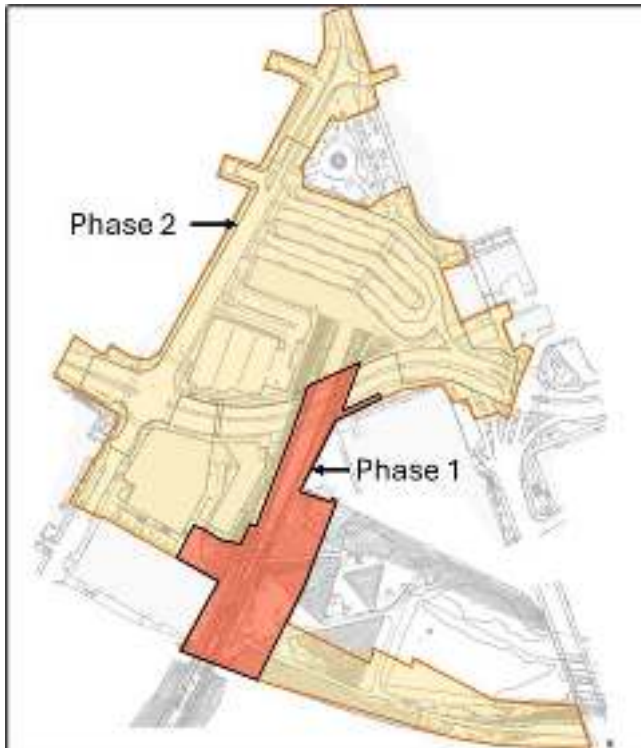
Red line boundaries for each site Phase are shown below.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN- 000003 REV.P02
Page No :	4 of 46
Engineer:	Alex Preston
Date:	01/04/2025

Figure 2.1 Phase Plan





GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 5 of 46
Engineer: Alex Preston
Date: 01/04/2025

3. PREVIOUS INVESTIGATION FINDINGS

3.1. Preliminary Risk Assessment Report For Bury Interchange Phase 1 (Report Ref: TE1885-TE-00-XX-RP-GE-001-V02 dated 1st April 2025)

Introduction	Tier Environmental was commissioned by Wilmott Dixon on behalf of Transport for Greater Manchester to undertake a desk study and Phase I Preliminary Risk in support of a full planning application for the first phase (known as 'Phase 1 Bury Tram Stop') of the redevelopment of Bury Interchange. The purpose of this investigation was to establish land use history and review the available information to determine the geoenvironmental setting of the site and develop a preliminary conceptual site model with due consideration of potential soil and groundwater contamination, hazardous ground gases and mining. In accordance with Land Contamination Risk Management (LCRM) Environment Agency October 2020 the site is classified as a commercial development.
Proposed land use	The Bury Interchange project comprises two phases: 1. Southern Access - construction of a new pedestrian footbridge with access between Union Square, the existing Metrolink platform and Pyramid Park to enable Bury Tram Stop to continue operating during Phase 2 works. This phase of work also includes refurbishing the existing Metrolink platforms including replacement of the existing platform canopy and enhanced passenger amenities/facilities. 2. Bury Interchange - demolition and replacement of the existing Interchange Building. A planning application for the second phase comprising the interchange is to be prepared for an anticipated submission in early-to-mid 2026.
Site location and surrounding land uses	The site is located at Bury Interchange, Bury, BL9 0AY. The site comprises an active railway station (Bury Interchange) and line of track running south. The application site is bounded by Pyramid Park/Market Street to the east, East Lancashire railway line to the south, Duke Street/Knowsley Place to the west and Bury Interchange to the north (platforms located below interchange building and associated road infrastructure including Angouleme Way). The site comprises three distinct elements: 1. Knowsley Place/Union Square (west of Metrolink) - Premier Inn, offices and Q park 2. Metrolink corridor and platform 3. Pyramid Park (east of Metrolink) - vacant park which is subject to planning permission (LPA ref. 70903/Full) for comprehensive remediation. There is also a small area of the existing surface car park to the west of the interchange building which is identified for the location of a temporary contractor compound. In terms of the wider interchange (second phase of the scheme), this part of the site is bounded by Kay Gardens to the north, Haymarket Street to the west and Angouleme Way to the south.
Site history	The site comprises principally of railway infrastructure including goods sheds and rail lines from 1851 to circa 1976. The site is within an area of shallow earthworks in an 'L' shape from the Old Opera House circa 80m north and extending eastwards in conjunction with the railway lines, with the far north of the site at a higher level with an embankment down to the good sheds and railway level. Major redevelopment by 1980 sees removal of existing buildings, infilling of some land, and construction of the current station and rail layout. The wider site sees a new road layout and redevelopment of land adjacent to the site. The surrounding area has comprised industrial uses including a timber yard and warehouse 80m west of the site and woollen mill from earliest records, and notably an abattoir immediately west from 1851 which expands through to 1976 when it is no longer shown. By 1957 the land to the north of the site has been redeveloped with the expansion of the Market Hall with an open market immediately north, which are removed by 1973 for a car park. A second phase of redevelopment by 1976 sees construction of the approximately present-day layout. By 2013, disused land to the west of the site (now known as union square) is undergoing development into a hotel and offices. Pyramid Park The proposed new Southern Access footbridge lands on to the Pyramid Park site. Bury Council, as applicant, has recently secured full planning permission (LPA ref. 70903/Full) for the remediation of the Pyramid Park site and construction of a new vehicular access road. The Pyramid Park site was formerly a railway station and sidings before being reclaimed as public open space in the 1970's. Planning permission was subsequently granted in December 2024 subject to a suite of planning conditions. The remediation of the site is the first phase in advance of the Council procuring a developer to progress with a residential scheme (subject to separate planning application in due course).
Previous Reports Findings	Third party reporting for land to the east of the site, associated with the market redevelopment, and for land within Pyramid Park (planning permission ref. 70903/Full - approved December 2024) in the southeast of the site, have



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 6 of 46
Engineer: Alex Preston
Date: 01/04/2025

	been reviewed. A series of ground investigations and desk studies for each site area were completed. No potential contaminants of concern were recorded within the market area for the proposed continued commercial land use. Asbestos in the form of fibre bundles of amosite or chrysotile were recorded in 8 no. samples of Made Ground in Pyramid Park, in addition to Made Ground with elevated PAH compounds, hydrocarbon odours, and inclusions of clinker, ash, coal and slag within or adjacent to the pyramid structures.
Geology, hydrogeology and hydrology	Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Pennine Lower Coal Measures Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an artificial lake within a park circa 100m east of the site, in land east of Market Street, though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 675m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate.
Ground gases	A sand pit was recorded 30m west of the north of the site from 1849, and a reservoir 50m south, infilled by 1891 and 1976 respectively. The site itself has been subject to significant earthworks, most recently in circa 1973-1976 when the old railway cuttings are infilled, likely associated with the BSG records identifying the site to be underlain by 'worked ground'. On site and nearby landfill records for other railway cuttings indicate use of 'inert' waste, notable in the west of the site in the 1970s during the wider redevelopment cycle. Gas generation potential for any on and off-site sources is considered to be relatively low.
Radon requirements	Basic radon protection measures are not currently required for the proposed development on this site. In addition to the above, 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, no basements or converted cellars / 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.
Ecological sensitivity	The site does not lie within an ecologically sensitive area. However, the site is located within the Townside Site of Biological Interest (SBI - Grade B site) and within one SSSI Impact Risk Zone. The type of development proposed at the site does not constitute further consultation within the SSSI Impact Zone.
Potential contaminative features	Made Ground associated with historic land uses as railway sidings and goods sheds with potential for associated tank features, and a predominantly off site abattoir. The Department of the Environment Industry Profile for animal processing works, for the adjacent and partly on-site historic abattoir, suggest pathogens, solvents, bleaches and fuel oils are potential contaminants associated with this industry. Consideration has been given to the widespread redevelopment of the local area from the mid 1970 including construction of a new road (Angouleme Way) and car park within the historic abattoir site whereby a degree of Made Ground removal or remediation may have taken place though no records can confirm this. Local Authority landfill records show a known landfill centred at E 380314 ,N 410400 on the provided plan, which places it within the western boundary of the site, now known as union square. This is understood to be filled with inert subsoil as part of a Reclamation scheme in 1973 and since redeveloped in late 2000s and early 2010s as a hotel, offices and car park with remedial measures.
Mining and quarrying	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report (CON29M) was ordered to further assess coal mining issues at the site. The report is contained within Appendix C. Results of this report do not indicate the site is at risk from past coal mining activity.
Unexploded ordnance	A Detailed UXO Desk Study was completed by EOD Contracts Ltd (Ref: EOD/24/24140/DTS, dated November 2024) for the combined Phase 1 and Phase 2 site boundaries. This is included within Appendix I. The risk level on site is deemed as Low and no further risk mitigation strategy is required. The nearest recorded bomb strike is over 450m from the site and therefore outside the expected offset (j curve) of 5.3m also 1946 aerial photography shows possible bomb damage associated with buildings 100m east of the site. The site has been subject to post war development including a subway under the site.
Other issues	Consideration should be given to anecdotal evidence of historic unrecorded tunnels within close vicinity to the site, though there is no evidence these features intercept the Phase 1 site boundary.
Waste soils classification	Based on the history of the site and the anticipated potential contaminants of concern it is considered possible that hazardous waste soil materials may be present beneath some areas of the site; however, this will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).
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



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 7 of 46
Engineer: Alex Preston
Date: 01/04/2025

	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. In addition, Section Error! Reference source not found. 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	Intrusive works should adhere to the Site Investigation Scope produced by Renaissance (Dated October 2024) presented in drawing BURY-REN-XX-XX-SK-S-01000-P03 and 01001-P03.

3.2. Preliminary Risk Assessment Report For Bury Interchange Phase 2 (Report Ref: TE1885-TE-00-XX-RP-GE-002-V02 dated 1st April 2025)

Introduction	Tier Environmental was commissioned by Wilmott Dixon on behalf of Transport for Greater Manchester to undertake a desk study and Phase I Preliminary Risk Assessment in support of the second phase (known as 'Phase 2') of the redevelopment of Bury Interchange. The purpose of this investigation was to establish land use history and review the available information to determine the geoenvironmental setting of the site and develop a preliminary conceptual site model with due consideration of potential soil and groundwater contamination, hazardous ground gases and mining. In accordance with Land Contamination Risk Management (LCRM) Environment Agency October 2020 the site is classified as a mixed residential and commercial development.
Proposed land use	The Bury Interchange project comprises two phases: 1. Southern Access - construction of a new pedestrian footbridge with access between Union Square, the existing Metrolink platform and Pyramid Park to enable Bury Tram Stop to continue operating during Phase 2 works. This phase of work also includes refurbishing the existing Metrolink platforms including replacement of the existing platform canopy and enhanced passenger amenities/facilities. 2. Bury Interchange - demolition and replacement of the existing Interchange Building. A planning application for the second phase comprising the interchange is to be prepared for an anticipated submission in early-to-mid 2026.
Site location and surrounding land uses	The site is located at Bury Interchange, Bury, BL9 0AY. A site location plan is included as Drawing No. TE1885-TE-00-XX-RP-001-V01 within Appendix A. The site forms part of Bury Interchange station, with station and platform buildings in the north of the site. The application site is bounded by Pyramid Park/Market Street to the east, East Lancashire railway line to the south, Duke Street/Knowsley Place to the west and Bury Interchange to the north (platforms located below interchange building and associated road infrastructure including Angouleme Way). The site comprises three distinct elements: 1. Knowsley Place/Union Square (west of Metrolink) - Premier Inn, offices and Q park 2. Metrolink corridor and platform 3. Pyramid Park (east of Metrolink) - vacant park which is subject to planning permission (LPA ref. 70903/Full) for comprehensive remediation. There is also a small area of the existing surface car park to the west of the interchange building which is identified for the location of a temporary contractor compound. In terms of the wider interchange (second phase of the scheme), this part of the site is bounded by Kay Gardens to the north, Haymarket Street to the west and Angouleme Way to the south.
Site history	The majority of the north of the site is undeveloped from earliest record with the north, east and northwest are abutted by mixed commercial and residential buildings of Bury; a sand pit is recorded in the north of the site. The southern spit of the site is occupied by railway sidings. By 1890, the western edge of the site is shown to be a cutting which bends into the area of the sidings in the south. An abattoir is located in the centre of the site by 1890 though to 1976. Other site uses included a garage in the east of the site, on the eastern edge of Market Street, from 1937. Widespread redevelopment through 1975-1980 sees the north as carpark and then Bury Interchange station, railway cuttings are infilled and a new cutting, immediately east of the site, forms a new north-south rail from Bury Interchange. A new road layout sees Angouleme Way form an overpass through the centre of the north of the site. The southern spit of the site is within a new park area (Townside Field) with residual railway line on the southern



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 8 of 46
Engineer: Alex Preston
Date: 01/04/2025

	boundary, disused by 1992, and reconstructed by 1994. By 2013 the land in the west of the site is undergoing development into a hotel/office space in both the car park and grassed area. Pertinent surrounding features include early industries of a woollen mill immediately west of the south of the site from, and expansive railway infrastructure. By 1930 a bakery is located 130m east of the site and cattle pens are recorded adjacent to the site associated with the abattoir. By 1938 Bury Technical College has been constructed immediately east of the north of the site. During the wider redevelopment in 1975-1980 the railway sidings to the east of the site have been broadly removed and redeveloped into 'Townside Field or Pyramid Park' a public park, with a lake, and a subway is shown passing from Townside Field to the west of the tracks.
Previous Reports Findings	Third party reporting for land to the east of the site, associated with the market redevelopment, and for land within Pyramid Park (planning permission ref. 70903/Full - approved December 2024) in the southeast of the site, have been reviewed. A series of ground investigations and desk studies for each site area were completed. No potential contaminants of concern were recorded within the market area for the proposed continued commercial land use. Asbestos in the form of fibre bundles of amosite or chrysotile were recorded in 8 no. samples of Made Ground in Pyramid Park, in addition to Made Ground with elevated PAH compounds, hydrocarbon odours, and inclusions of clinker, ash, coal and slag within or adjacent to the pyramid structures.
Geology, hydrogeology and hydrology	Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Chester Sandstone Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an on site artificial lake within pyramid park in the south east though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 580m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate.
Ground gases	A sand pit was recorded in the north of the site from 1849, and a reservoir 10m south, infilled by 1891 and 1976 respectively. The site itself has been subject to significant earthworks, most recently in circa 1973-1976 when the old railway cuttings are infilled, likely associated with the BSG records identifying the site to be underlain by 'worked ground', 'infilled ground' and 'Made Ground'. Nearby landfill records for other railway cuttings indicate use of 'inert' waste. Taking into account the proposed development, ground gas risk for the site is considered to be relatively low.
Radon requirements	Basic radon protection measures are not required for the majority of the site, however a small corner of the south west of the site encroaches on an area where between 1-3% of properties are above the Action Level. Should building development take place in the south west then confirmation that no basic radon protection measures are required should be confirmed with the Local Building Control Officer as >1% of properties have been reported above the Action level.
Ecological sensitivity	The site does not lie within an ecologically sensitive area. However, the site is located within the Townside Site of Biological Interest (SBI - Grade B site) and within one SSSI Impact Risk Zone. The type of development proposed at the site does not constitute further consultation within the SSSI Impact Zone.
Potential contaminative features	Made Ground associated with historic land uses as railway sidings and goods sheds, a potentially infilled former sand pit, potential for associated tank features, a garage, earthworks and landfilling associated with railway development, a car park and market, and an abattoir. The Department of the Environment Industry Profile for animal processing works, for on-site historic abattoir, suggest solvents, bleaches and fuel oils are potential contaminants associated with this industry. Consideration has been given to the widespread redevelopment of the local area from the mid 1970 including construction of a new road (Angouleme Way) and car park within the historic abattoir site whereby a degree of Made Ground removal or remediation may have taken place though no records can confirm this. Local Authority landfill records show a known landfill centred at E 380314 ,N 410400 on the provided plan, which places it within the western boundary of the site, now known as union square. This is understood to be filled with inert subsoil as part of a Reclamation scheme in 1973 and since redeveloped in late 2000s and early 2010s as a hotel, offices and car park with remedial measures.
Mining and quarrying	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report (CON29M) was ordered to further assess coal mining issues at the site. The report is contained within Appendix C. Results of this report do not indicate the site is at risk from past coal mining activity.
Unexploded ordnance	A Detailed UXO Desk Study was completed by EOD Contracts Ltd (Ref: EOD/24/24140/DTS, dated November 2024) for the combined Phase 1 and Phase 2 site boundaries. This is included within Appendix I. The risk level on site is deemed as Low and no further risk mitigation strategy is required. The nearest recorded bomb strike is over 450m from the site and therefore outside the expected offset (j curve) of 5.3m also 1946 aerial photography shows possible bomb damage associated with buildings 100m east of the site. The site has been subject to post war development including a subway under the site.
Other issues	Consideration should be given to anecdotal evidence of historic unrecorded tunnels within close vicinity to the site, though there is no evidence these features intercept the Phase 2 site boundary.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 9 of 46
Engineer: Alex Preston
Date: 01/04/2025

Waste soils classification	Based on the history of the site and the anticipated potential contaminants of concern it is considered possible that hazardous waste soil materials may be present beneath some areas of the site; however, this will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).
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. In addition, Section Error! Reference source not found. 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	Intrusive works should adhere to the Site Investigation Scope produced by Renaissance (Dated October 2024) presented in drawing BURY-REN-XX-XX-SK-S-01000-P03 and 01001-P03.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	10 of 46
Engineer:	Alex Preston
Date:	01/04/2025

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 E.

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.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 11 of 46
Engineer: Alex Preston
Date: 01/04/2025

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

Justification / Comments
• The majority of the north of the site is undeveloped from earliest record with the north, east and northwest are abutted by mixed commercial and residential buildings of Bury; a sand pit is recorded in the north of the site. The southern spit of the site is occupied by railway sidings .By 1890 the western edge of the site is shown to be a cutting which bends into the area of the sidings in the south. An abattoir is located in the centre of the site by 1890 though to 1976. Other site uses included a garage in the east of the site, on the eastern edge of Market Street, from 1937. Widespread redevelopment through 1975-1980 sees the north as carpark and then Bury Interchange station, railway cuttings are infilled and a new cutting, immediately east of the site, forms a new north-south rail from Bury Interchange. A new road layout sees Angouleme Way form an overpass through the centre of the north of the site. The southern spit of the site is within a new park area (Townside Field) with residual railway line on the southern boundary, disused by 1992, and reconstructed by 1994. By 2013 the land in the west of the site is undergoing development into a hotel/office space in both the car park and grassed area. • Pertinent surrounding features include early industries of a woollen mill immediately west of the south of the site from, and expansive railway infrastructure. By 1930 a bakery is located 130m east of the site and cattle pens are recorded adjacent to the site associated with the abattoir. By 1938 Bury Technical College has been constructed immediately east of the north of the site. During the wider redevelopment in 1975-1980 the railway sidings to the east of the site have been broadly removed and redeveloped into 'Townside Field' a public park, with a lake, and a subway is shown passing from Townside Field to the west of the tracks. • The Department of the Environment Industry Profile for animal processing works, for the adjacent and partly on-site historic abattoir, suggest pathogens, solvents, bleaches and fuel oils as potential contaminants associated with this industry. • Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Chester Sandstone Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an on-site artificial lake within a park in the southeast though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 580m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate. • A sand pit was recorded in the north of the site from 1849, and a reservoir 10m south, infilled by 1891 and 1976 respectively. The site itself has been subject to significant earthworks, most recently in circa 1973-1976 when the old railway cuttings are infilled, likely associated with the BSG records identifying the site to be underlain by 'worked ground', 'infilled ground' and 'Made Ground'. It should be noted that the current layout comprises a new railway cutting just east of the site within the Phase 1 development area. Nearby landfill records for other railway cuttings indicate use of 'inert' waste. Taking into account the proposed development, ground gas risk for the site is considered to be relatively low. • Basic radon protection measures are not required for the majority of the site, however a small corner of the southwest of the site encroaches on an area where between 1-3% of properties are above the Action Level. • Should development take place in the southwest then confirmation that no basic radon protection measures are required should be confirmed with the Local Building Control Officer as >1% of properties have been reported above the Action level. • The site is not located within an ecologically sensitive area.



**GROUND INVESTIGATION REPORT FOR BURY
INTERCHANGE TRACKSIDE WORKS**

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 12 of 46
Engineer: Alex Preston
Date: 01/04/2025

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
Anticipated widespread Made Ground across the site associated with historic land uses including railway sidings, goods sheds, abattoir in the north of the site, garage in the east, and earthworks associated with infilling of railway cuttings.	Metals PAHs pH Hexavalent chromium Acids Alkalis	Direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Adjacent site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	Likely	Moderate Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (commercial)	Medium	Unlikely	Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Devensian Till and Glacifluvial Deposits	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary A Aquifer associated with Chester Formation Sandstone	Medium	Unlikely	Low Risk
	Naphthalene (a semi-volatile PAH) TPH / BTEX / MTBE VOCs / SVOCs Phenols PolyChlorinated Biphenyls (PCBs) Cyanides Glycols Coal tar Free phase product	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Adjacent site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	Likely	Moderate Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (commercial)	Medium	Unlikely	Low Risk
		Migration via water pipes	Future site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Devensian Till and Glacifluvial Deposits	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary A Aquifer associated with Chester Formation Sandstone	Medium	Unlikely	Low Risk
	Asbestos	(Dust migration and) dust inhalation	Future site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Adjacent site users (commercial)	Medium	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Medium	Likely	Moderate Risk
Made Ground located beneath the site including inert filling of historic railway cuttings.	Hazardous ground gasses (methane, carbon dioxide, hydrogen sulphide, carbon monoxide and depleted oxygen)	Inhalation (indoor and outdoor)	Future site users (commercial)	Severe	Unlikely	Moderate / Low Risk
			Adjacent site users (commercial)	Medium	Unlikely	Low Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Unlikely	Moderate / Low Risk
		Migration of hazardous ground gases from beneath the site to adjacent sites along services or other preferential conduits	Adjacent site users (commercial)	Medium	Unlikely	Low Risk
		Migration of ground gas / explosion	Buildings and services	Severe	Unlikely	Moderate / Low Risk

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



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 13 of 46
Engineer: Alex Preston
Date: 01/04/2025

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. TE1885-TE-00-XX-DR-GE-004-V01.

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.

Works were undertaken under a planned Transport for Greater Manchester(TfGM) closure. A handback engineer was present and undertook pre and post work surveys of all rail infrastructure, no differences were encountered following the investigations.

5.1. Scope of Ground Investigation

The ground investigation was conducted on 3rd November 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. TE1885-TE-00-XX-DR-GE-004-V01.

Table 5.1 Scope of Ground Investigation and Rationale

Exploratory Hole Type	Exploratory Hole Reference	Exploratory Hole Depths (m bgl)	Rationale
Hand Dug Trial pits	HDP-P2-101, HDP-P2-102	0.80 to 1.10	To confirm the shallow ground conditions across the site, stability of excavations, and to enable shallow soil sampling for geotechnical and/or geoenvironmental parameters.
Window sample boreholes	BH-P2-101, BH-P2-102, BH-P2-107, BH-P2-108	1.32 to 1.99	To confirm the shallow ground conditions across the site, conduct <i>in situ</i> geotechnical tests, facilitate soil sampling for geotechnical and/or geoenvironmental parameters.

The following constraints were identified during the ground investigation works:

- Current station and track infrastructure: including train tracks, railway sleepers, overhead power lines, platform structures, station superstructure and roofing, current foundation relating to the station, retaining walls and electrical substations
- Works had to be undertaken in a railway cutting with only pedestrian access.
- Services, service ducts, manholes and drainage.

Trial pits and boreholes were backfilled with arisings in approximate reverse order and recompacted with ballast packers to ensure suitable compaction of materials.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 14 of 46
Engineer: Alex Preston
Date: 01/04/2025

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 I. Tier Environmental's schedule of chemical laboratory testing is presented in Table 5.2 and Table 5.3. The testing was carried out by Element Materials Technology, a UKAS and MCerts 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;
- Undertake a *preliminary* soils waste classification and waste disposal route determination.

Table 5.2 Schedule of Chemical Testing for Human Health Risk Assessment and Preliminary Waste Soils Assessment.

Laboratory analysis	Made Ground Population 1 (Railway Ballast)	Made Ground Population 2 (Sand)	Made Ground Population 3 (Sub-Base)	Possible Made Ground
Tier Soil Suite *	3	5	2	1
WAC Full Suite	2	/	1	/
Asbestos Screen	3	5	2	1
Asbestos Quantification	/	/	/	/
Speciated TPH (CWG) C5 to C40	3	5	2	1
Speciated SVOCs & TICs	2	1	1	/
Speciated VOCs & TICs	2	1	1	/
Total Cyanide	3	5	2	1
PCB (7 Congeners) and PCB WHO 12 Congeners	1	/	1	/
Free Sulphur	3	5	2	1
Mn, B, Fe	3	5	2	1
Ammoniacal Nitrogen as N	3	5	2	1
Total Sulphur	3	5	2	1
Sulphide	3	5	2	1
Organochlorine and Organophosphorus Pesticides	2	1	1	/

*For definition of Tier Environmental analytical suites, please see Appendix I. 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 samples. The purpose of the testing was to:



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 15 of 46
Engineer: Alex Preston
Date: 01/04/2025

- Determine the concentration and spatial distribution of potential leachable contaminants of concern in the Made Ground;

Table 5.3 Schedule of Chemical Testing for Controlled Waters Risk Assessment.

Laboratory analysis	Made Ground Population 1 (Railway Ballast)	Made Ground Population 2 (Sand)	Made Ground Population 3 (Gravel Sub-Base)
Tier Environmental leachate suite*	1	1	1
Metals (Cr, VI, Mn, B, Fe)	1	1	1
Speciated TPH / BTEX / MTBE	1	1	1
pH, Sulphate as So ₄	1	1	1
Total Organic Carbon & Dissolved Organic Carbon	1	1	1
Hardness (CaCO ₃)	1	1	1
Calcium	1	1	1
Total Phenols	1	1	1
Ammoniacal nitrogen as N	1	1	1
Total Cyanide	1	1	1

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

5.3. Geotechnical Testing

Geotechnical laboratory testing was scheduled by Tier Environmental on selected samples as presented in Table 5.4. The testing was performed by Murray Rix, a UKAS accredited laboratory. Test certificates including details of appropriate testing standards are presented in Appendix D and discussed in Section 7, below.

Table 5.4 Geotechnical Laboratory Testing Schedule.

Test	Stratum type	Number of tests	Rationale
1. General			
Moisture content	Made Ground Possible Made Ground Till	1 1 2	a) Assist with the determination of consistency of soil with depth. b) Assess desiccation of soils. c) Suitability of materials for reuse within earthworks.
2. Classification			
Atterberg limit	Made Ground Possible Made Ground Till	1 1 2	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
Particle size distribution (wet/dry sieve)	Made Ground	3	a) Classify soils for earthworks purposes. b) Establish type of soil (comply with Eurocode 7 description).



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
 Page No : 16 of 46
 Engineer: Alex Preston
 Date: 01/04/2025

Test	Stratum type	Number of tests	Rationale
3. Chemical tests			
BRE SD1 Suite	Made Ground	1	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.
	Possible Made Ground	1	
	Till	2	
4. Compaction			
2.5 kg rammer dry density/moisture content relationship test	Made Ground	3	Establish maximum dry density and optimum moisture content of materials to assess suitability for reuse within earthworks
5 .Compressibility			
One-dimensional consolidation	Possible Made Ground	1	Determine the long-term consolidation behaviour of cohesive soils.
6. Shear strength (total stress)			
Unconsolidated undrained triaxial ("quick undrained triaxial")	Possible Made Ground	1	Quantitative means of determining undrained shear strength of soils for: a) use in bearing capacity calculations; b) modelling the short-term behaviour of slopes and retaining structures; c) pile design; d) determining suitability of cohesive materials for vibro-replacement ground improvement techniques.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 17 of 46
Engineer: Alex Preston
Date: 01/04/2025

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.

6.1. Strata Descriptions

Made Ground – Railway Ballast

Locations encountered	All locations
Depths encountered from top of stratum (range)	Ground level
Depths encountered to base of stratum (range)	0.45m to 0.80m bgl
Thickness (range)	0.45m to 0.80m
Spatial location on site	Widespread across the site in all train bed areas.
General description	Dark grey, angular to subangular, medium to coarse GRAVEL of mixed igneous lithologies. (Railway Ballast)

Made Ground – Sand

Locations encountered	All locations underlying railway ballast
Depths encountered from top of stratum (range)	0.45m to 0.80m bgl
Depths encountered to base of stratum (range)	0.65m to 1.10m bgl
Thickness (range)	0.30 to 0.50m
Spatial location on site	Widespread across the site reported to be thickest in the north
General description	Dark reddish brown and dark red, slightly silty, fine to coarse SAND

Made Ground – Sub-base

Locations encountered	BH-P2-101, BH-P2-102, BH-P2-107, BP-P2-108
Depths encountered from top of stratum (range)	0.90 to 1.20m bgl
Depths encountered to base of stratum (range)	1.20 to 1.70m bgl
Thickness (range)	0.11 to 0.60m
Spatial location on site	Widespread across the site located below the Made Ground – Sand, reported to be thickest in the north
General description	Very dense, Light grey, medium to coarse, subangular to subrounded GRAVEL of limestone.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 18 of 46
Engineer: Alex Preston
Date: 01/04/2025

Possible Made Ground

Locations encountered	BH-P2-102
Depths encountered from top of stratum (range)	1.20m bgl
Depths encountered to base of stratum (range)	1.95m bgl
Thickness (range)	0.75m
Spatial location on site	BH-P2-102
General description	Stiff, dark brown, slightly sandy, slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies. Occasional pieces of wood. Overlaying: Light brown and grey, slightly sandy, angular to subrounded, fine to coarse GRAVEL of mixed natural lithologies.

Drift Deposits – Till

Till – Clay	
Locations encountered	BH-P2-101, BH-P2-107
Depths encountered from top of stratum (range)	1.40m to 1.70m bgl
Depths encountered to base of stratum (range)	1.99m bgl
Thickness (range)	0.20 to 0.59m – the base of this deposit was not proven
Spatial location on site	Located in all areas that penetrated the Made Ground deposits
General description	Firm, becoming stiff to very stiff, dark reddish brown, dark orangish brown, dark brown, mottled brownish grey, slightly sandy, slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies including mudstone and sandstone

6.2. Obstructions

The following potential Structures / Underground Services / Obstructions were encountered during the ground investigation works.

Table 6.1 Structures / Underground Services / 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
HDP-P2-101	West	0.75	0.80	Terminated due to concrete in base of pit. Potentially associated with a service duct that runs parallel to the train line and retaining wall.

6.3. Visual and Olfactory Evidence of Contamination

No visual or olfactory evidence of contamination was encountered during the site works.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 19 of 46
Engineer: Alex Preston
Date: 01/04/2025

6.4. Groundwater Observations During Fieldwork

Table 6.2 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 6.2 Field Observations of Groundwater.

Exploratory hole	Strike (m bgl)	Rise in groundwater after 20 mins. (m bgl)	Formation	Observations
BH-P2-101	1.5	NR	Made Ground	Water observed to be perched above underlying cohesive deposits
BH-P2-107	1.1	NR	Made Ground	Water observed to be perched above underlying cohesive deposits



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	20 of 46
Engineer:	Alex Preston
Date:	01/04/2025

7. PRELIMINARY GEOTECHNICAL ASSESSMENT

7.1. Mining and Quarrying

The site is located within a coal mining area as defined by the Mining Remediation Authority (formerly the Coal Authority). A Consultants Coal Mining Report (CON29M) was ordered to further assess coal mining issues at the site. Results of this report do not indicate the site is at risk from past coal mining activity.

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 have been reported above 3,000mg/l and therefore no further consideration of magnesium has been made. This assessment will be updated, once deeper investigations are undertaken that enable the sampling of groundwater.

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.

GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 22 of 46
Engineer: Alex Preston
Date: 01/04/2025

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):



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
 Page No : 23 of 46
 Engineer: Alex Preston
 Date: 01/04/2025

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 <u>North</u> 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	NO	YES	The conclusion of the assessment is that there <u>is</u> 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					
BH-P2-101	0.2	<0.01	0.03	<0.01	0.02
HDP-P2-101	0.6	0.02	0.06	0.02	0.04
BH-P2-101	1.4	0.03	0.09	0.03	0.06
HDP-P2-102	0.2	0.02	0.06	0.02	0.04
BH-P2-102	0.5	<0.01	0.03	<0.01	0.02
HDP-P2-102	0.7	0.04	0.12	0.04	0.08
BH-P2-107	0.8	0.03	0.09	0.03	0.06
BH-P2-107	1.2	0.03	0.09	0.03	0.06
BH-P2-108	1.0	0.03	0.09	0.03	0.06
Possible Made Ground					
BH-P2-102	1.2	0.05	0.15	0.03	0.12
BH-P2-102	1.5	0.05	0.15	<0.02	0.13
Till					
BH-P2-101	1.8	0.09	0.27	0.05	0.22
BH-P2-107	1.9	<0.01	0.03	<0.02	0.01

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



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 24 of 46
Engineer: Alex Preston
Date: 01/04/2025

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 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 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-1 and ACEC Class AC-2z 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					
BH-P2-101	0.2	8.52	3.6	Characteristic Design Sulphate value derived via the highest 20% Sulphate concentration of the samples in accordance with BRE SD1 = 55.4 mg/l = DS-1	ACEC Sulphate Class derived by the respective mean of the lowest 20% of pH results in accordance with BRE SD1 =4.2 = AC-2z
HDP-P2-101	0.6	8.93	6.9		
BH-P2-101	1.4	9.16	5.8		
HDP-P2-102	0.2	8.98	87.3		
BH-P2-102	0.5	9.07	4.8		
HDP-P2-102	0.7	9.23	13.9		
BH-P2-107	0.8	9.66	23.5		
BH-P2-107	1.2	9.5	21.6		
BH-P2-108	1.0	9.18	6.3		
POSSIBLE MADE GROUND					
BH-P2-102	1.2	10.76	133	Characteristic Design Sulphate value derived via the highest determined Sulphate concentration of the samples in accordance with BRE SD1 = 133 mg/l = DS-1	ACEC Sulphate Class derived by the respective mean of the lowest of pH results in accordance with BRE SD1 =8.82 = AC-1
BH-P2-102	1.5	8.82	12		
Till					
BH-P2-101	1.8	9.91	100		



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 25 of 46
Engineer: Alex Preston
Date: 01/04/2025

Exploratory Hole Location	Depth (m bgl)	pH	Water-soluble sulphate (mg/l)	Design sulphate class	ACEC sulphate class
BH-P2-107	1.9	8.42	<10	Characteristic Design Sulphate value derived via the highest determined Sulphate concentration of the samples in accordance with BRE SD1 = 100 mg/l = DS-1	ACEC Sulphate Class derived by the respective mean of the lowest of pH results in accordance with BRE SD1 =8.42 = AC-1
Made Ground – Leachate					
BH-P2-101	0.80	8.09	1.4	Characteristic Design Sulphate value derived via the highest determined Sulphate concentration of the samples in accordance with BRE SD1 = 1.4 mg/l = DS-1	ACEC Sulphate Class derived by the respective mean of the lowest of pH results in accordance with BRE SD1 =7.89 = AC-1
BH-P2-102	0.50	8.01	<0.5		
BH-P2-107	1.20	7.98	1		

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

7.3. Preliminary Geotechnical Parameters

The data obtained during the Ground Investigation has been assessed for the recorded soil types in order to provide preliminary characteristic values in order to aid the final foundation design. As the extent of the trackside works were limited, with only smaller sized investigations were utilised that could gain access. **The geotechnical parameters provided below should be considered as preliminary and used with caution at this stage.**

Made Ground

A total of 3 No. Made Ground samples were submitted for particle size distribution tests to determine the suitability for the reuse of Made Ground on site. The result of these tests indicates the material was predominantly classified as a slightly sandy SAND & GRAVEL or a slightly silty, slightly sandy GRAVEL. The results show the material is relatively homogenous. The Made Ground was comprised of imported natural Gravels.

The results of Standard Penetration Tests undertaken within the Made Ground are considered to be slightly variable. A total of 5 No. Standard Penetration Tests (SPTs) were undertaken in the Made Ground materials, with results ranging from N = 10 to extrapolated N values of N=350. The values show that the made ground material increases with strength and depth, with a very dense layer encountered across all areas at between 1.20m and 1.50m bgl. Based on these results a conservative SPT N value of N = 10 is tentatively proposed for the Made Ground strata; however, this value should be used with caution.

Cohesive Possible Made Ground

In one area of the site within BH-P2-102 cohesive materials potentially representative of reworked natural materials were encountered. To distinguish between these materials and natural Till Deposits, they have been assessed separately.

A total of 2 No. samples were submitted for moisture content and Atterberg Limit testing from cohesive potential Made Ground material at the site. A summary of the results is shown in Table 7.4 below.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 26 of 46
Engineer: Alex Preston
Date: 01/04/2025

Table 7.4 Summary of Natural Moisture Content and Atterberg Limits

Parameter	No. Tests	Minimum	Maximum	Average
Natural MC %	2	13.2	13.3	13.25
Plastic Limit %	2	12	12	12
Liquid Limit %	2	37	39	38
Plasticity Index	2	25	27	26

The results show that the material has would be classified as a sandy, gravelly clay with a medium plasticity and a low to medium volume change potential. No correlation with plasticity index against reduced level could be derived from the results and no results returned a non-plastic result.

A total of 1 No. total stress undrained triaxial tests were performed on the cohesive Possible Made Ground strata encountered within the exploratory holes. A single stage test was performed, and this yielded a value of undrained shear strength (C_u) of 101kPa.

Till Deposits

Moisture content and Atterberg Limit testing was undertaken on samples from cohesive Till Deposits at the site. A summary of the results is shown in Table 7.5 below.

A Total of 2 No. Atterberg Limit Tests were performed on samples of identified cohesive soil. All samples returned results which confirm that the material is clay. The results indicate that plasticity index may increase with depth, however further sampling and testing is required to confirm this.



**GROUND INVESTIGATION REPORT FOR BURY
INTERCHANGE TRACKSIDE WORKS**

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 27 of 46
Engineer: Alex Preston
Date: 01/04/2025

Table 7.5 Soil Classification Test Results for Till.

Exploratory hole	Depth (m bgl)	Stratum	MC (%)	LL (%)	PL (%)	PI (%) (Modified)	Class	Volume Change Potential
BH-P2-101	1.80	Till	11.7	34	12	18.49	Low Plasticity	Low
BH-P2-107	1.90	Till	12.6	39	13	23.40	Medium Plasticity	Medium

ND - Not determined; MC - Moisture content, LL - Liquid limit, PL - Plastic limit, PI - Plasticity index.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 28 of 46
Engineer: Alex Preston
Date: 01/04/2025

Shear Strength Parameters

Standard Penetration Tests (SPT) were carried out in all of the boreholes. The undrained shear strength of the natural clay strata tested has been estimated using the relationship developed by Stroud, where:

$$C_u = f_1 \times \text{SPT N60 value}$$

The value of f_1 is dependent on the Plasticity Index (I_p). By using the moderately conservative Plasticity Index of 26%, a characteristic value of $f_1 = 5$ has been derived.

Results from 2 No. SPT N values in the natural clay strata suggest that the majority of the material is the very high strength category with shear strengths potentially above 200kPa. The test results show little variation.

Foundation Recommendations

Due to the proposed nature of the development, the foundation solution required will be a detailed bespoke design for each different element. The investigations detailed in this report were preliminary and solely undertaken to obtain ground conditions in the trackside areas. Further extensive investigations are proposed which will allow a detailed foundation appraisal to be undertaken.

7.4. Earthworks

Large scale earthworks is unlikely within the trackside area, however the compaction data has still been assessed by comparing the results against criteria commonly used in earthworks to achieve an adequate density for engineered fills. The criteria indicate whether the samples could achieve in excess of 95% of Maximum Dry Density (MDD – a requirement often included in highways specifications) and whether they could be compacted to less than 5% air voids ratio (a requirement applied where raft foundations are to be adopted).

The results of compaction testing undertaken on samples of Made Ground indicate that it could be recompacted to achieve >95% of MDD and <5% air voids. Based upon the results obtained, the Made Ground could be used as an engineered fill, subject to other suitability considerations. It should be noted that suitability for compaction is highly dependent on the initial moisture content of the material to be compacted. 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. 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.

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. Retaining Structures

7.5. 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.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	29 of 46
Engineer:	Alex Preston
Date:	01/04/2025

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. 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 {specify depth} 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.

7.6. Pavements and Highways

Based on a visual examination alone of the soil and Atterberg test results, a CBR value of 2.5% is suggested for Made Ground and 5% for Till.

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 and embankments should be discussed with the relevant local authority if highways are to be subject to Section 38 agreement.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 30 of 46
Engineer: Alex Preston
Date: 01/04/2025

8. HUMAN HEALTH RISK ASSESSMENT

Results of chemical analysis are presented in full in Appendix C.

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 Sutable 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 F.

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 1% has been selected based on the reported Total Organic Carbon (TOC) concentrations (which have been converted to SOM by dividing by a conversion



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	31 of 46
Engineer:	Alex Preston
Date:	01/04/2025

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 land use.

8.4. 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.

Of the 9 No. of Made Ground samples submitted for asbestos screening, none were reported to contain asbestos.

8.5. 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.

8.6. 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 no potential exposure risks to construction and maintenance workers are anticipated.

Asbestos **has not** been reported during the ground investigation works; however, in the event that previously unidentified asbestos is identified during future earthworks / construction works at concentrations above 0.001% w/w (i.e. above 'trace' levels), the Control of Asbestos Regulations 2012 should be adhered to.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 32 of 46
Engineer: Alex Preston
Date: 01/04/2025

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 have been submitted for laboratory chemical analysis as per the summary presented in Table 5.3 within this report. Analytical data from soil leachate 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 G.

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 ≥ 200 mg CaCO₃/l has been selected based a worst-case scenario as no groundwater results from beneath the site are available.

9.2. Controlled Waters Environment Conceptual Site Model Summary

Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Pennine Lower Coal Measures Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an artificial lake within a park circa 100m east of the site though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 675m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/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
Iron	µg/l	20	1	445	1 of 3	BH-P2-102	0.80	Made Ground – Sand

* LOD= Laboratory Method Limit of Detection

Measured leachable concentrations of Iron have been reported only in excess of the WQS protective of the controlled waters environment by up to two orders of magnitude. Given the marginal nature of these exceedances, the potential for significant dilution within the groundwater beneath the site, the historical commercial / industrial heritage of the wider area surrounding the site, the absence of a continuous groundwater body beneath the site, the Low/Moderate sensitivity of the controlled waters environment as described in Section 9.2 above, the localised nature of those soil leachate concentrations in excess of the WQS and the absence of any reported widespread leachable concentrations and the fact that the site will



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN- 000003 REV.P02
Page No :	33 of 46
Engineer:	Alex Preston
Date:	01/04/2025

incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils, the exceedances are not considered to pose a risks to controlled waters.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	34 of 46
Engineer:	Alex Preston
Date:	01/04/2025

10. 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 10.1, below.

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.



**GROUND INVESTIGATION REPORT FOR BURY
INTERCHANGE TRACKSIDE WORKS**

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 35 of 46
Engineer: Alex Preston
Date: 01/04/2025

Table 10.1 Revised Assessment of Potential Pollutant Linkages (Continued on Next Page).

Justification / Comments
- Made Ground was encountered at depths typically between ground level and 1.31m and 1.95m bgl, comprising generally granular materials that constitute the build-up of the railway track bed. Railway ballast, overlying sand overlying a dense gravel sub-base was observed in all locations. Locally cohesive reworked Possible Made Ground was encountered in the northeast of the site. Underlying the Made Ground, observed in all exploratory location that penetrated the stratum were natural materials of cohesive Till. These were recovered to a maximum observed depth of 1.99m bgl. The Till strata comprised a stiff dark brown silty sandy, slightly gravelly clay. - Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Pennine Lower Coal Measures Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an artificial lake within a park circa 100m east of the site though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 675m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate. - Measured leachable concentrations of Iron have been reported only in excess of the WQS protective of the controlled waters environment by up to two orders of magnitude. Given the marginal nature of these exceedances, the potential for significant dilution within the groundwater beneath the site, the historical commercial / industrial heritage of the wider area surrounding the site, the absence of a continuous groundwater body beneath the site, the Low/Moderate sensitivity of the controlled waters environment as described in Section 9.2 above, the localised nature of those soil leachate concentrations in excess of the WQS and the absence of any reported widespread leachable concentrations and the fact that the site will incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils, the exceedances are not considered to pose a risks to controlled waters. - No measured concentrations of potential contaminants of concern have been reported in excess of the respective GACs protective of human health for a commercial land use. - Of the 9 No. of Made Ground samples submitted for asbestos screening, none were reported to contain asbestos. - As the trackside areas are not enclosed spaces, the risk posed by ground gas are considered to be negligible.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 36 of 46
Engineer: Alex Preston
Date: 01/04/2025

11. PRELIMINARY WASTE MATERIALS CLASSIFICATION AND WASTE DISPOSAL ROUTE DETERMINATION

11.1. 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 copy 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



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 37 of 46
Engineer: Alex Preston
Date: 01/04/2025

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.

11.2. 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

It is likely that any natural soils (that are not impacted by any known contamination from shallow Made Ground, or unexpected contamination) 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. Otherwise, additional testing will be required to confirm the waste disposal route for natural soils beneath the site.



GROUND INVESTIGATION REPORT FOR BURY
INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 38 of 46
Engineer: Alex Preston
Date: 01/04/2025

Table 11.1 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
BH-P2-101	0.20	MADE GROUND: Dark grey, angular to subangular, medium to coarse GRAVEL of mixed igneous lithologies. (Railway Ballast)	Non-Hazardous	N/A	N/A	No asbestos encountered	Yes	Inert Waste Landfill
HDP-P2-101	0.60	MADE GROUND: Dark reddish brown and dark red, coarse SAND	Non-Hazardous	N/A	N/A	No asbestos encountered	No	No WAC sample obtained.
BH-P2-101	0.80	MADE GROUND: Reddish brown, slightly silty, fine to coarse SAND	Non-Hazardous	N/A	N/A	Not analysed for asbestos	No	No WAC sample obtained.
BH-P2-101	1.40	MADE GROUND: Light grey, medium to coarse, subangular GRAVEL of limestone.	Non-Hazardous	N/A	N/A	No asbestos encountered	No	No WAC sample obtained.
HDP-P2-102	0.20	MADE GROUND: Dark grey, angular to subangular, coarse GRAVEL of mixed igneous lithologies.(Railway Ballast)	Non-Hazardous	N/A	N/A	No asbestos encountered	No	No WAC sample obtained.
BH-P2-102	0.50	MADE GROUND: Grey, angular to subangular, coarse GRAVEL of mixed igneous lithologies (Railway Ballast)	Non-Hazardous	N/A	N/A	No asbestos encountered	Yes	Inert Waste Landfill
HDP-P2-102	0.70	MADE GROUND: Dark reddish brown and dark red, coarse SAND	Non-Hazardous	N/A	N/A	Not analysed for asbestos	No	No WAC sample obtained.
BH-P2-102	1.50	POSSIBLE MADE GROUND; Stiff, dark brown, slightly sandy, slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies. Occasional pieces of wood.	Non-Hazardous	N/A	N/A	No asbestos encountered	No	No WAC sample obtained.
BH-P2-107	0.80	MADE GROUND: Dark red, fine to coarse SAND	Non-Hazardous	N/A	N/A	Not analysed for asbestos	No	No WAC sample obtained.
BH-P2-107	1.20	MADE GROUND: Light grey, slightly sandy, subangular to subrounded, fine to coarse GRAVEL of limestone and mixed natural lithologies.	Non-Hazardous	N/A	N/A	No asbestos encountered	Yes	Inert Waste Landfill
BH-P2-108	1.00	MADE GROUND: Reddish brown, slightly silty, fine to coarse SAND	Non-Hazardous	N/A	N/A	No asbestos encountered	No	No WAC sample obtained.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	39 of 46
Engineer:	Alex Preston
Date:	01/04/2025

11.3. 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)."*



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	40 of 46
Engineer:	Alex Preston
Date:	01/04/2025

12.CONCLUSIONS AND RECOMMENDATIONS

12.1. Conclusions

No measured soil concentrations of potential contaminants of concern have been reported in excess of Generic Assessment Criteria (GACs) protective of human health appropriate to the proposed land use. On this basis, it is not considered that the site represents a potential risk to end-users. The human health risk assessment will be updated once further investigations have taken place across the wider site and should be considered preliminary at this stage.

Superficial deposits (Devensian Till and Glaciofluvial Deposits), and the bedrock (Pennine Lower Coal Measures Formation) are both classified as Secondary A Aquifers. The site is not within a Source Protection Zone and there are no active potable abstraction wells within 2km. The nearest surface water feature is an artificial lake within pyramid park circa 100m east of the site though this not considered to be in hydraulic conductivity with local groundwater, and the River Irwell located 675m west. Groundwater flow is anticipated to be towards the south in conjunction with the flow of the River Irwell. On this basis the controlled waters sensitivity is regarded as being low/moderate.

Measured leachable concentrations of Iron have been reported only in excess of the WQS protective of the controlled waters environment by up to two orders of magnitude. Given the marginal nature of these exceedances, the potential for significant dilution within the groundwater beneath the site, the historical commercial / industrial heritage of the wider area surrounding the site, the absence of a continuous groundwater body beneath the site, the Low/Moderate sensitivity of the controlled waters environment as described in Section 9.2 above, the localised nature of those soil leachate concentrations in excess of the WQS and the absence of any reported widespread leachable concentrations and the fact that the site will incorporate buildings / hardstanding and a dedicated drainage system that shall reduce infiltration rates through the soils, the exceedances are not considered to pose a risks to controlled waters. The controlled waters risk assessment will be updated once further investigations have taken place across the wider site and should be considered preliminary at this stage.

It is considered that a Design Sulphate Class of DS-1 and ACEC Class AC-2z is appropriate for buried concrete at the site. At this stage the assessment should be considered preliminary and will be updated following further investigations.

12.2. Recommendations

To characterise ground conditions across the wider site area, Intrusive works should be undertaken and should adhere to the Site Investigation Scope produced by Renaissance (Dated October 2024) presented in drawing BURY-REN-XX-XX-SK-S-01000-P03 and 01001-P03.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	41 of 46
Engineer:	Alex Preston
Date:	01/04/2025

13.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.



GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No :	16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No :	42 of 46
Engineer:	Alex Preston
Date:	01/04/2025

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GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 43 of 46
Engineer: Alex Preston
Date: 01/04/2025

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Report No : 16012-TRE-BRY-XXX-RP-EN-000003 REV.P02
Page No : 44 of 46
Engineer: Alex Preston
Date: 01/04/2025

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GROUND INVESTIGATION REPORT FOR BURY INTERCHANGE TRACKSIDE WORKS

Report No : 16012-TRE-BRY-XXX-RP-EN-
000003 REV.P02
Page No : 45 of 46
Engineer: Alex Preston
Date: 01/04/2025

15.GLOSSARY OF TERMS

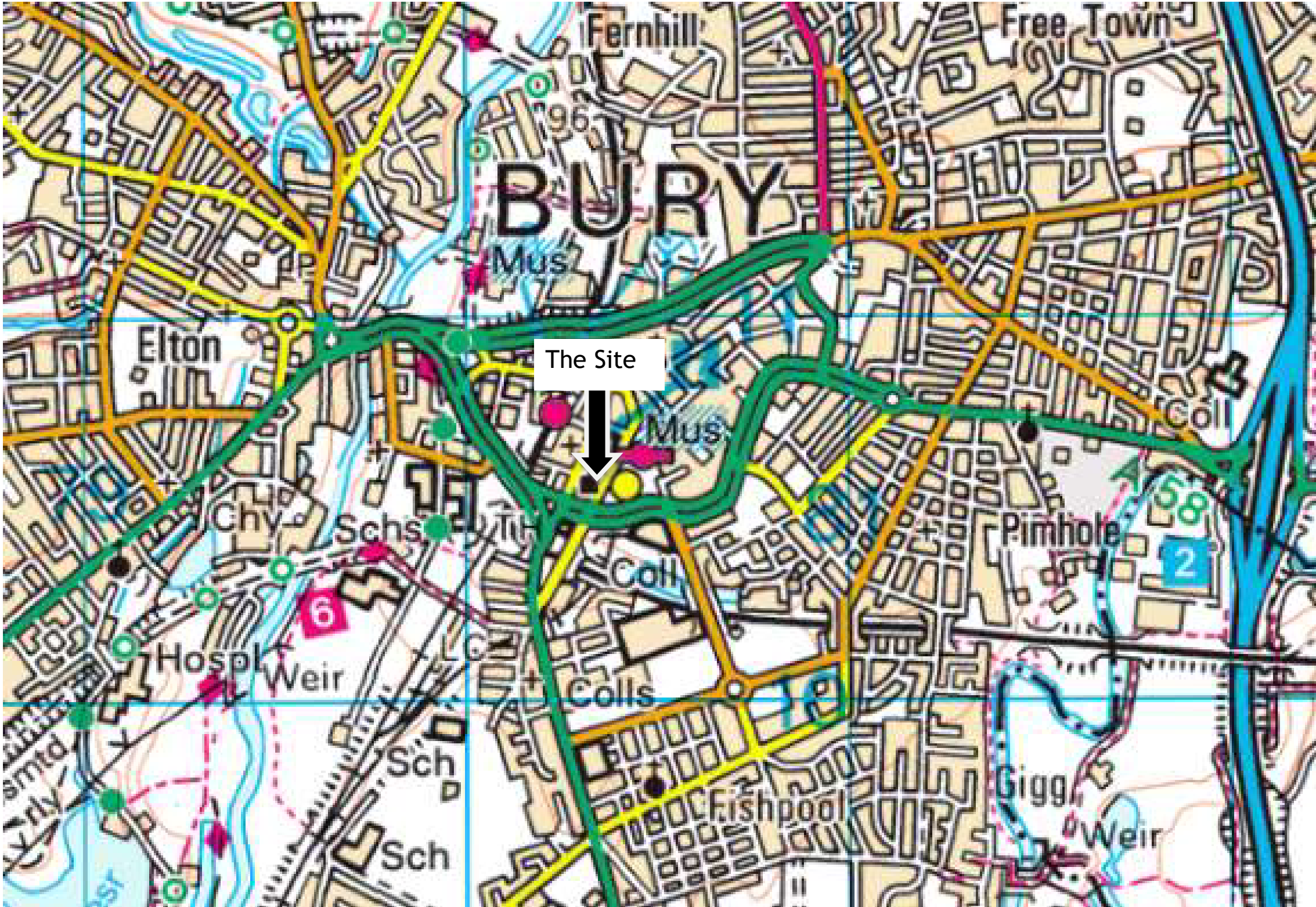
ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or 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

APPENDIX A - DRAWINGS



Contract Number	TE1885
Contract	Bury Interchange
Client	Wilmott Dixon

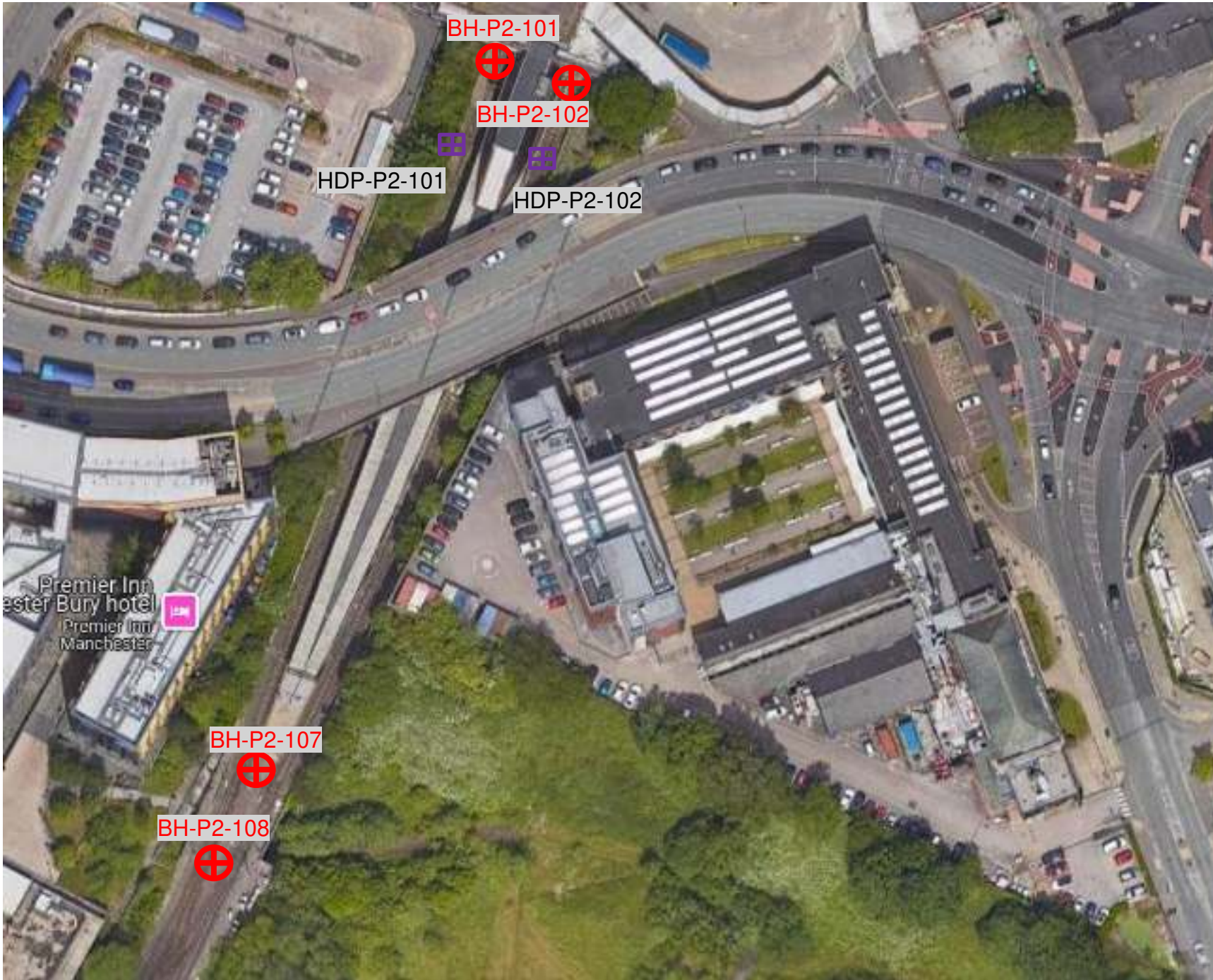
Site Location Plan



Scale	NTS	
Drawn by	SM	Approved AR
Drawing Number	TE1885-TE-00-XX-DR-GE-001-V01 16012-TRE-BRY-XXX-DR-GT-000002	



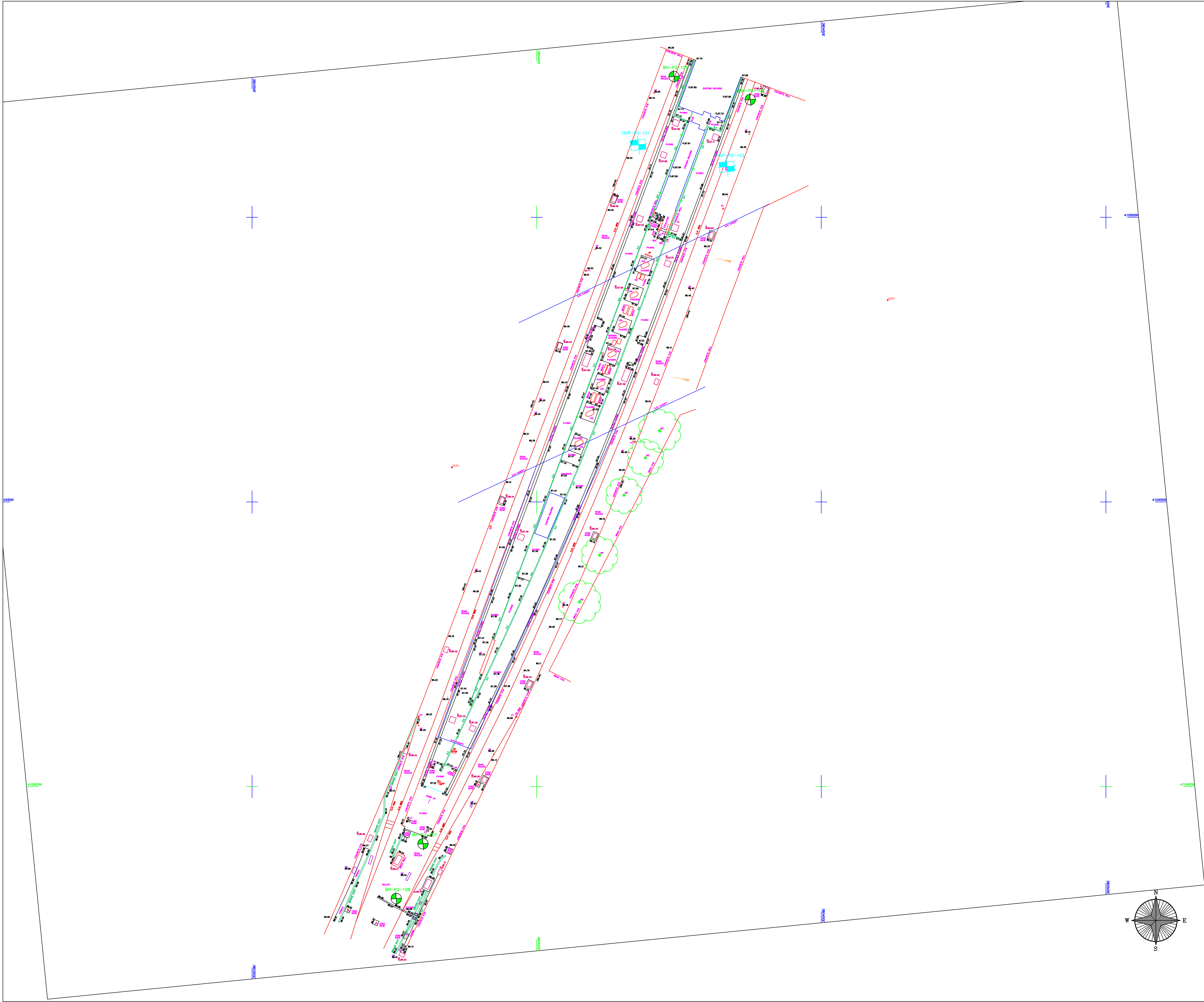
Exploratory Location Plan



-  Borehole location
-  Trial pit location

Contract Number	TE1885
Contract	Bury Interchange
Client	Willmott Dixon

Scale	NTS		
Drawn by	AP	Approved	SL
Drawing Number	16012-TRE-BRY-XXX-DR-GT-000001		



DO NOT SCALE



NOTES

 BOREHOLE LOCATION

 TRIAL PIT LOCATION

P1	29.01.2025	CS	ISSUED FOR INFORMATION	AP	AP
REV	DATE	BY	DESCRIPTION	CHK	APD

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

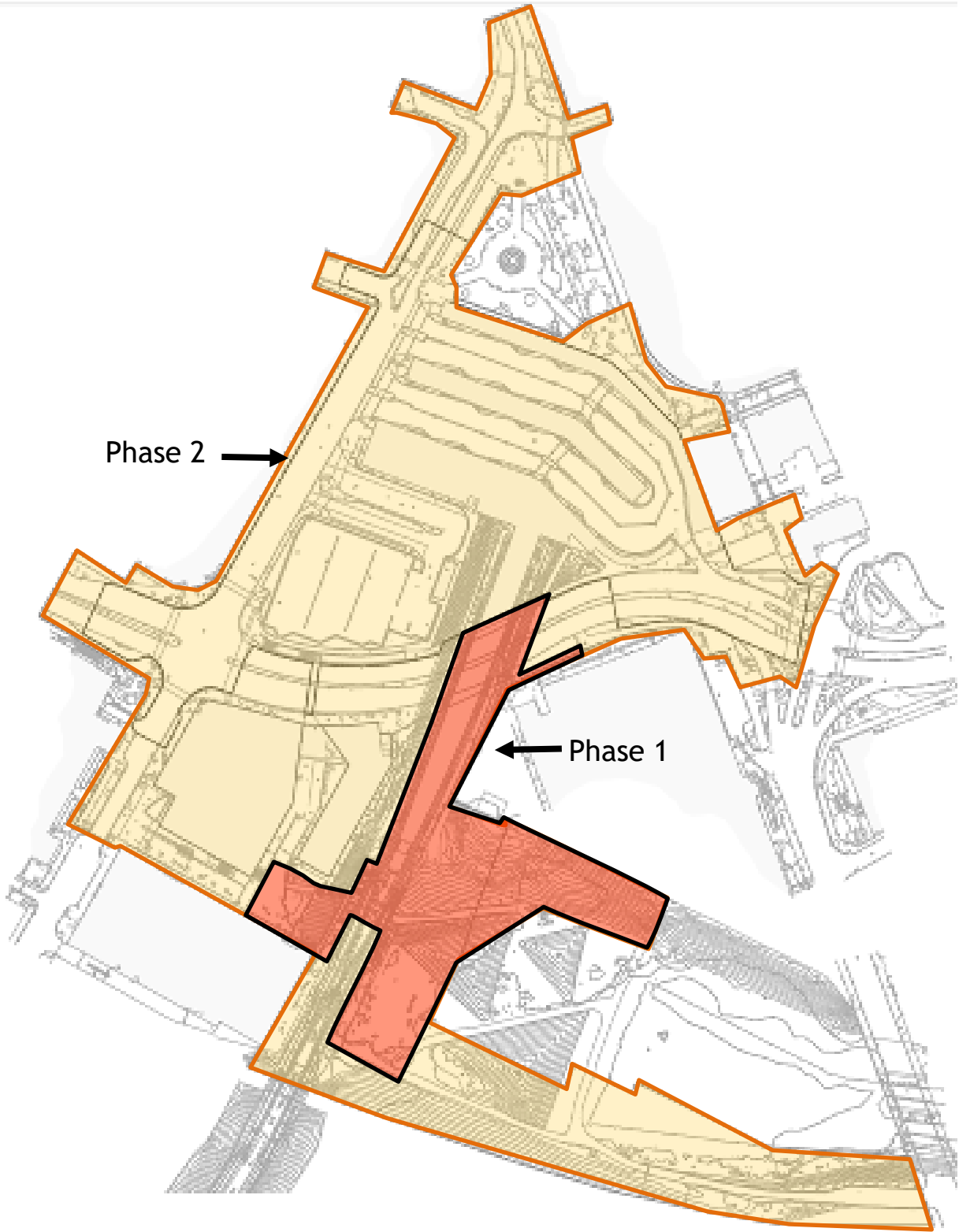
PROJECT:
BURY INTERCHANGE

TITLE:
EXPLORATORY HOLE LOCATION PLAN

SCALE: 1:1000	CHECKED: AP	APPROVED: AP
CAD FILE: -	DESIGN/DRAWN: CS	DATE: 29/01/2025
PROJECT No: TE1885	DRAWING No: TE1885-TE-00-XX-DR-GE-005-V01 16012-TRE-BRY-XXX-DR-GT-000003	REV: P1



Phase 1 & 2 Site Boundaries



Contract Number	TE1885
Contract	Bury Interchange
Client	Willmott Dixon

Scale	NTS		
Drawn by	AR	Approved	SL
Drawing Number	TE1885-TE-00-XX-DR-GE-003-V01		

APPENDIX B - EXPLORATORY HOLE LOGS



Borehole Log

Borehole No.
BH-P2-101
Sheet 1 of 1

Project Name: Bury Interchange

Project No.
TE1885

Co-ords: 380422.64 - 401525.98

Hole Type
WS

Location: Manchester

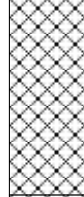
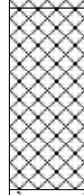
Level: 86.84

Scale
1:25

Client: Willmott Dixon

Dates: 03/11/2024 -

Logged By
AP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	ES	N=20 (2,5/4,7,5,4)	0.65	86.19		MADE GROUND: Dark grey, angular to subangular, medium to coarse GRAVEL of mixed igneous lithologies. (Railway Ballast) MADE GROUND	1	
		0.50	B							
		0.80	ES					MADE GROUND: Reddish brown, slightly silty, fine to coarse SAND MADE GROUND		
		1.00 1.00	SPTL S		1.10	85.74		MADE GROUND: Light grey, medium to coarse, subangular GRAVEL of limestone. MADE GROUND		
		1.40	ES	50 (8,13/50 for 42mm)						
		1.80 1.80	SPTL S	1.70	85.14		Stiff, locally very stiff, dark brown, slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies.	2		
				1.99	84.85		End of borehole at 1.99 m			
										3
										4
										5

Remarks

1) Hand dug pit to 1.20m bgl 2) Terminated on SPT refusal 3) Water strike at 1.50m bgl 4) Backfilled with bentonite. 5) Cased to 1.50m bgl.





Borehole Log

Borehole No.
BH-P2-102

Sheet 1 of 1

Project Name: Bury Interchange

Project No.
TE1885

Co-ords: 380437.98 - 410520.16

Hole Type
WS

Location: Manchester

Level: 86.59

Scale
1:25

Client: Willmott Dixon

Dates: 03/11/2024 -

Logged By
AP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.70	85.89		MADE GROUND: Grey, angular to subangular, coarse GRAVEL of mixed igneous lithologies (Railway Ballast) MADE GROUND	1
		0.80	ES					MADE GROUND: Reddish brown, medium to coarse SAND MADE GROUND	
		0.90	B		1.00	85.59		MADE GROUND: Light grey, subangular to subrounded, fine to coarse GRAVEL of limestone.	
		1.00	SPTL S		1.20	85.39		MADE GROUND	
		1.20		N=10 (1,3/3,2,3,2)				POSSIBLE MADE GROUND; Stiff, dark brown, slightly sandy, slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies. Occasional pieces of wood.	
		1.50	ES		1.60	84.99		POSSIBLE MADE GROUND	
		1.60	B					POSSIBLE MADE GROUND: Light brown and grey, slightly sandy, angular to subrounded, fine to coarse GRAVEL of mixed natural lithologies.	
		1.70	SPTL S		1.95	84.64		POSSIBLE MADE GROUND	
		1.70		63 (5,8/63 for 97mm)				End of borehole at 1.95 m	
									2
									3
									4
									5

Remarks

1) Hand dug pit to 1.20m 2) Water strike at 1.60m bgl. 3) Terminated on SPT refusal. 4) Cased to 1.50m bgl.





Borehole Log

Borehole No.
BH-P2-107
Sheet 1 of 1
Hole Type
WS
Scale
1:25
Logged By
AP

Project Name: Bury Interchange

Project No.
TE1885

Co-ords: 380379.14 - 410390.65

Location: Manchester

Level: 85.98

Client: Willmott Dixon

Dates: 03/11/2024 -

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.60	85.38		MADE GROUND: Dark grey, angular to subangular, medium to coarse GRAVEL of mixed igneous lithologies. MADE GROUND	
		0.80	ES		0.90	85.08		MADE GROUND: Dark red, fine to coarse SAND MADE GROUND	
		1.20 1.20 1.20	ES SPTL S	N=17 (4,5/4,4,4,5)	1.40	84.58		MADE GROUND: Light grey, slightly sandy, subangular to subrounded, fine to coarse GRAVEL of limestone and mixed natural lithologies. MADE GROUND	1
		1.50	U	Ublow=25				Firm, becoming stiff, dark reddish brown, slightly sandy, slightly gravelly to gravelly CLAY. Gravel is subrounded, fine to medium of mixed natural lithologies.	
		1.70 1.70	SPTL S	50 (4,11/50 for 43mm)	1.80	84.18		Very stiff, dark orangish brown, mottled brownish grey CLAY. Gravel is subangular to subrounded, fine to medium of sandstone and mudstone.	
					1.99	83.99		End of borehole at 1.99 m	2
									3
									4
									5

Remarks
1) Hand dug pit to 1.20m bgl 2) Water strike at 1.10m bgl 3) Terminated at SPT refusal 4) cased to 1.50m 5) Backfilled with bentonite





Borehole Log

Borehole No.
BP-P2-108
Sheet 1 of 1
Hole Type
WS
Scale
1:25
Logged By
AP

Project Name: Bury Interchange
Project No. TE1885
Co-ords: 380367.87 - 410368.48
Location: Manchester
Level: 86.02
Client: Willmott Dixon
Dates: 03/11/2024 -

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.50	ES	50 (25 for 67mm/50 for 44mm)	0.80	85.22		MADE GROUND: Dark grey, angular to subangular, medium to coarse GRAVEL of mixed igneous lithologies. MADE GROUND	1	
		1.00	ES			84.82		MADE GROUND: Reddish brown, slightly silty, fine to coarse SAND MADE GROUND		
		1.10	B							
		1.20	D							
		1.20	SPTL							
		1.20	S		1.31	84.71		MADE GROUND: Very dense, light grey, subangular to subrounded, fine to coarse GRAVEL of limestone and sandstone (subbase) MADE GROUND End of borehole at 1.31 m		
									2	
										3
				</						

Remarks
1) Hand dug pit to 1.20m bgl 2) No groundwater encountered 3) Terminated on refusal 4) Cased to 1.00m 5) Backfilled with bentonite.





Trial Pit Log

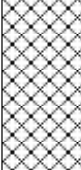
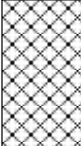
Trialpit No
HDP-P2-101
Sheet 1 of 1

Project Name: Bury Interchange	Project No. TE1885	Co-ords: 380412.09 - 410498.37 Level: 86.45	Date 03/11/2024
Location: Manchester	Dimensions (m): Depth 0.80		Scale 1:25 Logged AP
Client: Willmott Dixon		0.5	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10 0.20	B ES					MADE GROUND: Dark grey, angular to subangular, coarse GRAVEL of mixed igneous lithologies. MADE GROUND
	0.50 0.60	B ES		0.45 0.75 0.80	86.00 85.70 85.64		MADE GROUND: Dark reddish brown and dark red, coarse SAND MADE GROUND MADE GROUND: CONCRETE MADE GROUND
							End of pit at 0.80 m

Remarks: 1) Hand dug pit to 0.80m bgl 2) No groundwater encountered 3) Terminated due to concrete obstruction.
Stability: Unstable



				Trial Pit Log			Trialpit No HDP-P2-102	
				Sheet 1 of 1				
Project Name: Bury Interchange				Project No. TE1885		Co-ords: - Level:		
Location: Manchester				Dimensions (m): Depth 1.10		1 		
Client: Willmott Dixon						Scale 1:25 Logged AP		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.60			MADE GROUND: Dark grey, angular to subangular, coarse GRAVEL of mixed igneous lithologies. MADE GROUND	
	0.40	B						
	0.70	ES						
	0.90	B						
				1.10			MADE GROUND: Dark reddish brown and dark red, coarse SAND MADE GROUND	
End of pit at 1.10 m								
1 2 3 4 5								
Remarks: 1) Hand dug pit to 1.10m bgl 2) No groundwater encountered 3) Terminated due to pit collapse.								
Stability: Unstable								
								

APPENDIX C - GEOENVIRONMENTAL SOIL LABORATORY RESULTS

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



Attention : Alex Preston
Date : 26th November, 2024
Your reference : TE1885
Our reference : Test Report 24/18827 Batch 1
Location : Bury Interchange
Date samples received : 6th November, 2024
Status : Final Report
Issue : 202411261156

Fourteen samples were received for analysis on 6th November, 2024 of which eleven 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 - 70.373 kg of CO2

Scope 1&2&3 emissions - 166.309 kg of CO2

Authorised By:



Sean English
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	1-6	7-9	10-13	14-17	18-20	21-22	23-25	29,43	34-36	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	HDP-P2-101	BH-P2-101	BH-P2-101	HDP-P2-102	BH-P2-102	HDP-P2-102	BH-P2-102	BH-P2-107	BH-P2-107			
Depth	0.20	0.60	0.80	1.40	0.20	0.50	0.70	1.50	0.80	1.20			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	J T	V J T	J V	V J T	V J T			
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024			
Arsenic #	2.4	1.2	-	1.7	0.9	0.7	1.9	NDP	1.9	0.7	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	0.1	-	<0.1	<0.1	<0.1	0.2	NDP	0.2	0.5	<0.1	mg/kg	TM30/PM15
Chromium #	60.9	54.3	-	57.0	71.1	49.9	54.6	NDP	32.4	13.8	<0.5	mg/kg	TM30/PM15
Copper #	38	17	-	13	70	29	14	NDP	10	5	<1	mg/kg	TM30/PM15
Iron	24270	10380	-	5976	33390	35040	4044	NDP	4304	1342	<20	mg/kg	TM30/PM15
Lead #	6	<5	-	<5	7	6	<5	NDP	<5	<5	<5	mg/kg	TM30/PM15
Manganese #	499	237	-	122	602	770	97	NDP	90	65	<1	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	NDP	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	11.4	8.4	-	6.5	19.9	18.2	6.1	NDP	4.4	3.4	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	-	<1	<1	<1	<1	NDP	<1	<1	<1	mg/kg	TM30/PM15
Sulphur as S	<0.01	0.02	-	0.03	0.02	<0.01	0.04	NDP	0.03	0.03	<0.01	%	TM30/PM15
Total Sulphate as SO4 #	<50	313	-	503	195	<50	650	NDP	384	177	<50	mg/kg	TM50/PM29
Water Soluble Boron #	0.2	0.1	-	<0.1	0.4	0.1	<0.1	NDP	<0.1	<0.1	<0.1	mg/kg	TM74/PM32
Zinc #	54	18	-	13	72	93	6	NDP	11	15	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.04	0.07	-	<0.03	<0.03	<0.03	<0.03	0.09	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.05	0.07	-	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.05	0.06	-	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.06	<0.06	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.05	0.03	-	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene #	<0.07	<0.07	-	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	-	-	-	-	<0.04	-	-	-	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	-	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
PAH 17 Total	<0.64	-	-	-	-	<0.64	-	-	-	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	96	-	95	97	96	98	95	96	95	<0	%	TM4/PM8
VOC TICs	ND	-	-	-	ND	-	-	ND	-	ND		None	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	-	-	<2	-	-	<2	-	<2	<2	ug/kg	TM15/PM10
Benzene #	<3	<3	-	-	<3	-	-	<3	-	<3	<3	ug/kg	TM15/PM10
Toluene #	<3	<3	-	-	<3	-	-	<3	-	<3	<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	-	-	<3	-	-	<3	-	<3	<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5	-	-	<5	-	-	<5	-	<5	<5	ug/kg	TM15/PM10

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	1-6	7-9	10-13	14-17	18-20	21-22	23-25	29,43	34-36	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	HDP-P2-101	BH-P2-101	BH-P2-101	HDP-P2-102	BH-P2-102	HDP-P2-102	BH-P2-102	BH-P2-107	BH-P2-107			
Depth	0.20	0.60	0.80	1.40	0.20	0.50	0.70	1.50	0.80	1.20			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	J T	V J T	J V	V J T	V J T			
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024			
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	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	LOD/LOR	Units	Method No.
o-Xylene #	<3	<3	-	-	<3	-	-	<3	-	<3	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	81	82	-	-	83	-	-	84	-	85	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	104	108	-	-	110	-	-	110	-	95	<0	%	TM15/PM10
SVOC TICs	ND	-	-	-	ND	-	-	ND	-	ND		None	TM16/PM8
Pesticides													
Organochlorine Pesticides													
Aldrin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Alpha-HCH (BHC)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Beta-HCH (BHC)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Chlorothalonil	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
cis-Chlordane	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Delta-HCH (BHC)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Dieldrin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Endosulphan I	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Endosulphan II	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Endosulphan sulphate	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Endrin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Gamma-HCH (BHC)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Heptachlor	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Heptachlor Epoxide	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Hexachlorobenzene	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Isodrin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
o,p'-DDE	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
o,p'-DDT	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
o,p'-Methoxychlor	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
o,p'-TDE	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
p,p'-DDE	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
p,p'-DDT	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
p,p'-Methoxychlor	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
p,p'-TDE	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Pendimethalin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Permethrin I	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Permethrin II	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Quintozone (PCNB)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Tecnazene	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Telodrin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
trans-Chlordane	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Triadimefon	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Triallate	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Trifluralin	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	1-6	7-9	10-13	14-17	18-20	21-22	23-25	29,43	34-36	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	HDP-P2-101	BH-P2-101	BH-P2-101	HDP-P2-102	BH-P2-102	HDP-P2-102	BH-P2-102	BH-P2-107	BH-P2-107			
Depth	0.20	0.60	0.80	1.40	0.20	0.50	0.70	1.50	0.80	1.20			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	J T	V J T	J V	V J T	V J T			
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024			
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	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	LOD/LOR	Units	Method No.
Pesticides													
Organophosphorus Pesticides													
Azinphos ethyl	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Azinphos methyl	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Carbophenothion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Chlorfenvinphos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Chlorpyrifos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Chlorpyrifos-methyl	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Diazinon	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Dichlorvos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Disulfoton	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Dimethoate	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Ethion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Ethyl Parathion (Parathion)	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Etrimpfos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Fenitrothion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Fenthion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Malathion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Methyl Parathion	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Mevinphos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Phosalone	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Pirimphos Methyl	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Propetamphos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Triazophos	<10	-	<10	-	<10	-	-	-	-	<10	<10	ug/kg	TM42/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	-	-	-	-	<30	-	-	-	<30	<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	-	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	18	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	<26	<26	-	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/PM8/PM16/PM12/PM15

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	1-6	7-9	10-13	14-17	18-20	21-22	23-25	29,43	34-36	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	HDP-P2-101	BH-P2-101	BH-P2-101	HDP-P2-102	BH-P2-102	HDP-P2-102	BH-P2-102	BH-P2-107	BH-P2-107			
Depth	0.20	0.60	0.80	1.40	0.20	0.50	0.70	1.50	0.80	1.20			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	J T	V J T	J V	V J T	V J T			
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024	03/11/2024			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024	06/11/2024			
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	-	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	<7	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7	<7	-	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<26	<26	-	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<52	<52	-	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
Benzene #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
Toluene #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
Ethylbenzene #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
m/p-Xylene #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
o-Xylene #	-	-	-	<5	-	<5	<5	-	<5	-	<5	ug/kg	TM36/PM12
PCB 77	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 81	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 105	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 114	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 118	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 123	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 126	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 156	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 157	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 167	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 169	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 189	-	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
Total 12 PCBs	-	-	-	-	-	<60	-	-	-	<60	<60	ug/kg	TM17/PM8
PCB 28 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<5	-	-	-	-	<5	-	-	-	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	-	-	-	-	<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	<0.15	mg/kg	TM26/PM21B

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

[illegible]

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	40-41										Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-108												
Depth	1.00												
COC No / misc													
Containers	V J												
Sample Date	03/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	06/11/2024												
Arsenic #	1.6										<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1										<0.1	mg/kg	TM30/PM15
Chromium #	61.8										<0.5	mg/kg	TM30/PM15
Copper #	12										<1	mg/kg	TM30/PM15
Iron	6311										<20	mg/kg	TM30/PM15
Lead #	<5										<5	mg/kg	TM30/PM15
Manganese #	109										<1	mg/kg	TM30/PM15
Mercury #	<0.1										<0.1	mg/kg	TM30/PM15
Nickel #	6.8										<0.7	mg/kg	TM30/PM15
Selenium #	<1										<1	mg/kg	TM30/PM15
Sulphur as S	0.03										<0.01	%	TM30/PM15
Total Sulphate as SO4 #	458										<50	mg/kg	TM50/PM29
Water Soluble Boron #	0.1										<0.1	mg/kg	TM74/PM32
Zinc #	8										<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04										<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03										<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05										<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04										<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03										<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03										<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06										<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04										<0.04	mg/kg	TM4/PM8
Coronene	-										<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6										<0.6	mg/kg	TM4/PM8
PAH 17 Total	-										<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	94										<0	%	TM4/PM8
VOC TICs	-											None	TM15/PM10
Methyl Tertiary Butyl Ether #	-										<2	ug/kg	TM15/PM10
Benzene #	-										<3	ug/kg	TM15/PM10
Toluene #	-										<3	ug/kg	TM15/PM10
Ethylbenzene #	-										<3	ug/kg	TM15/PM10
m/p-Xylene #	-										<5	ug/kg	TM15/PM10

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	40-41									Please see attached notes for all abbreviations and acronyms				
Sample ID	BH-P2-108													
Depth	1.00													
COC No / misc														
Containers	V J													
Sample Date	03/11/2024													
Sample Type	Soil													
Batch Number	1													
Date of Receipt	06/11/2024										LOD/LOR	Units	Method No.	
o-Xylene #	-										<3	ug/kg	TM15/PM10	
Surrogate Recovery Toluene D8	-										<0	%	TM15/PM10	
Surrogate Recovery 4-Bromofluorobenzene	-										<0	%	TM15/PM10	
SVOC TICs	-											None	TM16/PM8	
Pesticides														
Organochlorine Pesticides														
Aldrin	-										<10	ug/kg	TM42/PM8	
Alpha-HCH (BHC)	-										<10	ug/kg	TM42/PM8	
Beta-HCH (BHC)	-										<10	ug/kg	TM42/PM8	
Chlorothalonil	-										<10	ug/kg	TM42/PM8	
cis-Chlordane	-										<10	ug/kg	TM42/PM8	
Delta-HCH (BHC)	-										<10	ug/kg	TM42/PM8	
Dieldrin	-										<10	ug/kg	TM42/PM8	
Endosulphan I	-										<10	ug/kg	TM42/PM8	
Endosulphan II	-										<10	ug/kg	TM42/PM8	
Endosulphan sulphate	-										<10	ug/kg	TM42/PM8	
Endrin	-										<10	ug/kg	TM42/PM8	
Gamma-HCH (BHC)	-										<10	ug/kg	TM42/PM8	
Heptachlor	-										<10	ug/kg	TM42/PM8	
Heptachlor Epoxide	-										<10	ug/kg	TM42/PM8	
Hexachlorobenzene	-										<10	ug/kg	TM42/PM8	
Isodrin	-										<10	ug/kg	TM42/PM8	
o,p'-DDE	-										<10	ug/kg	TM42/PM8	
o,p'-DDT	-										<10	ug/kg	TM42/PM8	
o,p'-Methoxychlor	-										<10	ug/kg	TM42/PM8	
o,p'-TDE	-										<10	ug/kg	TM42/PM8	
p,p'-DDE	-										<10	ug/kg	TM42/PM8	
p,p'-DDT	-										<10	ug/kg	TM42/PM8	
p,p'-Methoxychlor	-										<10	ug/kg	TM42/PM8	
p,p'-TDE	-										<10	ug/kg	TM42/PM8	
Pendimethalin	-										<10	ug/kg	TM42/PM8	
Permethrin I	-										<10	ug/kg	TM42/PM8	
Permethrin II	-										<10	ug/kg	TM42/PM8	
Quintozene (PCNB)	-										<10	ug/kg	TM42/PM8	
Tecnazene	-										<10	ug/kg	TM42/PM8	
Telodrin	-										<10	ug/kg	TM42/PM8	
trans-Chlordane	-										<10	ug/kg	TM42/PM8	
Triadimefon	-										<10	ug/kg	TM42/PM8	
Triallate	-										<10	ug/kg	TM42/PM8	
Trifluralin	-										<10	ug/kg	TM42/PM8	

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	40-41												
Sample ID	BH-P2-108												
Depth	1.00												
COC No / misc													
Containers	V J												
Sample Date	03/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	06/11/2024												
											LOD/LOR	Units	Method No.
Please see attached notes for all abbreviations and acronyms													
Pesticides													
Organophosphorus Pesticides													
Azinphos ethyl	-										<10	ug/kg	TM42/PM8
Azinphos methyl	-										<10	ug/kg	TM42/PM8
Carbophenothion	-										<10	ug/kg	TM42/PM8
Chlorfenvinphos	-										<10	ug/kg	TM42/PM8
Chlorpyrifos	-										<10	ug/kg	TM42/PM8
Chlorpyrifos-methyl	-										<10	ug/kg	TM42/PM8
Diazinon	-										<10	ug/kg	TM42/PM8
Dichlorvos	-										<10	ug/kg	TM42/PM8
Disulfoton	-										<10	ug/kg	TM42/PM8
Dimethoate	-										<10	ug/kg	TM42/PM8
Ethion	-										<10	ug/kg	TM42/PM8
Ethyl Parathion (Parathion)	-										<10	ug/kg	TM42/PM8
Etrimphos	-										<10	ug/kg	TM42/PM8
Fenitrothion	-										<10	ug/kg	TM42/PM8
Fenthion	-										<10	ug/kg	TM42/PM8
Malathion	-										<10	ug/kg	TM42/PM8
Methyl Parathion	-										<10	ug/kg	TM42/PM8
Mevinphos	-										<10	ug/kg	TM42/PM8
Phosalone	-										<10	ug/kg	TM42/PM8
Pirimiphos Methyl	-										<10	ug/kg	TM42/PM8
Propetamphos	-										<10	ug/kg	TM42/PM8
Triazophos	-										<10	ug/kg	TM42/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-										<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) #	<7										<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7										<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/PM8/PM16

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

EMT Sample No.	40-41												
Sample ID	BH-P2-108												
Depth	1.00												
COC No / misc													
Containers	V J												
Sample Date	03/11/2024												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	06/11/2024												
											LOD/LOR	Units	Method No.
TPH CWG													
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) #	<4										<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7										<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	<7										<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7										<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<26										<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<52										<52	mg/kg	TM5/PM8/PM16/PM12/PM10
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 77	-										<5	ug/kg	TM17/PM8
PCB 81	-										<5	ug/kg	TM17/PM8
PCB 105	-										<5	ug/kg	TM17/PM8
PCB 114	-										<5	ug/kg	TM17/PM8
PCB 118	-										<5	ug/kg	TM17/PM8
PCB 123	-										<5	ug/kg	TM17/PM8
PCB 126	-										<5	ug/kg	TM17/PM8
PCB 156	-										<5	ug/kg	TM17/PM8
PCB 157	-										<5	ug/kg	TM17/PM8
PCB 167	-										<5	ug/kg	TM17/PM8
PCB 169	-										<5	ug/kg	TM17/PM8
PCB 189	-										<5	ug/kg	TM17/PM8
Total 12 PCBs	-										<60	ug/kg	TM17/PM8
PCB 28 #	-										<5	ug/kg	TM17/PM8
PCB 52 #	-										<5	ug/kg	TM17/PM8
PCB 101 #	-										<5	ug/kg	TM17/PM8
PCB 118 #	-										<5	ug/kg	TM17/PM8
PCB 138 #	-										<5	ug/kg	TM17/PM8
PCB 153 #	-										<5	ug/kg	TM17/PM8
PCB 180 #	-										<5	ug/kg	TM17/PM8
Total 7 PCBs #	-										<35	ug/kg	TM17/PM8
Total Phenols HPLC	<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: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : Solid

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

[illegible]

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : CEN 10:1 1 Batch

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

EMT Sample No.	1-6	10-13	21-22	37-39							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	BH-P2-101	BH-P2-102	BH-P2-107									
Depth	0.20	0.80	0.50	1.20									
COC No / misc													
Containers	V J T	V J T	J T	V J T									
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	06/11/2024	06/11/2024	06/11/2024	06/11/2024							LOD/LOR	Units	Method No.
Dissolved Arsenic #	-	<2.5	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Boron #	-	<12	<12	<12							<12	ug/l	TM30/PM14
Dissolved Cadmium #	-	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Calcium #	-	8.6	4.5	15.1							<0.2	mg/l	TM30/PM14
Dissolved Chromium #	-	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	-	<7	<7	<7							<7	ug/l	TM30/PM14
Dissolved Iron #	-	<20	445	<20							<20	ug/l	TM30/PM14
Dissolved Lead #	-	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Manganese #	-	<2	11	7							<2	ug/l	TM30/PM14
Dissolved Mercury #	-	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	-	<2	<2	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	-	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Zinc #	-	<3	4	<3							<3	ug/l	TM30/PM14
Total Hardness Dissolved	-	22	15	40							<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	-	0.2	<0.1	0.2							<0.1	ug/l	TM4/PM30
Acenaphthylene	-	0.019	<0.005	0.018							<0.005	ug/l	TM4/PM30
Acenaphthene	-	0.009	<0.005	0.011							<0.005	ug/l	TM4/PM30
Fluorene	-	0.015	<0.005	0.015							<0.005	ug/l	TM4/PM30
Phenanthrene	-	0.020	0.020	0.007							<0.005	ug/l	TM4/PM30
Anthracene	-	0.006	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Fluoranthene	-	0.008	<0.005	0.005							<0.005	ug/l	TM4/PM30
Pyrene	-	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	-	0.006	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Chrysene	-	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(b)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	-	0.283	<0.173	0.256							<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	-	87	67	83							<0	%	TM4/PM30

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Report : CEN 10:1 1 Batch

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

EMT Sample No.	1-6	10-13	21-22	37-39							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	BH-P2-101	BH-P2-102	BH-P2-107									
Depth	0.20	0.80	0.50	1.20									
COC No / misc													
Containers	V J T	V J T	J T	V J T									
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	06/11/2024	06/11/2024	06/11/2024	06/11/2024							LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>C6-C8 (HS_1D_AL)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>C8-C10 (HS_1D_AL)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>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
Total aliphatics C5-35 (EH_CU+HS_1D_AL)	-	<10	<10	<10							<10	ug/l	TM5/PM16/PM30/PM69
Aromatics													
>C5-EC7 (HS_1D_AR)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>EC7-EC8 (HS_1D_AR)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>EC8-EC10 (HS_1D_AR)	-	<10	<10	<10							<10	ug/l	TM36/PM69
>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
Total aromatics C5-35 (EH_CU+HS_1D_AR)	-	<10	<10	<10							<10	ug/l	TM5/PM16/PM30/PM69
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total)	-	<10	<10	<10							<10	ug/l	TM5/PM16/PM30/PM69
MTBE	-	<5	<5	<5							<5	ug/l	TM36/PM69
Benzene	-	<5	<5	<5							<5	ug/l	TM36/PM69
Toluene	-	<5	<5	<5							<5	ug/l	TM36/PM69
Ethylbenzene	-	<5	<5	<5							<5	ug/l	TM36/PM69
m/p-Xylene	-	<5	<5	<5							<5	ug/l	TM36/PM69
o-Xylene	-	<5	<5	<5							<5	ug/l	TM36/PM69
Total Phenols HPLC	-	<0.05	<0.05	<0.05							<0.05	mg/l	TM26/PM0
Sulphate as SO4 #	-	1.4	<0.5	1.0							<0.5	mg/l	TM38/PM0
Mass of raw test portion	0.0898	0.0984	0.0907	0.0945								kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09								kg	NONE/PM17
Ammoniacal Nitrogen as N #	-	<30	100	<30							<30	ug/l	TM38/PM0
Total Cyanide #	-	<0.01	<0.01	<0.01							<0.01	mg/l	TM89/PM0
Dissolved Organic Carbon	-	<2	2	<2							<2	mg/l	TM60/PM0
Hexavalent Chromium	-	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
pH	-	8.09	8.01	7.98							<0.01	pH units	TM73/PM0

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced

QF-PM 3.1.3 v11 All solid results are expressed on a dry weight basis unless stated otherwise. 14 of 30

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston
EMT Job No: 24/18827

VOC Report : Solid

EMT Sample No.	1-6	18-20	29,43	37-39							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-P2-101	HDP-P2-102	BH-P2-102	BH-P2-107									
Depth	0.20	0.20	1.50	1.20									
COC No / misc													
Containers	V J T	V J T	J V	V J T									
Sample Date	03/11/2024	03/11/2024	03/11/2024	03/11/2024									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1							LOD/LOR	Units	Method No.
Date of Receipt	06/11/2024	06/11/2024	06/11/2024	06/11/2024									
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2							<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1							<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6							<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7	<7	<7							<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6							<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Toluene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5	<5	<5							<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3							<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3*	<3*	<3*	<3							<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5	<5							<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6	<6							<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
n-Butylbenzene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7	<7	<7	<7							<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27	<27							<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene	<7	<7	<7	<7							<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	81	83	84	85							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	104	110	110	95							<0	%	TM15/PM10

Mass of sample taken (kg)	0.0898	Moisture Content Ratio (%) =	0.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	99.7
Particle Size <4mm =	>95%		
EMT Job No	24/18827	Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill Hazardous Waste Landfill	
Sample No	5		
Client Sample No	BH-P2-101		
Depth/Other	0.20		
Sample Date	03/11/2024		
Batch No	1		
Solid Waste Analysis			
Total Organic Carbon (%)	0.04	3	5
Loss on Ignition (%)	<1.0	-	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)	<0.64	100	-
pH (pH Units)	8.52	-	>6
ANC to pH 7 (mol/kg)	<0.03	-	to be evaluated
ANC to pH 4 (mol/kg)	0.06	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg mg/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	<0.003	<0.03	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	<0.003	<0.03	4
Chloride	0.7	7	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	<0.5	<5	1000
Total Dissolved Solids	37	370	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	<2	<20	500

Mass of sample taken (kg)	0.0907	Moisture Content Ratio (%) =	0.5
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	99.5
Particle Size <4mm =	>95%		
EMT Job No	24/18827	Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill Hazardous Waste Landfill	
Sample No	22		
Client Sample No	BH-P2-102		
Depth/Other	0.50		
Sample Date	03/11/2024		
Batch No	1		
Solid Waste Analysis			
Total Organic Carbon (%)	0.03	3	5
Loss on Ignition (%)	<1.0	-	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)	9.07	-	>6
ANC to pH 7 (mol/kg)	<0.03	-	to be evaluated
ANC to pH 4 (mol/kg)	<0.03	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg mg/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	0.007	0.07	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	<0.003	<0.03	4
Chloride	0.6	6	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	<0.5	<5	1000
Total Dissolved Solids	40	400	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	2	20	500

Mass of sample taken (kg)	0.0945	Moisture Content Ratio (%) =	5.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	95.0
Particle Size <4mm =	>95%		
EMT Job No	24/18827	Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill Hazardous Waste Landfill	
Sample No	39		
Client Sample No	BH-P2-107		
Depth/Other	1.20		
Sample Date	03/11/2024		
Batch No	1		
Solid Waste Analysis			
Total Organic Carbon (%)	<0.02	3	5
Loss on Ignition (%)	<1.0	-	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)	<0.64	100	-
pH (pH Units)	9.50	-	>6
ANC to pH 7 (mol/kg)	0.14	-	to be evaluated
ANC to pH 4 (mol/kg)	2.11	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg mg/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	0.142	1.42	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	0.006	0.06	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	<0.003	<0.03	4
Chloride	0.4	4	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	1.0	10	1000
Total Dissolved Solids	<35	<350	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	<2	<20	500

Client Name: Tier Environmental
Reference: TE1885
Location: Bury Interchange
Contact: Alex Preston

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
24/18827	1	BH-P2-101	0.20	6	Charlotte Taylor	12/11/2024	General Description (Bulk Analysis)	brown soil/stones
					Charlotte Taylor	12/11/2024	Asbestos Fibres	NAD
					Charlotte Taylor	12/11/2024	Asbestos ACM	NAD
					Charlotte Taylor	12/11/2024	Asbestos Type	NAD
24/18827	1	HDP-P2-101	0.60	9	Catherine Coles	12/11/2024	General Description (Bulk Analysis)	brown soil,stone
					Catherine Coles	12/11/2024	Asbestos Fibres	NAD
					Catherine Coles	12/11/2024	Asbestos ACM	NAD
					Catherine Coles	12/11/2024	Asbestos Type	NAD
24/18827	1	BH-P2-101	1.40	17	Charlotte Taylor	12/11/2024	General Description (Bulk Analysis)	brown soil/stones
					Charlotte Taylor	12/11/2024	Asbestos Fibres	NAD
					Charlotte Taylor	12/11/2024	Asbestos ACM	NAD
					Charlotte Taylor	12/11/2024	Asbestos Type	NAD
24/18827	1	HDP-P2-102	0.20	20	Emily Smith	12/11/2024	General Description (Bulk Analysis)	Stones
					Emily Smith	12/11/2024	Asbestos Fibres	NAD
					Emily Smith	12/11/2024	Asbestos ACM	NAD
					Emily Smith	12/11/2024	Asbestos Type	NAD
24/18827	1	BH-P2-102	0.50	21	Charlotte Taylor	12/11/2024	General Description (Bulk Analysis)	stones
					Charlotte Taylor	12/11/2024	Asbestos Fibres	NAD
					Charlotte Taylor	12/11/2024	Asbestos ACM	NAD
					Charlotte Taylor	12/11/2024	Asbestos Type	NAD
24/18827	1	BH-P2-102	1.50	29	Emily Smith	12/11/2024	General Description (Bulk Analysis)	Brown soil with stones
					Emily Smith	12/11/2024	Asbestos Fibres	NAD
					Emily Smith	12/11/2024	Asbestos ACM	NAD
					Emily Smith	12/11/2024	Asbestos Type	NAD
24/18827	1	BH-P2-107	1.20	38	Anthony Carman	12/11/2024	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	12/11/2024	Asbestos Fibres	NAD
					Anthony Carman	12/11/2024	Asbestos ACM	NAD
					Anthony Carman	12/11/2024	Asbestos Type	NAD
24/18827	1	BH-P2-108	1.00	41	Catherine Coles	12/11/2024	General Description (Bulk Analysis)	brown soil,stone
					Catherine Coles	12/11/2024	Asbestos Fibres	NAD
					Catherine Coles	12/11/2024	Asbestos ACM	NAD
					Catherine Coles	12/11/2024	Asbestos Type	NAD

Matrix : Solid

20 of 30

Client Name: Tier Environmental

Reference: TE1885

Location: Bury Interchange

Contact: Alex Preston

[illegible]

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.: 24/18827

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 overestimate 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-quantitatively, 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: 24/18827

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	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.	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.			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	PM16/PM30/PM69	please refer to PM16/PM30 and PM69 for method details			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

EMT Job No: 24/18827

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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
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.			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 CO ₂ 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

EMT Job No: 24/18827

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	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			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
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 GC/FID 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 GC/FID 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
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 GC/FID 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.	PM69	One part soil is mixed with 10 parts water in a vial leaving no headspace. The mixture is shaken and then left to leach for 24 hours before VOC analysis.			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.			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.	Yes		AD	Yes

EMT Job No: 24/18827

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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
TM42	Modified US EPA method 8270D v5:2014. Pesticides and herbicides by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			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
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
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No

EMT Job No: 24/18827

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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		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
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM114	End over end extraction of dried and crushed soil samples for organic analysis. The solvent mix varies depending on analysis required			AD	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
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



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:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



BLTBZ-8U5EO-61D44

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in **pale yellow**.

Report is invalid if pages are removed.

Job name

EMT-24-18827-Batch-1-202411261156

Description/Comments

Project

TE1885

Site

Bury Interchange - Willmott Dixon

Classified by

Name: **Adrian Read**
Date: **28 Jan 2025 13:45 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

Hazardous Waste Classification
Most recent 3 year Refresher

Date

03 Dec 2020
05 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Bury Interchange, Bury

Post Code **BL9 0AY**

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	BH-P2-101-03/11/2024-0.20m		Non Hazardous		3
2	HDP-P2-101-03/11/2024-0.60m		Non Hazardous		11
3	BH-P2-101-03/11/2024-0.80m		Non Hazardous		13
4	BH-P2-101-03/11/2024-1.40m		Non Hazardous		16
5	HDP-P2-102-03/11/2024-0.20m		Non Hazardous		18
6	BH-P2-102-03/11/2024-0.50m		Non Hazardous		26
7	HDP-P2-102-03/11/2024-0.70m		Non Hazardous		28
8	BH-P2-102-03/11/2024-1.50m		Non Hazardous		30
9	BH-P2-107-03/11/2024-0.80m		Non Hazardous		35
10	BH-P2-107-03/11/2024-1.20m		Non Hazardous		37
11	BH-P2-108-03/11/2024-1.00m		Non Hazardous		45

Related documents

#	Name	Description
1	EMT-24-18827-Batch-1-202411261156.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: 28 Jan 2025 13:45 GMT

Appendices

	Page
Appendix A: Classifier defined and non GB MCL determinands	47
Appendix B: Rationale for selection of metal species	52
Appendix C: Version	52



Classification of sample: BH-P2-101-03/11/2024-0.20m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-101-03/11/2024-0.20m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.9% (dry weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 1.9% 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 }				2.4 mg/kg	1.32	3.11 mg/kg	0.000311 %	✔	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide }				0.2 mg/kg	3.22	0.632 mg/kg	0.0000632 %	✔	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				60.9 mg/kg	2.27	135.665 mg/kg	0.0136 %	✔	
	024-017-00-8									
5	copper { dicopper oxide; copper (I) oxide }				38 mg/kg	1.126	41.986 mg/kg	0.0042 %	✔	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	6 mg/kg	1.56	9.184 mg/kg	0.000589 %	✔	
	082-004-00-2	231-846-0	7758-97-6							
7	manganese { manganese sulphate }				499 mg/kg	2.749	1345.96 mg/kg	0.135 %	✔	
	025-003-00-4	232-089-9	7785-87-7							
8	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				11.4 mg/kg	2.976	33.297 mg/kg	0.00333 %	✔	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				54 mg/kg	2.774	147.011 mg/kg	0.0147 %	✔	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
			TPH							
13	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							
14	benzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-023-00-4	202-849-4	100-41-4							



#	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							
17	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
18	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
19	pH		PH		8.52 pH		8.52 pH	8.52 pH		
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.027 mg/kg		<0.027 mg/kg	<0.0000027 %		<LOD
21	acenaphthylene 205-917-1	208-96-8			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	acenaphthene 201-469-6	83-32-9			<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23	fluorene 201-695-5	86-73-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	phenanthrene 201-581-5	85-01-8			0.04 mg/kg		0.0393 mg/kg	0.00000393 %	✓	
25	anthracene 204-371-1	120-12-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
26	fluoranthene 205-912-4	206-44-0			0.05 mg/kg		0.0491 mg/kg	0.00000491 %	✓	
27	pyrene 204-927-3	129-00-0			0.05 mg/kg		0.0491 mg/kg	0.00000491 %	✓	
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.06 mg/kg		0.0589 mg/kg	0.00000589 %	✓	
29	chrysene 601-048-00-0	205-923-4	218-01-9		0.05 mg/kg		0.0491 mg/kg	0.00000491 %	✓	
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
33	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
34	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
35	benzo[ghi]perylene 205-883-8	191-24-2			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
36	phenol 604-001-00-2	203-632-7	108-95-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
37	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
38	tetrachloroethylene 602-028-00-4	204-825-9	127-18-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
39	carbon tetrachloride; tetrachloromethane 602-008-00-5	200-262-8	56-23-5		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
40	trichloroethylene; trichloroethene 602-027-00-9	201-167-4	79-01-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	vinyl chloride; chloroethylene 602-023-00-7	200-831-0	75-01-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
42	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane 602-045-00-7	200-024-3	50-29-3		<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							
43	chlordan (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan	602-047-00-8	200-349-0	57-74-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
44	hexachlorocyclohexanes, including lindane	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
45	dieldrin (ISO)	602-049-00-9	200-484-5	60-57-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
46	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene	602-051-00-X	200-775-7	72-20-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
47	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene	602-046-00-2	200-962-3	76-44-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
48	hexachlorobenzene	602-065-00-6	204-273-9	118-74-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
49	aldrin (ISO)	602-048-00-3	206-215-8	309-00-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
50	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
51	dichlorodifluoromethane	200-893-9	75-71-8		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
52	chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
53	bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
54	chloroethane	602-009-00-0	200-830-5	75-00-3	<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
55	trichlorofluoromethane	200-892-3	75-69-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
56	1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4	<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
57	dichloromethane; methylene chloride	602-004-00-3	200-838-9	75-09-2	<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
58	2,2-dichloropropane	209-832-0	594-20-7		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
59	bromochloromethane	200-826-3	74-97-5		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
60	chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
61	1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
62	1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
63	1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5	<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
64	dibromomethane	602-003-00-8	200-824-2	74-95-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
65	bromodichloromethane	200-856-7	75-27-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
66	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
67	trans-1,3-dichloropropene	431-460-4	10061-02-6		<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								
68	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								
69	1,3-dichloropropane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		205-531-3	142-28-9								
70	dibromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		204-704-0	124-48-1								
71	1,2-dibromoethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-010-00-6	203-444-5	106-93-4								
72	chlorobenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-033-00-1	203-628-5	108-90-7								
73	1,1,1,2-tetrachloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		211-135-1	630-20-6								
74	bromoform; tribromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-007-00-X	200-854-6	75-25-2								
75	cumene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-024-00-X	202-704-5	98-82-8								
76	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								
77	bromobenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	602-060-00-9	203-623-8	108-86-1								
78	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								
79	propylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	601-097-00-8	203-132-9	103-65-1								
80	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								
81	tert-butylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
		202-632-4	98-06-6								
82	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								
83	sec-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		205-227-0	135-98-8								
84	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								
85	1,3-dichlorobenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-067-00-7	208-792-1	541-73-1								
86	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								
87	n-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		203-209-7	104-51-8								
88	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								
89	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								
90	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								
91	hexachlorobutadiene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		201-765-5	87-68-3								
92	1,2,3-trichlorobenzene				<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %			<LOD
		201-757-1	87-61-6								
93	styrene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-026-00-0	202-851-5	100-42-5								
94	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]								
95	2-nitrophenol				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		201-857-5	88-75-5								



#	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							
96	2,4-dichlorophenol									
	604-011-00-7	204-429-6	120-83-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
97	3,4-xylene; [1] 2,5-xylene; [2] 2,4-xylene; [3] 2,3-xylene; [4] 2,6-xylene; [5] xylene; [6] 2,4(or 2,5)-xylene [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
98	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
99	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
100	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
101	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
102	pentachlorophenol									
	604-002-00-8	201-778-6	87-86-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
103	2-chloronaphthalene									
		202-079-9	91-58-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
104	2-methyl naphthalene									
		202-078-3	91-57-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
105	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
106	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
107	dibutyl phthalate; DBP									
	607-318-00-4	201-557-4	84-74-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
108	di-n-octyl phthalate									
		204-214-7	117-84-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
109	diethyl phthalate									
		201-550-6	84-66-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
110	dimethyl phthalate									
		205-011-6	131-11-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
111	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
112	2,6-dinitrotoluene									
	609-049-00-8	210-106-0	606-20-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
113	4-bromophenylphenylether									
		202-952-4	101-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
114	4-chloroaniline									
	612-137-00-9	203-401-0	106-47-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
115	4-chlorophenylphenylether									
		230-281-7	7005-72-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
116	azobenzene									
	611-001-00-6	203-102-5	103-33-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
117	bis(2-chloroethoxy)methane									
		203-920-2	111-91-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
118	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
119	carbazole									
		201-696-0	86-74-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
120	dibenzofuran									
		205-071-3	132-64-9		<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								
121	hexachlorocyclopentadiene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-078-00-7	201-029-3	77-47-4								
122	hexachloroethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-666-4	67-72-1								
123	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								
124	nitrosodipropylamine				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	612-098-00-8	210-698-0	621-64-7								
125	nitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-003-00-7	202-716-0	98-95-3								
126	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate }				24270 mg/kg	4.978	118565.484 mg/kg	11.857 %			
	026-003-01-4	231-753-5	7782-63-0								
127	coronene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-881-7	191-07-1								
128	tecnazene (ISO); 1,2,4,5-tetrachloro-3-nitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-044-00-0	204-178-2	117-18-0								
129	trifluralin (ISO) (containing < 0.5 ppm NPDA); a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (containing < 0.5 ppm NPDA); 2,6-dinitro-N,N-dipropyl-4-trifluoromethylaniline (containing < 0.5 ppm NPDA); N,N-dipropyl-2,6-dinitro-4-trifluoromethylaniline (containing < 0.5 ppm NPDA)				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-046-00-1	216-428-8	1582-09-8								
130	quintozene (ISO); pentachloronitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-043-00-5	201-435-0	82-68-8								
131	tri-allate (ISO); S-2,3,3-trichloroallyl diisopropylthiocarbamate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	006-039-00-X	218-962-7	2303-17-5								
132	chlorothalonil (ISO); tetrachloroisophthalonitrile				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	608-014-00-4	217-588-1	1897-45-6								
133	triadimefon (ISO); 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)butanone				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	606-037-00-4	256-103-8	43121-43-3								
134	isobenzan (ISO); 1,3,4,5,6,7,8,8-octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methanoisobenzofuran				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-053-00-0	206-045-4	297-78-9								
135	isodrin; (1a,4a,4ab,5b,8b,8ab)-1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-050-00-4	207-366-2	465-73-6								
136	pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-042-00-X	254-938-2	40487-42-1								
137	heptachlor epoxide; 2,3-epoxy-1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-063-00-5	213-831-0	1024-57-3								
138	o,p'-DDE				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		222-318-0	3424-82-6								
139	p,p'-DDE				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-784-6	72-55-9								
140	p,p'-DDD				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-783-0	72-54-8								
141	o,p'-DDD				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-166-6	53-19-0								
142	o,p'-DDT				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		212-332-5	789-02-6								



#	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							
143	permethrin (ISO); m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate	613-058-00-2	258-067-9	52645-53-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
144	dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate	015-019-00-X	200-547-7	62-73-7	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
145	azinphos-ethyl (ISO); O,O-diethyl 4-oxobenzotriazin-3-ylmethyl phosphorodithioate	015-056-00-1	220-147-6	2642-71-9	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
146	azinphos-methyl (ISO); O,O-dimethyl-4-oxobenzotriazin-3-ylmethyl phosphorodithioate	015-039-00-9	201-676-1	86-50-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
147	carbophenothion (ISO); 4-chlorophenylthiomethyl O,O-diethyl phosphorodithioate	015-044-00-6	212-324-1	786-19-6	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
148	chlorfenvinphos (ISO); 2-chloro-1-(2,4 dichlorophenyl) vinyl diethyl phosphate	015-071-00-3	207-432-0	470-90-6	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
149	chlorpyrifos (ISO); O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate	015-084-00-4	220-864-4	2921-88-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
150	chlorpyrifos-methyl (ISO);, O, O-dimethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate	015-186-00-9	227-011-5	5598-13-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
151	diazinon (ISO); O,O-diethyl O-2-isopropyl-6-methylpyrimidin-4-yl phosphorothioate	015-040-00-4	206-373-8	333-41-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
152	dimethoate (ISO); O,O-dimethyl methylcarbamoylmethyl phosphorodithioate	015-051-00-4	200-480-3	60-51-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
153	ethion (ISO); O,O,O',O'-tetraethyl S,S'-methylenedi (phosphorodithioate); diethion	015-047-00-2	209-242-3	563-12-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
154	parathion (ISO); O,O-diethyl O-4-nitrophenyl phosphorothioate	015-034-00-1	200-271-7	56-38-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
155	etrimfos (ISO); O-6-ethoxy-2-ethylpyrimidin-4-yl O,O-dimethylphosphorothioate	015-122-00-X	253-855-9	38260-54-7	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
156	fenitrothion (ISO); O,O-dimethyl O-4-nitro-m-tolyl phosphorothioate	015-054-00-0	204-524-2	122-14-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
157	fenthion (ISO); O,O-dimethyl-O-(4-methylthion-m-tolyl) phosphorothioate	015-048-00-8	200-231-9	55-38-9	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
158	malathion (ISO); 1,2-bis(ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate; [containing £ 0.03 % isomalathion]	015-041-00-X	204-497-7	121-75-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
159	parathion - methyl (ISO); O,O-dimethyl O-4-nitrophenyl phosphorothioate	015-035-00-7	206-050-1	298-00-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
160	mevinphos (ISO); 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate	015-020-00-5	232-095-1	7786-34-7	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
161	phosalone (ISO); S-(6-chloro-2-oxobenzoxazolin-3-ylmethyl) O,O-diethyl phosphorodithioate	015-067-00-1	218-996-2	2310-17-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
162	pirimiphos-methyl (ISO); O-[2-(diethylamino)-6-methylpyrimidin-4-yl] O,O-dimethyl phosphorothioate	015-134-00-5	249-528-5	29232-93-7	<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							
163	trans-isopropyl-3-[[[(ethylamino)methoxyphosphinothioyl]oxy]crotonate; isopropyl 3-[[[(ethylamino)methoxyphosphinothioyl]oxy]isocrotonate; propetamphos (ISO)	015-136-00-6	250-517-2	31218-83-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
164	triazophos (ISO); O,O-diethyl-O-1-phenyl-1H-1,2,4-triazol-3-yl phosphorothioate	015-140-00-8	245-986-5	24017-47-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
165	disulfoton (ISO); O,O-diethyl 2-ethylthioethyl phosphorodithioate	015-060-00-3	206-054-3	298-04-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
166	endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite	602-052-00-5	204-079-4	115-29-7	<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
167	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
168	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
169	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
170	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]	<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
171	p,p'-methoxychlor	200-779-9	72-43-5		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
Total:								12.034 %		

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 Determinand - 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: HDP-P2-101-03/11/2024-0.60m

 **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HDP-P2-101-03/11/2024-0.60m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
14.7%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14.7% 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 }				1.2	mg/kg	1.32	1.381	mg/kg	0.000138 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	 boron { diboron trioxide }				0.1	mg/kg	3.22	0.281	mg/kg	0.0000281 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
3	 cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.0996	mg/kg	0.00000996 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	 chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				54.3	mg/kg	2.27	107.464	mg/kg	0.0107 %	✓	
	024-017-00-8											
5	 copper { dicopper oxide; copper (I) oxide }				17	mg/kg	1.126	16.687	mg/kg	0.00167 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	 lead { lead chromate }			1	<5	mg/kg	1.56	<7.799	mg/kg	<0.0005 %		<LOD
	082-004-00-2	231-846-0	7758-97-6									
7	 manganese { manganese sulphate }				237	mg/kg	2.749	567.925	mg/kg	0.0568 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
8	 mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
9	 nickel { nickel chromate }				8.4	mg/kg	2.976	21.797	mg/kg	0.00218 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	 selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
11	 zinc { zinc chromate }				18	mg/kg	2.774	43.535	mg/kg	0.00435 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
			TPH									
13	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									
14	benzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
15	toluene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
16	ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-023-00-4	202-849-4	100-41-4									



#	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								
17	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
18	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
19	pH		PH		8.93 pH		8.93 pH	8.93 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	acenaphthylene	205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	phenanthrene	201-581-5	85-01-8		0.07 mg/kg		0.061 mg/kg	0.0000061 %			
25	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	fluoranthene	205-912-4	206-44-0		0.07 mg/kg		0.061 mg/kg	0.0000061 %			
27	pyrene	204-927-3	129-00-0		0.06 mg/kg		0.0523 mg/kg	0.00000523 %			
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		0.03 mg/kg		0.0262 mg/kg	0.00000262 %			
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		10380 mg/kg	4.978	45050.19 mg/kg	4.505 %			
Total:									4.587 %		

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 Determinand - 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: BH-P2-101-03/11/2024-0.80m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-101-03/11/2024-0.80m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
11.2% (dry weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11.2% 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	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane	602-045-00-7	200-024-3	50-29-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
2	chlordan (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan	602-047-00-8	200-349-0	57-74-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
3	hexachlorocyclohexanes, including lindane	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
4	dieldrin (ISO)	602-049-00-9	200-484-5	60-57-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
5	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4,5,8-dimethanonaphthalene	602-051-00-X	200-775-7	72-20-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
6	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene	602-046-00-2	200-962-3	76-44-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
7	hexachlorobenzene	602-065-00-6	204-273-9	118-74-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
8	aldrin (ISO)	602-048-00-3	206-215-8	309-00-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
9	tecnazene (ISO); 1,2,4,5-tetrachloro-3-nitrobenzene	609-044-00-0	204-178-2	117-18-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
10	trifluralin (ISO) (containing < 0.5 ppm NPDA); a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (containing < 0.5 ppm NPDA); 2,6-dinitro-N,N-dipropyl-4-trifluoromethylaniline (containing < 0.5 ppm NPDA); N,N-dipropyl-2,6-dinitro-4-trifluoromethylaniline (containing < 0.5 ppm NPDA)	609-046-00-1	216-428-8	1582-09-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
11	quintozone (ISO); pentachloronitrobenzene	609-043-00-5	201-435-0	82-68-8	<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							
12	tri-allate (ISO); S-2,3,3-trichloroallyl diisopropylthiocarbamate 006-039-00-X	218-962-7	2303-17-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
13	chlorothalonil (ISO); tetrachloroisophthalonitrile 608-014-00-4	217-588-1	1897-45-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	triadimefon (ISO); 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)butanone 606-037-00-4	256-103-8	43121-43-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	isobenzan (ISO); 1,3,4,5,6,7,8,8-octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methanoisobenzofuran 602-053-00-0	206-045-4	297-78-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	isodrin; (1a,4a,4ab,5b,8b,8ab)-1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene 602-050-00-4	207-366-2	465-73-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine 609-042-00-X	254-938-2	40487-42-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	heptachlor epoxide; 2,3-epoxy-1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane 602-063-00-5	213-831-0	1024-57-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
19	o,p'-DDE 222-318-0	3424-82-6			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	p,p'-DDE 200-784-6	72-55-9			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
21	p,p'-DDD 200-783-0	72-54-8			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
22	o,p'-DDD 200-166-6	53-19-0			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
23	o,p'-DDT 212-332-5	789-02-6			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
24	permethrin (ISO); m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate 613-058-00-2	258-067-9	52645-53-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
25	dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate 015-019-00-X	200-547-7	62-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	azinphos-ethyl (ISO); O,O-diethyl 4-oxobenzotriazin-3-ylmethyl phosphorodithioate 015-056-00-1	220-147-6	2642-71-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
27	azinphos-methyl (ISO); O,O-dimethyl 4-oxobenzotriazin-3-ylmethyl phosphorodithioate 015-039-00-9	201-676-1	86-50-0		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
28	carbophenothion (ISO); 4-chlorophenylthiomethyl O,O-diethyl phosphorodithioate 015-044-00-6	212-324-1	786-19-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
29	chlorfenvinphos (ISO); 2-chloro-1-(2,4 dichlorophenyl) vinyl diethyl phosphate 015-071-00-3	207-432-0	470-90-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	chlorpyrifos (ISO); O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate 015-084-00-4	220-864-4	2921-88-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	chlorpyrifos-methyl (ISO);, O, O-dimethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate 015-186-00-9	227-011-5	5598-13-0		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	diazinon (ISO); O,O-diethyl O-2-isopropyl-6-methylpyrimidin-4-yl phosphorothioate 015-040-00-4	206-373-8	333-41-5		<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									
33		dimethoate (ISO); O,O-dimethyl methylcarbamoylmethyl phosphorodithioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-051-00-4	200-480-3	60-51-5									
34		ethion (ISO); O,O,O',O'-tetraethyl S,S'-methylenedi (phosphorodithioate); diethion				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-047-00-2	209-242-3	563-12-2									
35		parathion (ISO); O,O-diethyl O-4-nitrophenyl phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-034-00-1	200-271-7	56-38-2									
36		etrimfos (ISO); O-6-ethoxy-2-ethylpyrimidin-4-yl O,O-dimethylphosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-122-00-X	253-855-9	38260-54-7									
37		fenitrothion (ISO); O,O-dimethyl O-4-nitro-m-tolyl phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-054-00-0	204-524-2	122-14-5									
38		fenthion (ISO); O,O-dimethyl-O-(4-methylthion-m-tolyl) phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-048-00-8	200-231-9	55-38-9									
39		malathion (ISO); 1,2-bis(ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate; [containing £ 0.03 % isomalathion]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-041-00-X	204-497-7	121-75-5									
40		parathion - methyl (ISO); O,O-dimethyl O-4-nitrophenyl phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-035-00-7	206-050-1	298-00-0									
41		mevinphos (ISO); 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-020-00-5	232-095-1	7786-34-7									
42		phosalone (ISO); S-(6-chloro-2-oxobenzoxazolin-3-ylmethyl) O,O-diethyl phosphorodithioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-067-00-1	218-996-2	2310-17-0									
43		pirimiphos-methyl (ISO); O-[2-(diethylamino)-6-methylpyrimidin-4-yl] O,O-dimethyl phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-134-00-5	249-528-5	29232-93-7									
44		trans-isopropyl-3-[[[(ethylamino)methoxyfosfinothiyl]oxy]crotonate; isopropyl 3-[[[(ethylamino)methoxyphosphinothiyl]oxy]isocrotonate; propetamphos (ISO)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-136-00-6	250-517-2	31218-83-4									
45		triazophos (ISO); O,O-diethyl-O-1-phenyl-1H-1,2,4-triazol-3-yl phosphorothioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-140-00-8	245-986-5	24017-47-8									
46		disulfoton (ISO); O,O-diethyl 2-ethylthioethyl phosphorodithioate				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		015-060-00-3	206-054-3	298-04-4									
47		endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		602-052-00-5	204-079-4	115-29-7									
48	■	p,p'-methoxychlor				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			200-779-9	72-43-5									
Total:									0.00005 %				

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: BH-P2-101-03/11/2024-1.40m

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-101-03/11/2024-1.40m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
15.3%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.3% 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 }			1	1.7 mg/kg	1.32	1.947 mg/kg	0.000195 %	✓	
		033-003-00-0	215-481-4	1327-53-3							
2		boron { diboron trioxide }				<0.1 mg/kg	3.22	<0.322 mg/kg	<0.0000322 %		<LOD
		005-008-00-8	215-125-8	1303-86-2							
3		cadmium { cadmium oxide }			<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0							
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }			57 mg/kg	2.27	112.22 mg/kg	0.0112 %	✓		
		024-017-00-8									
5		copper { dicopper oxide; copper (I) oxide }			13 mg/kg	1.126	12.694 mg/kg	0.00127 %	✓		
		029-002-00-X	215-270-7	1317-39-1							
6		lead { lead chromate }			1	<5 mg/kg	1.56	<7.799 mg/kg	<0.0005 %		<LOD
		082-004-00-2	231-846-0	7758-97-6							
7		manganese { manganese sulphate }				122 mg/kg	2.749	290.828 mg/kg	0.0291 %	✓	
		025-003-00-4	232-089-9	7785-87-7							
8		mercury { mercury dichloride }			<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7							
9		nickel { nickel chromate }			6.5 mg/kg	2.976	16.779 mg/kg	0.00168 %	✓		
		028-035-00-7	238-766-5	14721-18-7							
10		selenium { nickel selenate }			<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD	
		028-031-00-5	239-125-2	15060-62-5							
11		zinc { zinc chromate }			13 mg/kg	2.774	31.278 mg/kg	0.00313 %	✓		
		024-007-00-3	236-878-9	13530-65-9							
12		TPH (C6 to C40) petroleum group			<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD	
				TPH							
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane			<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4							
14		benzene			<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD	
		601-020-00-8	200-753-7	71-43-2							
15		toluene			<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD	
		601-021-00-3	203-625-9	108-88-3							
16		ethylbenzene			<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD	
		601-023-00-4	202-849-4	100-41-4							



#	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								
17	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
18	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
19	pH		PH		9.16 pH		9.16 pH	9.16 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	acenaphthylene	205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		5976 mg/kg	4.978	25801.441 mg/kg	2.58 %			
Total:									2.633 %		

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 Determinand - 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: HDP-P2-102-03/11/2024-0.20m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HDP-P2-102-03/11/2024-0.20m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.4% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 1.4% 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		arsenic { arsenic trioxide }				0.9 mg/kg	1.32	1.172 mg/kg	0.000117 %	✔	
		033-003-00-0	215-481-4	1327-53-3							
2		boron { diboron trioxide }				0.4 mg/kg	3.22	1.27 mg/kg	0.000127 %	✔	
		005-008-00-8	215-125-8	1303-86-2							
3		cadmium { cadmium oxide }				<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
		048-002-00-0	215-146-2	1306-19-0							
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				71.1 mg/kg	2.27	159.169 mg/kg	0.0159 %	✔	
		024-017-00-8									
5		copper { dicopper oxide; copper (I) oxide }				70 mg/kg	1.126	77.724 mg/kg	0.00777 %	✔	
		029-002-00-X	215-270-7	1317-39-1							
6		lead { lead chromate }			1	7 mg/kg	1.56	10.768 mg/kg	0.00069 %	✔	
		082-004-00-2	231-846-0	7758-97-6							
7		manganese { manganese sulphate }				602 mg/kg	2.749	1631.79 mg/kg	0.163 %	✔	
		025-003-00-4	232-089-9	7785-87-7							
8		mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
9		nickel { nickel chromate }				19.9 mg/kg	2.976	58.41 mg/kg	0.00584 %	✔	
		028-035-00-7	238-766-5	14721-18-7							
10		selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5							
11		zinc { zinc chromate }				72 mg/kg	2.774	196.981 mg/kg	0.0197 %	✔	
		024-007-00-3	236-878-9	13530-65-9							
12		TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
				TPH							
13		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							
14		benzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
15		toluene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
16		ethylbenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		601-023-00-4	202-849-4	100-41-4							



#	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							
17	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
18	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
19	pH		PH		8.98 pH		8.98 pH	8.98 pH		
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.027 mg/kg		<0.027 mg/kg	<0.0000027 %		<LOD
21	acenaphthylene 205-917-1		208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	acenaphthene 201-469-6		83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23	fluorene 201-695-5		86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	phenanthrene 201-581-5		85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	anthracene 204-371-1		120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
26	fluoranthene 205-912-4		206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	pyrene 204-927-3		129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
33	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
34	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
35	benzo[ghi]perylene 205-883-8		191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
36	phenol 604-001-00-2	203-632-7	108-95-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
37	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
38	tetrachloroethylene 602-028-00-4	204-825-9	127-18-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
39	carbon tetrachloride; tetrachloromethane 602-008-00-5	200-262-8	56-23-5		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
40	trichloroethylene; trichloroethene 602-027-00-9	201-167-4	79-01-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	vinyl chloride; chloroethylene 602-023-00-7	200-831-0	75-01-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
42	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane 602-045-00-7	200-024-3	50-29-3		<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							
43	chlordan (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan 602-047-00-8	200-349-0	57-74-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
44	hexachlorocyclohexanes, including lindane 602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
45	dieldrin (ISO) 602-049-00-9	200-484-5	60-57-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
46	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene 602-051-00-X	200-775-7	72-20-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
47	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene 602-046-00-2	200-962-3	76-44-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
48	hexachlorobenzene 602-065-00-6	204-273-9	118-74-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
49	aldrin (ISO) 602-048-00-3	206-215-8	309-00-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
50	dichlorodifluoromethane 200-893-9	75-71-8			<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
51	chloromethane; methyl chloride 602-001-00-7	200-817-4	74-87-3		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
52	bromomethane; methylbromide 602-002-00-2	200-813-2	74-83-9		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
53	chloroethane 602-009-00-0	200-830-5	75-00-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
54	trichlorofluoromethane 200-892-3	75-69-4			<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
55	1,1-dichloroethylene; vinylidene chloride 602-025-00-8	200-864-0	75-35-4		<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
56	dichloromethane; methylene chloride 602-004-00-3	200-838-9	75-09-2		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
57	2,2-dichloropropane 209-832-0	594-20-7			<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
58	bromochloromethane 200-826-3	74-97-5			<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
59	chloroform; trichloromethane 602-006-00-4	200-663-8	67-66-3		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
60	1,1,1-trichloroethane; methyl chloroform 602-013-00-2	200-756-3	71-55-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
61	1,1-dichloropropene 602-031-00-0	209-253-3	563-58-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
62	1,2-dichloropropane; propylene dichloride 602-020-00-0	201-152-2	78-87-5		<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
63	dibromomethane 602-003-00-8	200-824-2	74-95-3		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
64	bromodichloromethane 200-856-7	75-27-4			<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
65	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
66	trans-1,3-dichloropropene 431-460-4	10061-02-6			<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
67	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



#	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	1,3-dichloropropane	205-531-3	142-28-9		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
69	dibromochloromethane	204-704-0	124-48-1		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
70	1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
71	chlorobenzene	602-033-00-1	203-628-5	108-90-7	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
72	1,1,1,2-tetrachloroethane	211-135-1	630-20-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
73	bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
74	cumene	601-024-00-X	202-704-5	98-82-8	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
75	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
76	bromobenzene	602-060-00-9	203-623-8	108-86-1	<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
77	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
78	propylbenzene	601-097-00-8	203-132-9	103-65-1	<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
79	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
80	tert-butylbenzene	202-632-4	98-06-6		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
81	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
82	sec-butylbenzene	205-227-0	135-98-8		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
83	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
84	1,3-dichlorobenzene	602-067-00-7	208-792-1	541-73-1	<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
85	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
86	n-butylbenzene	203-209-7	104-51-8		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
87	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
88	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
89	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
90	hexachlorobutadiene	201-765-5	87-68-3		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
91	1,2,3-trichlorobenzene	201-757-1	87-61-6		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
92	styrene	601-026-00-0	202-851-5	100-42-5	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
93	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	<0.0000001 %		<LOD
94	2-nitrophenol	201-857-5	88-75-5		<0.01 mg/kg		<0.01 mg/kg	<0.0000001 %		<LOD
95	2,4-dichlorophenol	604-011-00-7	204-429-6	120-83-2	<0.01 mg/kg		<0.01 mg/kg	<0.0000001 %		<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								
96	3,4-xyleneol; [1] 2,5-xyleneol; [2] 2,4-xyleneol; [3] 2,3-xyleneol; [4] 2,6-xyleneol; [5] xyleneol; [6] 2,4(or 2,5)-xyleneol [7]				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	604-006-00-X	202-439-5 [1]	95-65-8 [1]								
		202-461-5 [2]	95-87-4 [2]								
		203-321-6 [3]	105-67-9 [3]								
		208-395-3 [4]	526-75-0 [4]								
		209-400-1 [5]	576-26-1 [5]								
		215-089-3 [6]	1300-71-6 [6]								
97	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								
98	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								
99	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								
100	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								
101	pentachlorophenol				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	604-002-00-8	201-778-6	87-86-5								
102	2-chloronaphthalene				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		202-079-9	91-58-7								
103	2-methyl naphthalene				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		202-078-3	91-57-6								
104	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								
105	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								
106	dibutyl phthalate; DBP				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
	607-318-00-4	201-557-4	84-74-2								
107	di-n-octyl phthalate				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		204-214-7	117-84-0								
108	diethyl phthalate				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		201-550-6	84-66-2								
109	dimethyl phthalate				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		205-011-6	131-11-3								
110	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]								
111	2,6-dinitrotoluene				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	609-049-00-8	210-106-0	606-20-2								
112	4-bromophenylphenylether				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		202-952-4	101-55-3								
113	4-chloroaniline				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	612-137-00-9	203-401-0	106-47-8								
114	4-chlorophenylphenylether				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		230-281-7	7005-72-3								
115	azobenzene				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	611-001-00-6	203-102-5	103-33-3								
116	bis(2-chloroethoxy)methane				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		203-920-2	111-91-1								
117	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								
118	carbazole				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		201-696-0	86-74-8								
119	dibenzofuran				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
		205-071-3	132-64-9								
120	hexachlorocyclopentadiene				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	602-078-00-7	201-029-3	77-47-4								



#	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							
121	hexachloroethane	200-666-4	67-72-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
122	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
123	nitrosodipropylamine	612-098-00-8	210-698-0	621-64-7	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
124	nitrobenzene	609-003-00-7	202-716-0	98-95-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
125	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate }	026-003-01-4	231-753-5	7782-63-0	33390 mg/kg	4.978	163923.475 mg/kg	16.392 %	✓	
126	tecnazene (ISO); 1,2,4,5-tetrachloro-3-nitrobenzene	609-044-00-0	204-178-2	117-18-0	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
127	trifluralin (ISO) (containing < 0.5 ppm NPDA); a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (containing < 0.5 ppm NPDA); 2,6-dinitro-N,N-dipropyl-4-trifluoromethylaniline (containing < 0.5 ppm NPDA); N,N-dipropyl-2,6-dinitro-4-trifluoromethylaniline (containing < 0.5 ppm NPDA)	609-046-00-1	216-428-8	1582-09-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
128	quintozene (ISO); pentachloronitrobenzene	609-043-00-5	201-435-0	82-68-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
129	tri-allate (ISO); S-2,3,3-trichloroallyl diisopropylthiocarbamate	006-039-00-X	218-962-7	2303-17-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
130	chlorothalonil (ISO); tetrachloroisophthalonitrile	608-014-00-4	217-588-1	1897-45-6	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
131	triadimefon (ISO); 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)butanone	606-037-00-4	256-103-8	43121-43-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
132	isobenzan (ISO); 1,3,4,5,6,7,8,8-octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methanoisobenzofuran	602-053-00-0	206-045-4	297-78-9	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
133	isodrin; (1a,4a,4ab,5b,8b,8ab)-1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene	602-050-00-4	207-366-2	465-73-6	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
134	pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine	609-042-00-X	254-938-2	40487-42-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
135	heptachlor epoxide; 2,3-epoxy-1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane	602-063-00-5	213-831-0	1024-57-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
136	o,p'-DDE	222-318-0	3424-82-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
137	p,p'-DDE	200-784-6	72-55-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
138	p,p'-DDD	200-783-0	72-54-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
139	o,p'-DDD	200-166-6	53-19-0		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
140	o,p'-DDT	212-332-5	789-02-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
141	permethrin (ISO); m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate	613-058-00-2	258-067-9	52645-53-1	<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							
142	dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-019-00-X	200-547-7	62-73-7							
143	azinphos-ethyl (ISO); O,O-diethyl 4-oxobenzotriazin-3-ylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-056-00-1	220-147-6	2642-71-9							
144	azinphos-methyl (ISO); O,O-dimethyl-4-oxobenzotriazin-3-ylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-039-00-9	201-676-1	86-50-0							
145	carbophenothion (ISO); 4-chlorophenylthiomethyl O,O-diethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-044-00-6	212-324-1	786-19-6							
146	chlorfenvinphos (ISO); 2-chloro-1-(2,4 dichlorophenyl) vinyl diethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-071-00-3	207-432-0	470-90-6							
147	chlorpyrifos (ISO); O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-084-00-4	220-864-4	2921-88-2							
148	chlorpyrifos-methyl (ISO); O, O-dimethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-186-00-9	227-011-5	5598-13-0							
149	diazinon (ISO); O,O-diethyl O-2-isopropyl-6-methylpyrimidin-4-yl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-040-00-4	206-373-8	333-41-5							
150	dimethoate (ISO); O,O-dimethyl methylcarbamoylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-051-00-4	200-480-3	60-51-5							
151	ethion (ISO); O,O,O',O'-tetraethyl S,S'-methylenedi (phosphorodithioate); diethion				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-047-00-2	209-242-3	563-12-2							
152	parathion (ISO); O,O-diethyl O-4-nitrophenyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-034-00-1	200-271-7	56-38-2							
153	etrimfos (ISO); O-6-ethoxy-2-ethylpyrimidin-4-yl O,O-dimethylphosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-122-00-X	253-855-9	38260-54-7							
154	fenitrothion (ISO); O,O-dimethyl O-4-nitro-m-tolyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-054-00-0	204-524-2	122-14-5							
155	fenthion (ISO); O,O-dimethyl-O-(4-methylthion-m-tolyl) phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-048-00-8	200-231-9	55-38-9							
156	malathion (ISO); 1,2-bis(ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate; [containing £ 0.03 % isomalathion]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-041-00-X	204-497-7	121-75-5							
157	parathion - methyl (ISO); O,O-dimethyl O-4-nitrophenyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-035-00-7	206-050-1	298-00-0							
158	mevinphos (ISO); 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-020-00-5	232-095-1	7786-34-7							
159	phosalone (ISO); S-(6-chloro-2-oxobenzoxazolin-3-ylmethyl) O,O-diethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-067-00-1	218-996-2	2310-17-0							
160	pirimiphos-methyl (ISO); O-[2-(diethylamino)-6-methylpyrimidin-4-yl] O,O-dimethyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-134-00-5	249-528-5	29232-93-7							
161	trans-isopropyl-3-[[[(ethylamino)methoxyfosfinothioyl]oxy]crotonate; isopropyl 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							
	[[[(ethylamino)methoxyphosphinothioyl]oxy]isocrotonate; propetamphos (ISO)]									
	015-136-00-6	250-517-2	31218-83-4							
162	triazophos (ISO); O,O-diethyl-O-1-phenyl-1H-1,2,4-triazol-3-yl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-140-00-8	245-986-5	24017-47-8							
163	disulfoton (ISO); O,O-diethyl 2-ethylthioethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-060-00-3	206-054-3	298-04-4							
164	endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	602-052-00-5	204-079-4	115-29-7							
165	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]							
166	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]							
167	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]							
168	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]							
169	p,p'-methoxychlor				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		200-779-9	72-43-5							
Total:								16.611 %		

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 Determinand - 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: BH-P2-102-03/11/2024-0.50m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-102-03/11/2024-0.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.9% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 0.9% 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 }				0.7 mg/kg	1.32	0.916 mg/kg	0.0000916 %		
		033-003-00-0	215-481-4	1327-53-3							
2		boron { diboron trioxide }				0.1 mg/kg	3.22	0.319 mg/kg	0.0000319 %		
		005-008-00-8	215-125-8	1303-86-2							
3		cadmium { cadmium oxide }				<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
		048-002-00-0	215-146-2	1306-19-0							
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				49.9 mg/kg	2.27	112.263 mg/kg	0.0112 %		
		024-017-00-8									
5		copper { dicopper oxide; copper (I) oxide }				29 mg/kg	1.126	32.36 mg/kg	0.00324 %		
		029-002-00-X	215-270-7	1317-39-1							
6		lead { lead chromate }			1	6 mg/kg	1.56	9.275 mg/kg	0.000595 %		
		082-004-00-2	231-846-0	7758-97-6							
7		manganese { manganese sulphate }				770 mg/kg	2.749	2097.517 mg/kg	0.21 %		
		025-003-00-4	232-089-9	7785-87-7							
8		mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
9		nickel { nickel chromate }				18.2 mg/kg	2.976	53.685 mg/kg	0.00537 %		
		028-035-00-7	238-766-5	14721-18-7							
10		selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5							
11		zinc { zinc chromate }				93 mg/kg	2.774	255.694 mg/kg	0.0256 %		
		024-007-00-3	236-878-9	13530-65-9							
12		TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
				TPH							
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4							
14		benzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
15		toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
16		ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4							



#	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								
17	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
18	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
19	pH		PH		9.07 pH		9.07 pH	9.07 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	acenaphthylene 205-917-1		208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	acenaphthene 201-469-6		83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	fluorene 201-695-5		86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	phenanthrene 201-581-5		85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	anthracene 204-371-1		120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	fluoranthene 205-912-4		206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	pyrene 204-927-3		129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	benzo[ghi]perylene 205-883-8		191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %			<LOD
37	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		35040 mg/kg	4.978	172876.364 mg/kg	17.288 %			
38	coronene 205-881-7		191-07-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
Total:									17.549 %		

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 Determinand - 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: HDP-P2-102-03/11/2024-0.70m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HDP-P2-102-03/11/2024-0.70m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19.9% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19.9% 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 }				1.9	mg/kg	1.32	2.092	mg/kg	0.000209 %	✔	
		033-003-00-0	215-481-4	1327-53-3									
2		boron { diboron trioxide }				<0.1	mg/kg	3.22	<0.322	mg/kg	<0.0000322 %		
		005-008-00-8	215-125-8	1303-86-2									
3		cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.191	mg/kg	0.0000191 %	✔	
		048-002-00-0	215-146-2	1306-19-0									
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				54.6	mg/kg	2.27	103.371	mg/kg	0.0103 %	✔	
		024-017-00-8											
5		copper { dicopper oxide ; copper (I) oxide }			1	14	mg/kg	1.126	13.146	mg/kg	0.00131 %	✔	
		029-002-00-X	215-270-7	1317-39-1									
6		lead { lead chromate }				<5	mg/kg	1.56	<7.799	mg/kg	<0.0005 %		
		082-004-00-2	231-846-0	7758-97-6									
7		manganese { manganese sulphate }				97	mg/kg	2.749	222.361	mg/kg	0.0222 %	✔	
		025-003-00-4	232-089-9	7785-87-7									
8		mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel chromate }				6.1	mg/kg	2.976	15.142	mg/kg	0.00151 %	✔	
		028-035-00-7	238-766-5	14721-18-7									
10		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		
		028-031-00-5	239-125-2	15060-62-5									
11		zinc { zinc chromate }				6	mg/kg	2.774	13.882	mg/kg	0.00139 %	✔	
		024-007-00-3	236-878-9	13530-65-9									
12		TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		
				TPH									
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
14		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		
		601-023-00-4	202-849-4	100-41-4									



#	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								
17	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
18	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
19	pH		PH		9.23 pH		9.23 pH	9.23 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	acenaphthylene	205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		4044 mg/kg	4.978	16790.153 mg/kg	1.679 %			
Total:									1.722 %		

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 Determinand - 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: BH-P2-102-03/11/2024-1.50m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-102-03/11/2024-1.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14.2% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14.2% 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	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %			<LOD
	024-017-00-8										
2	TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %			<LOD
			TPH								
3	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								
4	benzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
5	toluene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
6	ethylbenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
7	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]								
8	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										
9	naphthalene				<0.027 mg/kg		<0.027 mg/kg	<0.0000027 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
10	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
11	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
12	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		201-695-5	86-73-7								
13	phenanthrene				0.09 mg/kg		0.0788 mg/kg	0.00000788 %			
		201-581-5	85-01-8								
14	anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		204-371-1	120-12-7								



#	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							
15	fluoranthene	205-912-4	206-44-0		0.07 mg/kg		0.0613 mg/kg	0.00000613 %	✓	
16	pyrene	204-927-3	129-00-0		0.07 mg/kg		0.0613 mg/kg	0.00000613 %	✓	
17	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
18	chrysene	601-048-00-0	205-923-4	218-01-9	0.06 mg/kg		0.0525 mg/kg	0.00000525 %	✓	
19	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
21	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
22	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	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
24	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
25	phenol	604-001-00-2	203-632-7	108-95-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	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
27	tetrachloroethylene	602-028-00-4	204-825-9	127-18-4	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
28	carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5	<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
29	trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
30	vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4	<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
31	hexachlorobenzene	602-065-00-6	204-273-9	118-74-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	dichlorodifluoromethane	200-893-9	75-71-8		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
33	chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
34	bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
35	chloroethane	602-009-00-0	200-830-5	75-00-3	<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
36	trichlorofluoromethane	200-892-3	75-69-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
37	1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4	<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
38	dichloromethane; methylene chloride	602-004-00-3	200-838-9	75-09-2	<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
39	2,2-dichloropropane	209-832-0	594-20-7		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
40	bromochloromethane	200-826-3	74-97-5		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
42	1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
43	1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6	<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							
44	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							
45	dibromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-003-00-8	200-824-2	74-95-3							
46	bromodichloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		200-856-7	75-27-4							
47	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]							
48	trans-1,3-dichloropropene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		431-460-4	10061-02-6							
49	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							
50	1,3-dichloropropane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		205-531-3	142-28-9							
51	dibromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		204-704-0	124-48-1							
52	1,2-dibromoethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-010-00-6	203-444-5	106-93-4							
53	chlorobenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-033-00-1	203-628-5	108-90-7							
54	1,1,1,2-tetrachloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		211-135-1	630-20-6							
55	bromoform; tribromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-007-00-X	200-854-6	75-25-2							
56	cumene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-024-00-X	202-704-5	98-82-8							
57	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							
58	bromobenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	602-060-00-9	203-623-8	108-86-1							
59	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							
60	propylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	601-097-00-8	203-132-9	103-65-1							
61	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							
62	tert-butylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		202-632-4	98-06-6							
63	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							
64	sec-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		205-227-0	135-98-8							
65	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							
66	1,3-dichlorobenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	602-067-00-7	208-792-1	541-73-1							
67	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							
68	n-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		203-209-7	104-51-8							
69	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							
70	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							
71	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							
72	hexachlorobutadiene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		201-765-5	87-68-3							



#	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							
73	1,2,3-trichlorobenzene	201-757-1	87-61-6		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
74	styrene	601-026-00-0	202-851-5	100-42-5	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
75	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
76	2-nitrophenol	201-857-5	88-75-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
77	2,4-dichlorophenol	604-011-00-7	204-429-6	120-83-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
78	3,4-xlenol; [1] 2,5-xlenol; [2] 2,4-xlenol; [3] 2,3-xlenol; [4] 2,6-xlenol; [5] xlenol; [6] 2,4(or 2,5)-xlenol [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
79	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
80	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
81	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
82	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
83	pentachlorophenol	604-002-00-8	201-778-6	87-86-5	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
84	2-chloronaphthalene	202-079-9	91-58-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
85	2-methyl naphthalene	202-078-3	91-57-6		0.035 mg/kg		0.0306 mg/kg	0.00000306 %		
86	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
87	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
88	dibutyl phthalate; DBP	607-318-00-4	201-557-4	84-74-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
89	di-n-octyl phthalate	204-214-7	117-84-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
90	diethyl phthalate	201-550-6	84-66-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
91	dimethyl phthalate	205-011-6	131-11-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
92	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
93	2,6-dinitrotoluene	609-049-00-8	210-106-0	606-20-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
94	4-bromophenylphenylether	202-952-4	101-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
95	4-chloroaniline	612-137-00-9	203-401-0	106-47-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
96	4-chlorophenylphenylether	230-281-7	7005-72-3		<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							
97		azobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		611-001-00-6	203-102-5	103-33-3							
98		bis(2-chloroethoxy)methane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
			203-920-2	111-91-1							
99		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							
100		carbazole				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
			201-696-0	86-74-8							
101		dibenzofuran				0.017 mg/kg		0.0149 mg/kg	0.00000149 %	✓	
			205-071-3	132-64-9							
102		hexachlorocyclopentadiene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		602-078-00-7	201-029-3	77-47-4							
103		hexachloroethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
			200-666-4	67-72-1							
104		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							
105		nitrosodipropylamine				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
106		nitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
107		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]							
108		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]							
109		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]							
110		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:									0.00555 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: BH-P2-107-03/11/2024-0.80m

 **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-107-03/11/2024-0.80m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
9.9%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.9% 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 }				1.9	mg/kg	1.32	2.283	mg/kg	0.000228 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide }				<0.1	mg/kg	3.22	<0.322	mg/kg	<0.0000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.208	mg/kg	0.0000208 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				32.4	mg/kg	2.27	66.923	mg/kg	0.00669 %	✓	
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				10	mg/kg	1.126	10.245	mg/kg	0.00102 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	<5	mg/kg	1.56	<7.799	mg/kg	<0.0005 %		<LOD
	082-004-00-2	231-846-0	7758-97-6									
7	manganese { manganese sulphate }				90	mg/kg	2.749	225.087	mg/kg	0.0225 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
8	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				4.4	mg/kg	2.976	11.916	mg/kg	0.00119 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				11	mg/kg	2.774	27.767	mg/kg	0.00278 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
			TPH									
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
14	benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
15	toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
16	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4									



#	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								
17	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
18	 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
19	 pH		PH		9.66 pH		9.66 pH	9.66 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	 acenaphthylene	205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	 acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	 fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	 phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	 anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	 fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	 pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	 indeno[123-cd]pyrene 205-893-2		193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	 benzo[ghi]perylene 205-883-8		191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	 iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		4304 mg/kg	4.978	19495.629 mg/kg	1.95 %			
Total:									1.99 %		

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 Determinand - 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: BH-P2-107-03/11/2024-1.20m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH-P2-107-03/11/2024-1.20m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
5.2% (dry weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 5.2% 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 }				0.7	mg/kg	1.32	0.879	mg/kg	0.0000879 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide }				<0.1	mg/kg	3.22	<0.322	mg/kg	<0.0000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				0.5	mg/kg	1.142	0.543	mg/kg	0.0000543 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				13.8	mg/kg	2.27	29.778	mg/kg	0.00298 %	✓	
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				5	mg/kg	1.126	5.351	mg/kg	0.000535 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	<5	mg/kg	1.56	<7.799	mg/kg	<0.0005 %		<LOD
	082-004-00-2	231-846-0	7758-97-6									
7	manganese { manganese sulphate }				65	mg/kg	2.749	169.826	mg/kg	0.017 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
8	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				3.4	mg/kg	2.976	9.619	mg/kg	0.000962 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				15	mg/kg	2.774	39.555	mg/kg	0.00396 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
			TPH									
13	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									
14	benzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
15	toluene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
16	ethylbenzene				<0.003	mg/kg		<0.003	mg/kg	<0.0000003 %		<LOD
	601-023-00-4	202-849-4	100-41-4									



#	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							
17	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
18	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
19	pH		PH		9.5 pH		9.5 pH	9.5 pH		
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.027 mg/kg		<0.027 mg/kg	<0.0000027 %		<LOD
21	acenaphthylene 205-917-1	208-96-8			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	acenaphthene 201-469-6	83-32-9			<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23	fluorene 201-695-5	86-73-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	phenanthrene 201-581-5	85-01-8			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	anthracene 204-371-1	120-12-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
26	fluoranthene 205-912-4	206-44-0			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	pyrene 204-927-3	129-00-0			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
33	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
34	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
35	benzo[ghi]perylene 205-883-8	191-24-2			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
36	phenol 604-001-00-2	203-632-7	108-95-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
37	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
38	tetrachloroethylene 602-028-00-4	204-825-9	127-18-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
39	carbon tetrachloride; tetrachloromethane 602-008-00-5	200-262-8	56-23-5		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
40	trichloroethylene; trichloroethene 602-027-00-9	201-167-4	79-01-6		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	vinyl chloride; chloroethylene 602-023-00-7	200-831-0	75-01-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
42	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane 602-045-00-7	200-024-3	50-29-3		<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							
43	chlordan (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan	602-047-00-8	200-349-0	57-74-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
44	hexachlorocyclohexanes, including lindane	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
45	dieldrin (ISO)	602-049-00-9	200-484-5	60-57-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
46	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene	602-051-00-X	200-775-7	72-20-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
47	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene	602-046-00-2	200-962-3	76-44-8	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
48	hexachlorobenzene	602-065-00-6	204-273-9	118-74-1	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
49	aldrin (ISO)	602-048-00-3	206-215-8	309-00-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
50	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
51	dichlorodifluoromethane	200-893-9	75-71-8		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
52	chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
53	bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
54	chloroethane	602-009-00-0	200-830-5	75-00-3	<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
55	trichlorofluoromethane	200-892-3	75-69-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
56	1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4	<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
57	dichloromethane; methylene chloride	602-004-00-3	200-838-9	75-09-2	<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
58	2,2-dichloropropane	209-832-0	594-20-7		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
59	bromochloromethane	200-826-3	74-97-5		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
60	chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
61	1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
62	1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
63	1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5	<0.006 mg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
64	dibromomethane	602-003-00-8	200-824-2	74-95-3	<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
65	bromodichloromethane	200-856-7	75-27-4		<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
66	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
67	trans-1,3-dichloropropene	431-460-4	10061-02-6		<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							
68	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							
69	1,3-dichloropropane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		205-531-3	142-28-9							
70	dibromochloromethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		204-704-0	124-48-1							
71	1,2-dibromoethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-010-00-6	203-444-5	106-93-4							
72	chlorobenzene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-033-00-1	203-628-5	108-90-7							
73	1,1,1,2-tetrachloroethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
		211-135-1	630-20-6							
74	bromoform; tribromomethane				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	602-007-00-X	200-854-6	75-25-2							
75	cumene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-024-00-X	202-704-5	98-82-8							
76	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							
77	bromobenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	602-060-00-9	203-623-8	108-86-1							
78	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							
79	propylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	601-097-00-8	203-132-9	103-65-1							
80	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							
81	tert-butylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		202-632-4	98-06-6							
82	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							
83	sec-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		205-227-0	135-98-8							
84	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							
85	1,3-dichlorobenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	602-067-00-7	208-792-1	541-73-1							
86	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							
87	n-butylbenzene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		203-209-7	104-51-8							
88	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							
89	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							
90	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							
91	hexachlorobutadiene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		201-765-5	87-68-3							
92	1,2,3-trichlorobenzene				<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
		201-757-1	87-61-6							
93	styrene				<0.003 mg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
	601-026-00-0	202-851-5	100-42-5							
94	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]							
95	2-nitrophenol				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		201-857-5	88-75-5							



#	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							
96	2,4-dichlorophenol									
	604-011-00-7	204-429-6	120-83-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
97	3,4-xylene; [1] 2,5-xylene; [2] 2,4-xylene; [3] 2,3-xylene; [4] 2,6-xylene; [5] xylene; [6] 2,4(or 2,5)-xylene [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
98	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
99	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
100	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
101	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
102	pentachlorophenol									
	604-002-00-8	201-778-6	87-86-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
103	2-chloronaphthalene									
		202-079-9	91-58-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
104	2-methyl naphthalene									
		202-078-3	91-57-6		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
105	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
106	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
107	dibutyl phthalate; DBP									
	607-318-00-4	201-557-4	84-74-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
108	di-n-octyl phthalate									
		204-214-7	117-84-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
109	diethyl phthalate									
		201-550-6	84-66-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
110	dimethyl phthalate									
		205-011-6	131-11-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
111	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
112	2,6-dinitrotoluene									
	609-049-00-8	210-106-0	606-20-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
113	4-bromophenylphenylether									
		202-952-4	101-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
114	4-chloroaniline									
	612-137-00-9	203-401-0	106-47-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
115	4-chlorophenylphenylether									
		230-281-7	7005-72-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
116	azobenzene									
	611-001-00-6	203-102-5	103-33-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
117	bis(2-chloroethoxy)methane									
		203-920-2	111-91-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
118	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
119	carbazole									
		201-696-0	86-74-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
120	dibenzofuran									
		205-071-3	132-64-9		<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								
121	hexachlorocyclopentadiene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-078-00-7	201-029-3	77-47-4								
122	hexachloroethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-666-4	67-72-1								
123	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								
124	nitrosodipropylamine				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	612-098-00-8	210-698-0	621-64-7								
125	nitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-003-00-7	202-716-0	98-95-3								
126	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate }				1342 mg/kg	4.978	6350.376 mg/kg	0.635 %			
	026-003-01-4	231-753-5	7782-63-0								
127	coronene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-881-7	191-07-1								
128	tecnazene (ISO); 1,2,4,5-tetrachloro-3-nitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-044-00-0	204-178-2	117-18-0								
129	trifluralin (ISO) (containing < 0.5 ppm NPDA); a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (containing < 0.5 ppm NPDA); 2,6-dinitro-N,N-dipropyl-4-trifluoromethylaniline (containing < 0.5 ppm NPDA); N,N-dipropyl-2,6-dinitro-4-trifluoromethylaniline (containing < 0.5 ppm NPDA)				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-046-00-1	216-428-8	1582-09-8								
130	quintozene (ISO); pentachloronitrobenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-043-00-5	201-435-0	82-68-8								
131	tri-allate (ISO); S-2,3,3-trichloroallyl diisopropylthiocarbamate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	006-039-00-X	218-962-7	2303-17-5								
132	chlorothalonil (ISO); tetrachloroisophthalonitrile				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	608-014-00-4	217-588-1	1897-45-6								
133	triadimefon (ISO); 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)butanone				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	606-037-00-4	256-103-8	43121-43-3								
134	isobenzan (ISO); 1,3,4,5,6,7,8,8-octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methanoisobenzofuran				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-053-00-0	206-045-4	297-78-9								
135	isodrin; (1a,4a,4ab,5b,8b,8ab)-1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-050-00-4	207-366-2	465-73-6								
136	pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-042-00-X	254-938-2	40487-42-1								
137	heptachlor epoxide; 2,3-epoxy-1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-063-00-5	213-831-0	1024-57-3								
138	o,p'-DDE				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		222-318-0	3424-82-6								
139	p,p'-DDE				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-784-6	72-55-9								
140	p,p'-DDD				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-783-0	72-54-8								
141	o,p'-DDD				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		200-166-6	53-19-0								
142	o,p'-DDT				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		212-332-5	789-02-6								



#	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							
143	permethrin (ISO); m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	613-058-00-2	258-067-9	52645-53-1							
144	dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-019-00-X	200-547-7	62-73-7							
145	azinphos-ethyl (ISO); O,O-diethyl 4-oxobenzotriazin-3-ylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-056-00-1	220-147-6	2642-71-9							
146	azinphos-methyl (ISO); O,O-dimethyl-4-oxobenzotriazin-3-ylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-039-00-9	201-676-1	86-50-0							
147	carbophenothion (ISO); 4-chlorophenylthiomethyl O,O-diethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-044-00-6	212-324-1	786-19-6							
148	chlorfenvinphos (ISO); 2-chloro-1-(2,4 dichlorophenyl) vinyl diethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-071-00-3	207-432-0	470-90-6							
149	chlorpyrifos (ISO); O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-084-00-4	220-864-4	2921-88-2							
150	chlorpyrifos-methyl (ISO);, O, O-dimethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-186-00-9	227-011-5	5598-13-0							
151	diazinon (ISO); O,O-diethyl O-2-isopropyl-6-methylpyrimidin-4-yl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-040-00-4	206-373-8	333-41-5							
152	dimethoate (ISO); O,O-dimethyl methylcarbamoylmethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-051-00-4	200-480-3	60-51-5							
153	ethion (ISO); O,O,O',O'-tetraethyl S,S'-methylenedi (phosphorodithioate); diethion				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-047-00-2	209-242-3	563-12-2							
154	parathion (ISO); O,O-diethyl O-4-nitrophenyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-034-00-1	200-271-7	56-38-2							
155	etrimfos (ISO); O-6-ethoxy-2-ethylpyrimidin-4-yl O,O-dimethylphosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-122-00-X	253-855-9	38260-54-7							
156	fenitrothion (ISO); O,O-dimethyl O-4-nitro-m-tolyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-054-00-0	204-524-2	122-14-5							
157	fenthion (ISO); O,O-dimethyl-O-(4-methylthion-m-tolyl) phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-048-00-8	200-231-9	55-38-9							
158	malathion (ISO); 1,2-bis(ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate; [containing £ 0.03 % isomalathion]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-041-00-X	204-497-7	121-75-5							
159	parathion - methyl (ISO); O,O-dimethyl O-4-nitrophenyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-035-00-7	206-050-1	298-00-0							
160	mevinphos (ISO); 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-020-00-5	232-095-1	7786-34-7							
161	phosalone (ISO); S-(6-chloro-2-oxobenzoxazolin-3-ylmethyl) O,O-diethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-067-00-1	218-996-2	2310-17-0							
162	pirimiphos-methyl (ISO); O-[2-(diethylamino)-6-methylpyrimidin-4-yl] O,O-dimethyl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	015-134-00-5	249-528-5	29232-93-7							



#	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								
163	trans-isopropyl-3-[[[(ethylamino)methoxyphosphinothioyl]oxy]crotonate; isopropyl 3-[[[(ethylamino)methoxyphosphinothioyl]oxy]isocrotonate; propetamphos (ISO)				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	015-136-00-6	250-517-2	31218-83-4								
164	triazophos (ISO); O,O-diethyl-O-1-phenyl-1H-1,2,4-triazol-3-yl phosphorothioate				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	015-140-00-8	245-986-5	24017-47-8								
165	disulfoton (ISO); O,O-diethyl 2-ethylthioethyl phosphorodithioate				<0.01 mg/kg		<0.01 mg/kg		<0.000001 %		<LOD
	015-060-00-3	206-054-3	298-04-4								
166	endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite				<0.03 mg/kg		<0.03 mg/kg		<0.000003 %		<LOD
	602-052-00-5	204-079-4	115-29-7								
167	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]								
168	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]								
169	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]								
170	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]								
171	p,p'-methoxychlor				<0.02 mg/kg		<0.02 mg/kg		<0.000002 %		<LOD
		200-779-9	72-43-5								
Total:									0.667 %		

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 Determinand - 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: BH-P2-108-03/11/2024-1.00m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name: **BH-P2-108-03/11/2024-1.00m** LoW Code: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content: **16.1%** Chapter: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(dry weight correction) Entry:

Hazard properties

None identified

Determinands

Moisture content: 16.1% 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 }				1.6	mg/kg	1.32	1.82	mg/kg	0.000182 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide }				0.1	mg/kg	3.22	0.277	mg/kg	0.0000277 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				61.8	mg/kg	2.27	120.832	mg/kg	0.0121 %	✓	
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				12	mg/kg	1.126	11.637	mg/kg	0.00116 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	<5	mg/kg	1.56	<7.799	mg/kg	<0.0005 %		<LOD
	082-004-00-2	231-846-0	7758-97-6									
7	manganese { manganese sulphate }				109	mg/kg	2.749	258.048	mg/kg	0.0258 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
8	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				6.8	mg/kg	2.976	17.432	mg/kg	0.00174 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				8	mg/kg	2.774	19.116	mg/kg	0.00191 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
			TPH									
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
14	benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
15	toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
16	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4									



#	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								
17	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
18	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
19	pH		PH		9.18 pH		9.18 pH	9.18 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	acenaphthylene 205-917-1	208-96-8			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	acenaphthene 201-469-6	83-32-9			<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
23	fluorene 201-695-5	86-73-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	phenanthrene 201-581-5	85-01-8			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	anthracene 204-371-1	120-12-7			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
26	fluoranthene 205-912-4	206-44-0			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	pyrene 204-927-3	129-00-0			<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
33	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
34	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
35	benzo[ghi]perylene 205-883-8	191-24-2			<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
36	iron { iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate } 026-003-01-4	231-753-5	7782-63-0		6311 mg/kg	4.978	27060.053 mg/kg	2.706 %			
Total:								2.755 %			

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 Determinand - 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

▪ **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

▪ **o,p'-DDE** (EC Number: 222-318-0, CAS Number: 3424-82-6)

Description/Comments: other names: 2,4'-DDE; 2,2,o,p'-tetrachlorovinylidenebisbenzene

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/101358>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 4; H302 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **p,p'-DDE** (EC Number: 200-784-6, CAS Number: 72-55-9)

Description/Comments: other names: 4,4'-DDE; 2,2-bis(p-chlorophenyl)-1,1-dichloroethylene

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/21845>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **p,p'-DDD** (EC Number: 200-783-0, CAS Number: 72-54-8)

Description/Comments: other names: Rhothane; p,p'-TDE; 4,4'-DDD; 4,4'-TDE;

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/21283>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 4; H312 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **o,p'-DDD** (EC Number: 200-166-6, CAS Number: 53-19-0)

Description/Comments: other names: Mitotane; o,p'-TDE; 2,4'-DDD; 2,4'-TDE;

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/10014>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 4; H312 , Carc. 2; H351 , Repr. 1A; H360FD , STOT RE 1; H372 , Aquatic Acute 1; H400 (M=100) , Aquatic Chronic 1; H410 (M=100)

▪ **o,p'-DDT** (EC Number: 212-332-5, CAS Number: 789-02-6)

Description/Comments: other names: 2,4'-DDT; 2,2,2,o,p'-pentachloroethylidenebisbenzene

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/82255>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 3; H311 , Acute Tox. 2; H330 , Carc. 2; H351 , STOT RE 1; H372 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **p,p'-methoxychlor** (EC Number: 200-779-9, CAS Number: 72-43-5)

Description/Comments: other names: Methoxychlor; DMDT; Dimethoxy-DDT; Methoxy-DDT; Methoxide; p,p'-Dimethoxydiphenyltrichloroethane;

1,1,1-Trichloro-2,2-bis(4-methoxyphenyl)ethane

Data source: ECHA's C&L inventory database

<https://www.echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database/-/discli/details/112624>

Data source date: 11 Jan 2018

Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Acute Tox. 4; H332 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410



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)

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (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)

manganese {manganese sulphate}

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)

iron {iron (II) sulfate (1:1) heptahydrate; sulfuric acid, iron(II) salt (1:1), heptahydrate; ferrous sulfate heptahydrate}

Worse case compound not considered commensurate with site history.

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/11043
Issue Number: 1

Date: 20 November, 2024

Client: Murray Rix (Northern) Ltd
Andrew House
Hadfield Street
Dukinfield
Dukinfield
SK16 4QX

Project Manager: Enquires/Owain Davies
Project Name: TE1885
Project Ref: N/A
Order No: 24/369
Date Samples Received: 13/11/24
Date Instructions Received: 13/11/24
Date Analysis Completed: 20/11/24

Approved by:

A handwritten signature in black ink, appearing to read "Gemma Berrisford".

Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/11043

Client Project Name: TE1885

Client Project Ref: N/A

Lab Sample ID	24/11043/1	24/11043/2	24/11043/3	24/11043/4				Units	Limit of Detection	Method ref
Client Sample No	593701	593703	593707	593704						
Client Sample ID	BH-P2-102	BH-P2-101	BH-P2-107	BH-P2-102						
Depth to Top	1.50	1.80	1.90	1.20						
Depth To Bottom										
Date Sampled										
Sample Type	SOIL - B	SOIL - B	SOIL - B	SOIL - B						
Sample Matrix Code	5A	5A	5	5ABE						
% Stones >10mm _A	<0.1	<0.1	<0.1	40.4				% w/w	0.1	A-T-044
pH BRE _D ^{M#}	8.82	9.91	8.42	10.76				pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	3.10	6.47	3.53	<1.00				mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	<7	11	<7	<7				mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	1.6	<0.4	<0.4	<0.4				mg/l	0.4	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	12	100	<10	133				mg/l	10	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	0.05	<0.02	0.08				% w/w	0.02	A-T-026s
Sulphur BRE (total) _D	0.05	0.09	<0.01	0.05				% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1) _D	2	<1	1	<1				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 “A”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
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°C / 11550µS/cm @ 20°C 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: TE1885

Clients Project No: N/A

Project No: 24/11043

Date Received: 13/11/2024 (am)

Cool Box Temperatures (°C): 10.0

Lab Sample ID	24/11043/1	24/11043/2	24/11043/3	24/11043/4
Client Sample No	593701	593703	593707	593704
Client Sample ID/Depth	BH-P2-102 1.50m	BH-P2-101 1.80m	BH-P2-107 1.90m	BH-P2-102 1.20m
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	24/11043/1	24/11043/2	24/11043/3	24/11043/4
Client Sample No	593701	593703	593707	593704
Client Sample ID/Depth	BH-P2-102 1.50m	BH-P2-101 1.80m	BH-P2-107 1.90m	BH-P2-102 1.20m
Date Sampled				
A-T-024s	20/11/2024	20/11/2024	20/11/2024	20/11/2024
A-T-026s	15/11/2024	15/11/2024	15/11/2024	15/11/2024
A-T-028s	18/11/2024	18/11/2024	18/11/2024	18/11/2024
A-T-031s	15/11/2024	15/11/2024	15/11/2024	15/11/2024
A-T-033s	15/11/2024	15/11/2024	15/11/2024	15/11/2024
A-T-044	15/11/2024	15/11/2024	15/11/2024	15/11/2024
A-T-SOLMETS	15/11/2024	15/11/2024	15/11/2024	15/11/2024

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

APPENDIX D - GEOTECHNICAL IN SITU FIELDWORK AND LABORATORY RESULTS

TEST REPORT

Client Tier Environmental Ltd

Address Suite 513
Chadwick House
Warrington Road
Birchwood
WA3 6AE

Contract TE1885

Job Number MRN 24051/48

Date of Issue 03 December 2024

Pages 1 of 10

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.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

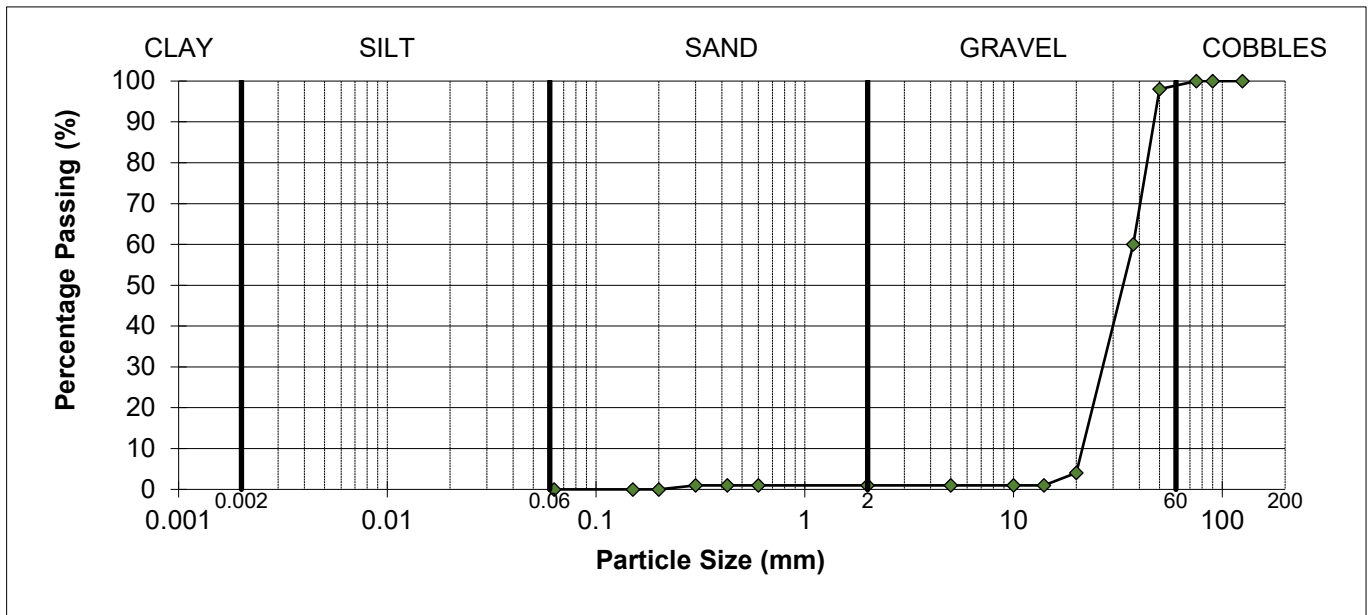
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BG-P2-101 0.5	DATE SAMPLED	Not advised
LAB SAMPLE No	593709	DATE RECEIVED	11-Nov-24
DATE TESTED	16-Nov-24	SAMPLED BY	Client

MATERIAL	Grey brown slightly silty slightly sandy GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	1	
90	100		2	1	
75	100		0.6	1	
50	98		0.425	1	
37.5	60		0.3	1	
20	4		0.2	0	
14	1		0.15	0	
10	1		0.063	0	



SOIL FRACTIONS			
COBBLES	1%	SAND	1%
GRAVEL	98%	SILT / CLAY	0%

REMARKS

As received water content = 1.2%

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Dec-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

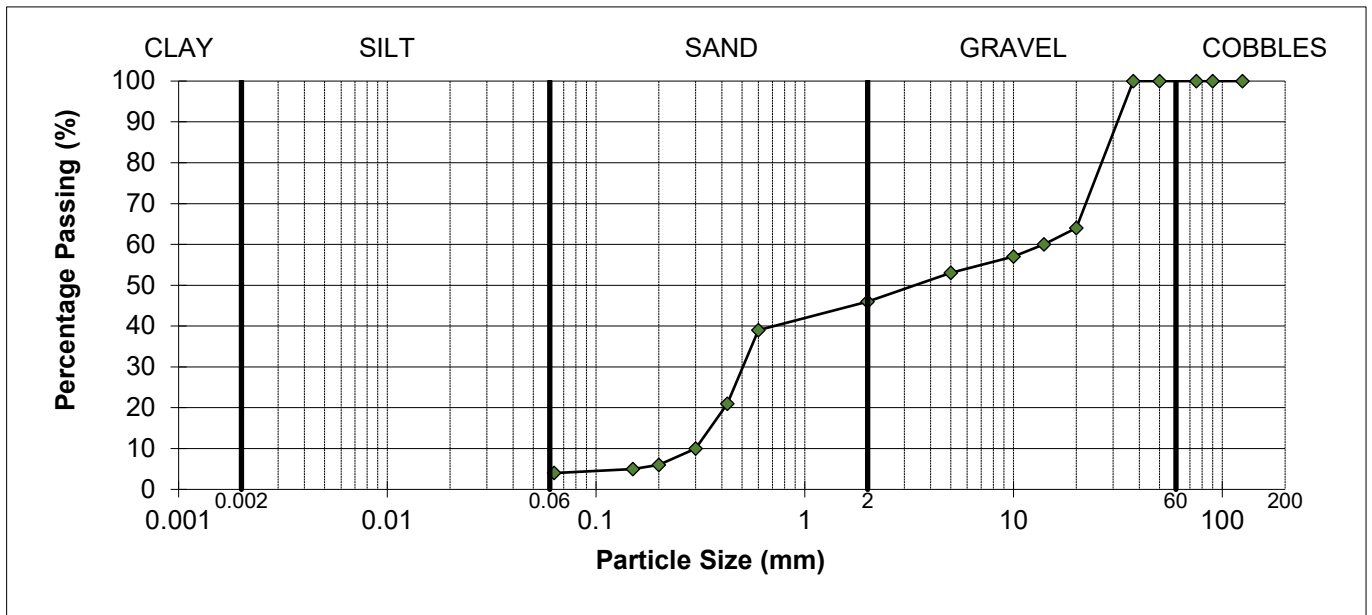
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd		
SITE	TE1885		
JOB NUMBER	MRN 24051/48		

SAMPLE LABEL	BG-P2-102 0.9	DATE SAMPLED	Not advised
LAB SAMPLE No	593711	DATE RECEIVED	11-Nov-24
DATE TESTED	16-Nov-24	SAMPLED BY	Client

MATERIAL	Grey brown slightly silty SAND & GRAVEL		
ADVISED SOURCE	Site Investigation Sample		

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	53	
90	100		2	46	
75	100		0.6	39	
50	100		0.425	21	
37.5	100		0.3	10	
20	64		0.2	6	
14	60		0.15	5	
10	57		0.063	4	



SOIL FRACTIONS			
COBBLES	0%	SAND	42%
GRAVEL	54%	SILT / CLAY	4%

REMARKS

As received water content = 9.3%

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Dec-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

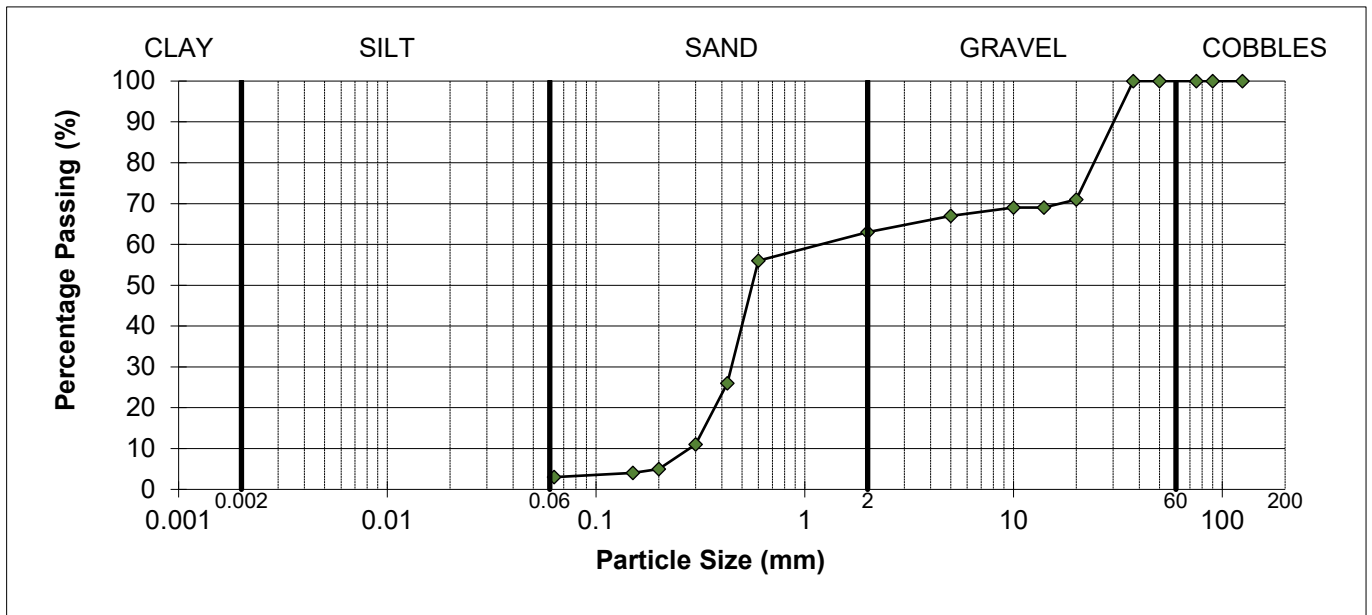
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BG-P2-101 0.5	DATE SAMPLED	Not advised
LAB SAMPLE No	593714	DATE RECEIVED	11-Nov-24
DATE TESTED	16-Nov-24	SAMPLED BY	Client

MATERIAL	Grey brown slightly silty SAND & GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	67	
90	100		2	63	
75	100		0.6	56	
50	100		0.425	26	
37.5	100		0.3	11	
20	71		0.2	5	
14	69		0.15	4	
10	69		0.063	3	



SOIL FRACTIONS			
COBBLES	0%	SAND	60%
GRAVEL	37%	SILT / CLAY	3%

REMARKS

As received water content = 12.0%

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Dec-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



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

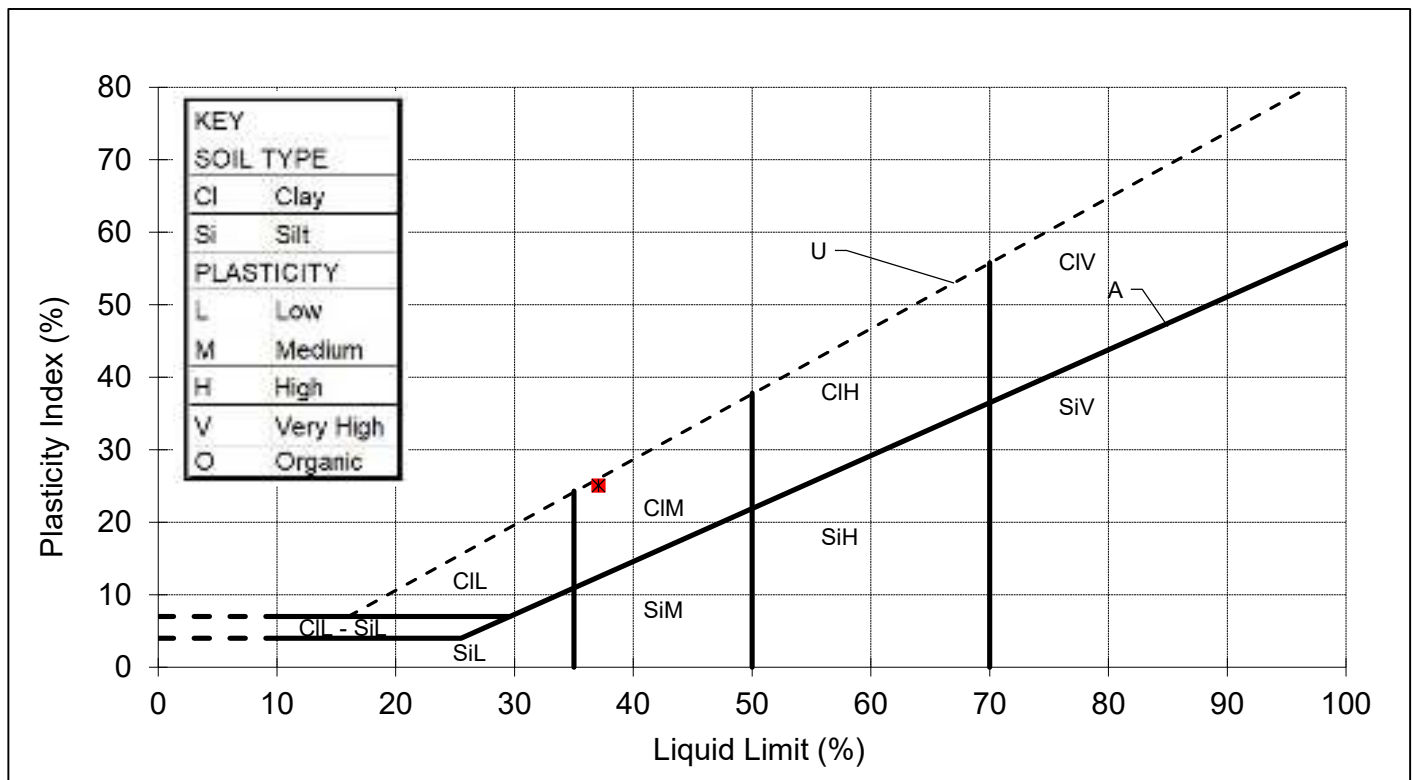
CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BH-P2-102 1.5	DATE SAMPLED	Not advised
SAMPLE No.	593707	DATE RECEIVED	25-Oct-24
DATE TESTED	01-Nov-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy very gravelly 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)	21.8	38.0	0.968	
Determination 2 (avg)	22.3	38.6		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13.2	37	12	25	69



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Dec-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



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

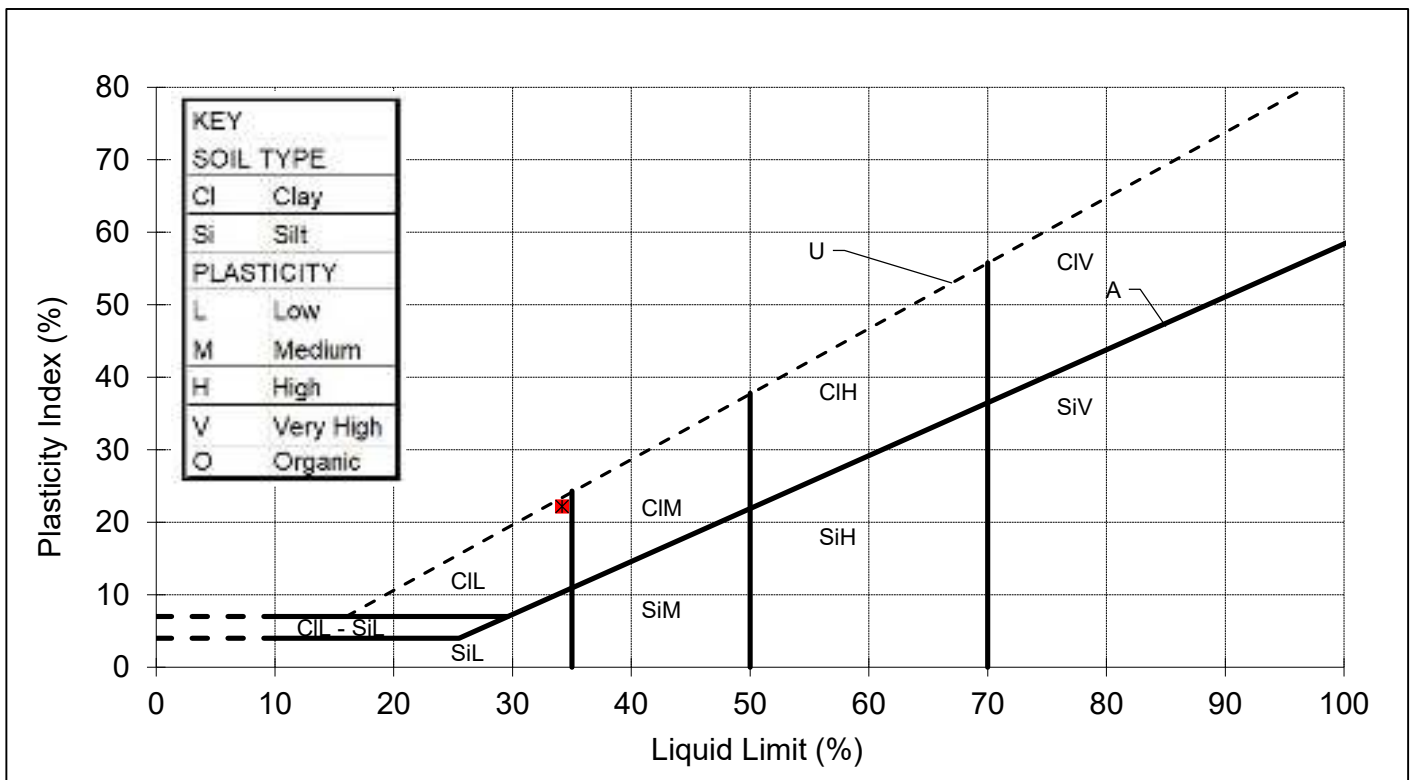
CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BH-P2-101 1.8	DATE SAMPLED	Not advised
SAMPLE No.	593703	DATE RECEIVED	25-Oct-24
DATE TESTED	01-Nov-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy gravelly 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)	20.5	34.5	0.992	
Determination 2 (avg)	20.5	34.4		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
11.7	34	12	22	84



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Dec-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



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

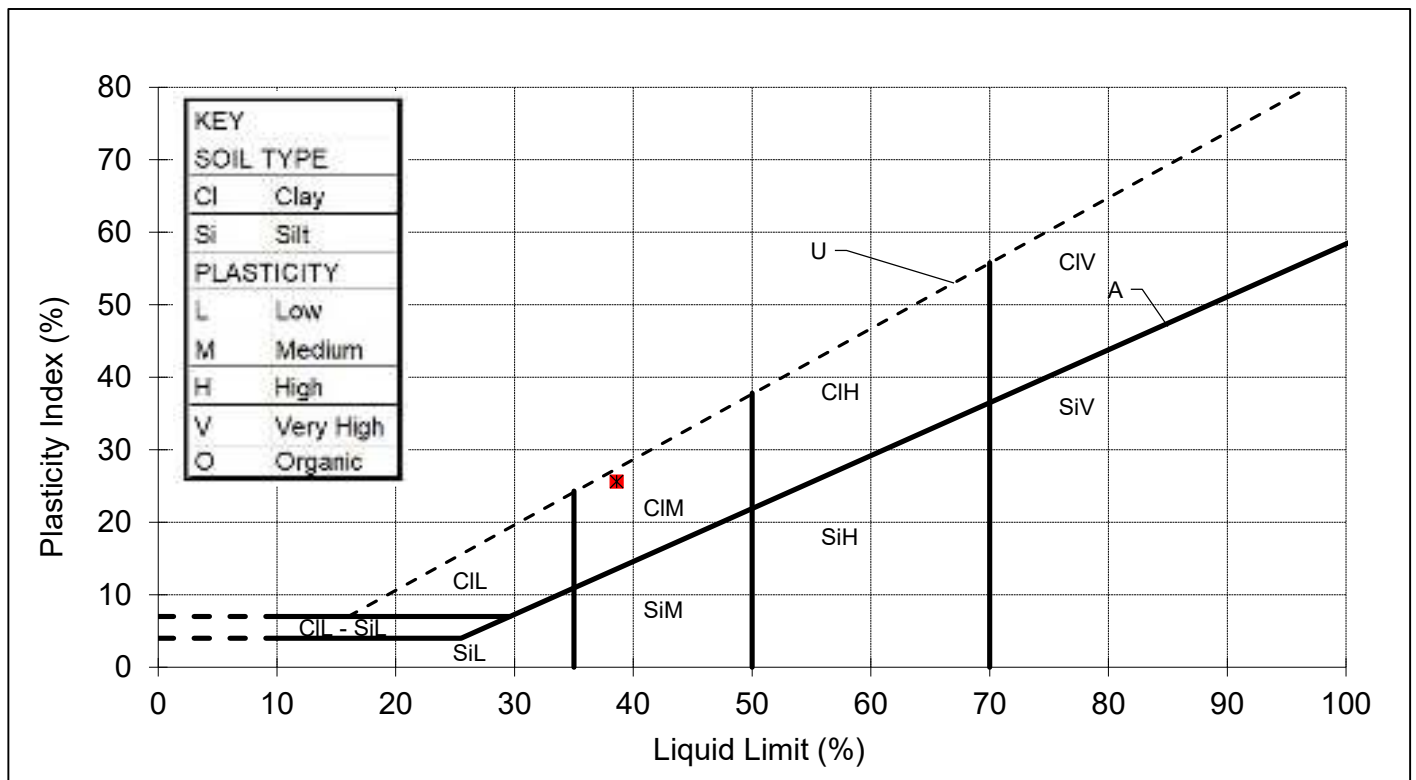
CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BH-P2-107 1.9	DATE SAMPLED	Not advised
SAMPLE No.	593707	DATE RECEIVED	25-Oct-24
DATE TESTED	01-Nov-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy gravelly 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)	18.7	37.9	1.023	
Determination 2 (avg)	18.6	37.5		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
12.6	39	13	26	90



REMARKS

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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

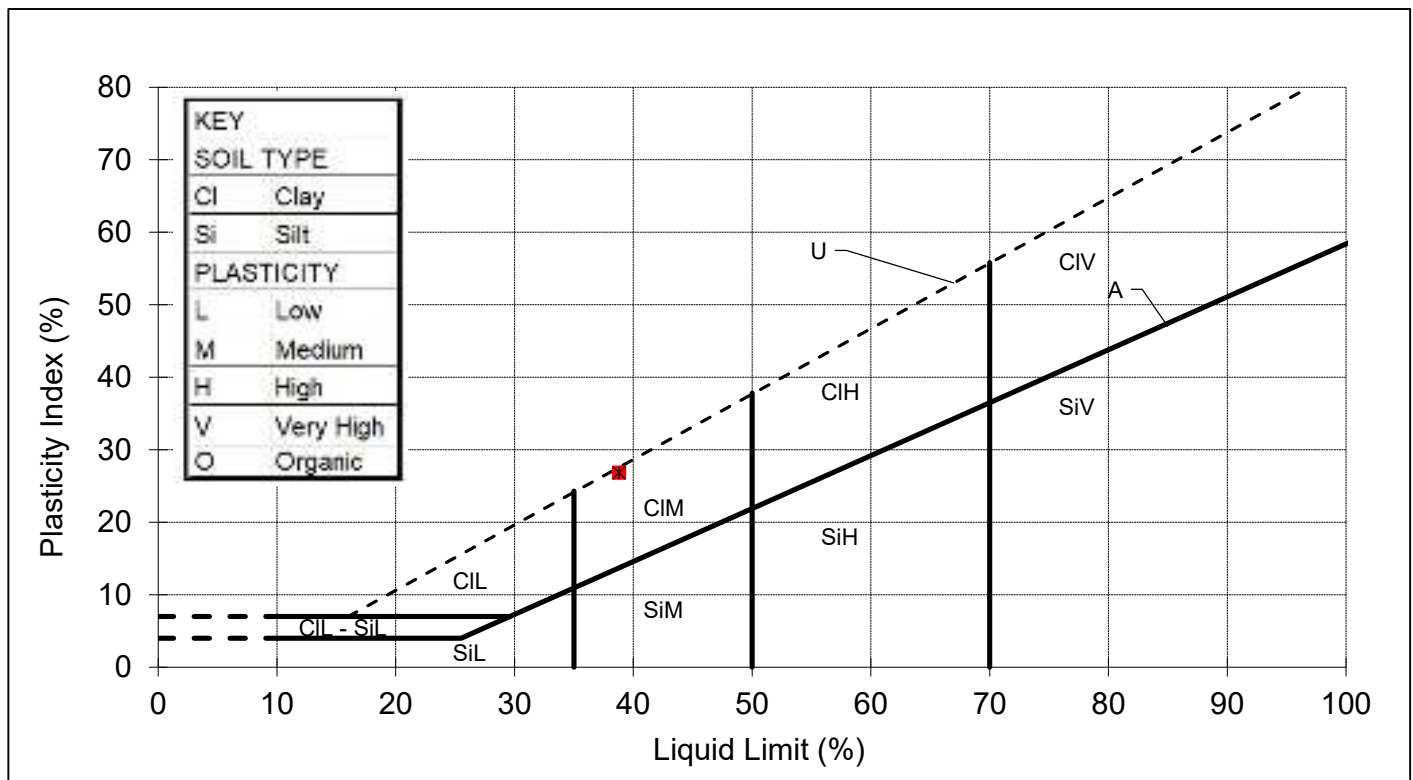
CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BH-P2-102 1.2	DATE SAMPLED	Not advised
SAMPLE No.	593704	DATE RECEIVED	25-Oct-24
DATE TESTED	01-Nov-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy gravelly 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)	19.6	38.5	1.008	
Determination 2 (avg)	19.6	38.5		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13.3	39	12	27	87



REMARKS

SIGNED

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O.P. Davies BA (Hons)
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03-Dec-24

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

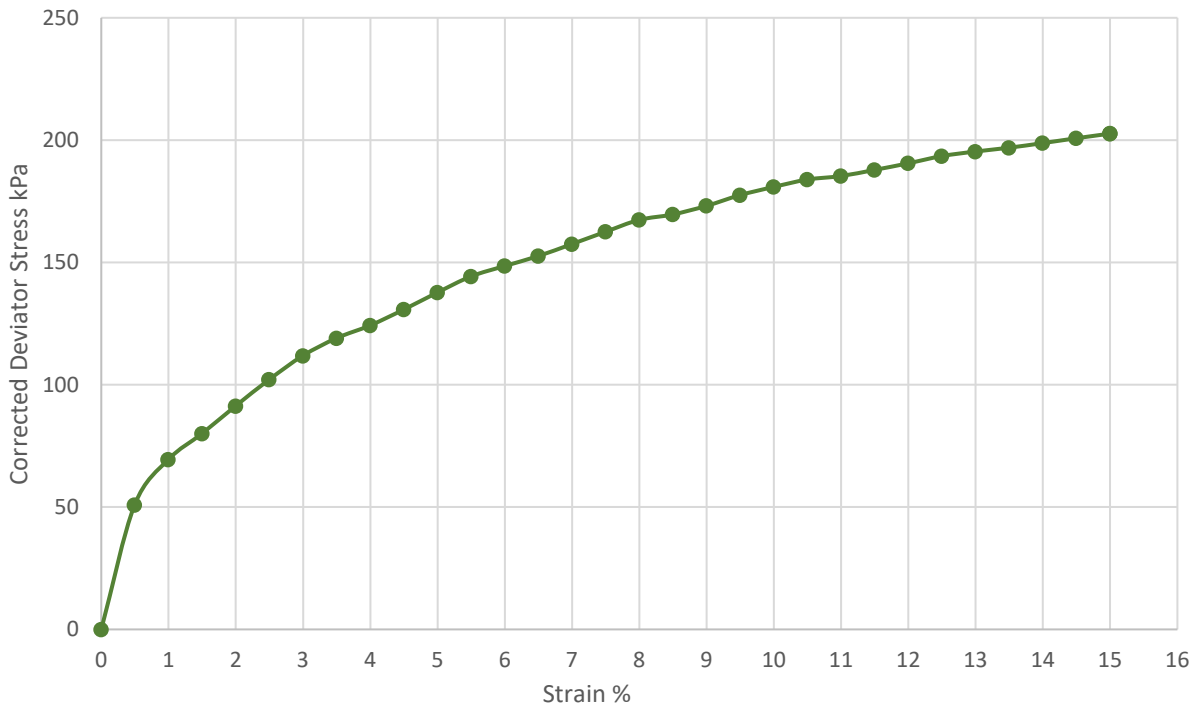
CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	BH-P2-102 1.5	DATE SAMPLED	Not advised
LAB SAMPLE No.	593701	DATE RECEIVED	11-Nov-24
DATE TESTED	25-Nov-24	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy very gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

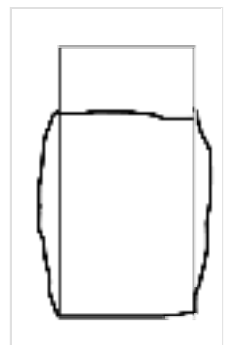
Specimen Location	Sample Length (mm)	400	Specimen depth from top of Sample (mm)	60
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	203	Specimen Water Content (%)	13.2
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m3)	2.18
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.93
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

(kPa)	(%)	(%/min)	Stress (kPa)	Failure Strength Cu (kPa)
30	15.0	2.0	203	101

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 December 2024

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

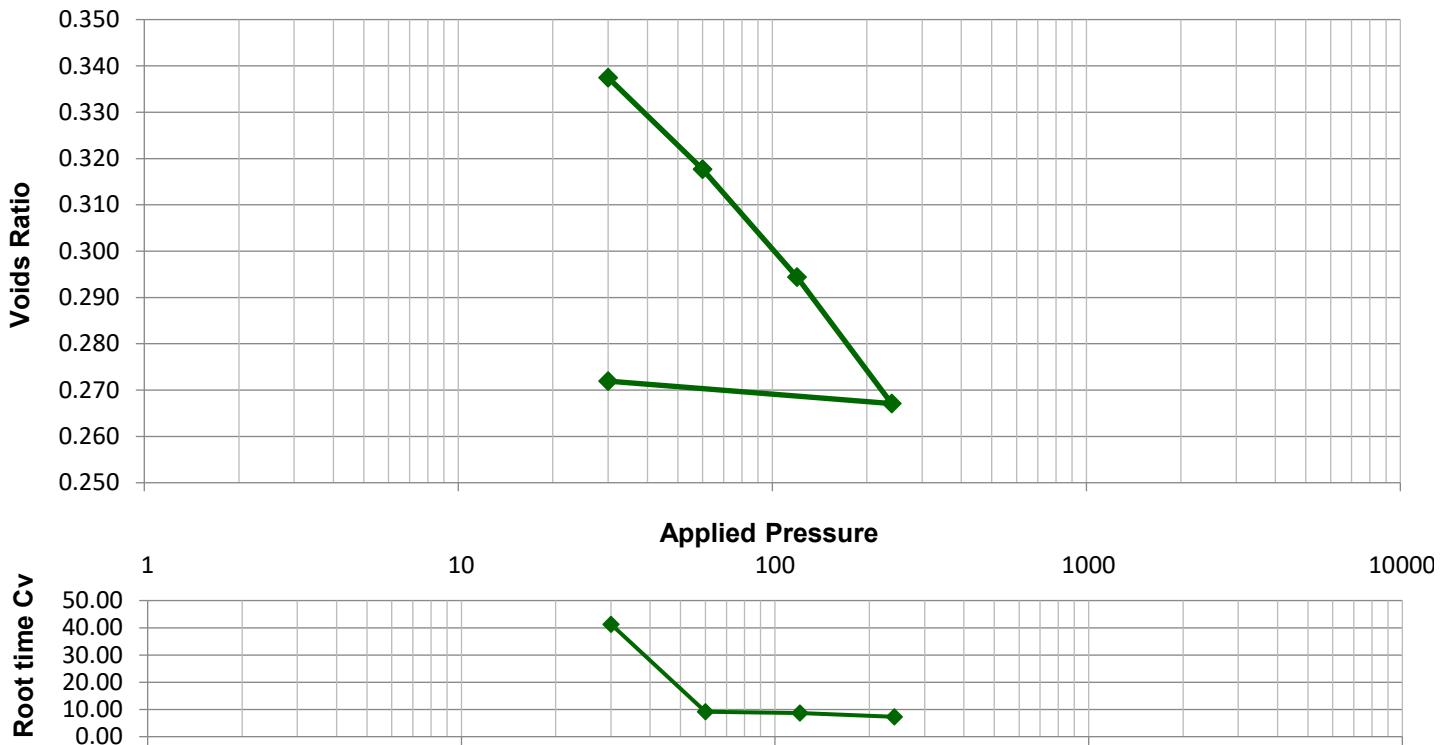
INCREMENTAL LOADING OEDOMETER TEST
BS EN ISO 17892-5:2017

CLIENT	Tier Environmental Ltd
SITE	TE1885
JOB NUMBER	MRN 24051/48

SAMPLE LABEL	CP101 10.50-10.95	DATE SAMPLED	31-Oct-24
LAB SAMPLE No.	597603	DATE RECEIVED	14-Nov-24
DATE TESTED	15-Nov-24	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	400	Specimen depth from top of Sample (mm)	250
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS						Load No.	Applied Pressure kPa	Sample Height mm	Void Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
						Height	20.2	mm	Particle density	2.65	Ass	1	30
Diameter	69.6	mm	Initial void ratio	0.37		2	60	19.43	0.318	0.49	20	9.15	9.53
Weight wet	168.2	g	Deg. of sat.	95	%	3	120	19.08	0.294	0.29	20	8.71	8.04
Water cont.*	13.2	%	Swell. press.	0	kN/m ²	4	240	18.68	0.267	0.18	20	7.29	6.73
Bulk Density	2.19	Mg/m ³	Dry density	1.94	Mg/m ³	5	30	18.75	0.272	0.02	20		
*determined from specimen trimmings						6							
						7							



REMARKS

NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

SIGNED

DATE 03-Dec-24

APPENDIX E - 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 F - 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 \(LCRM\)](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/281222/Environment_Agency_Land_contamination_risk_management_LCRM.pdf) - 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".

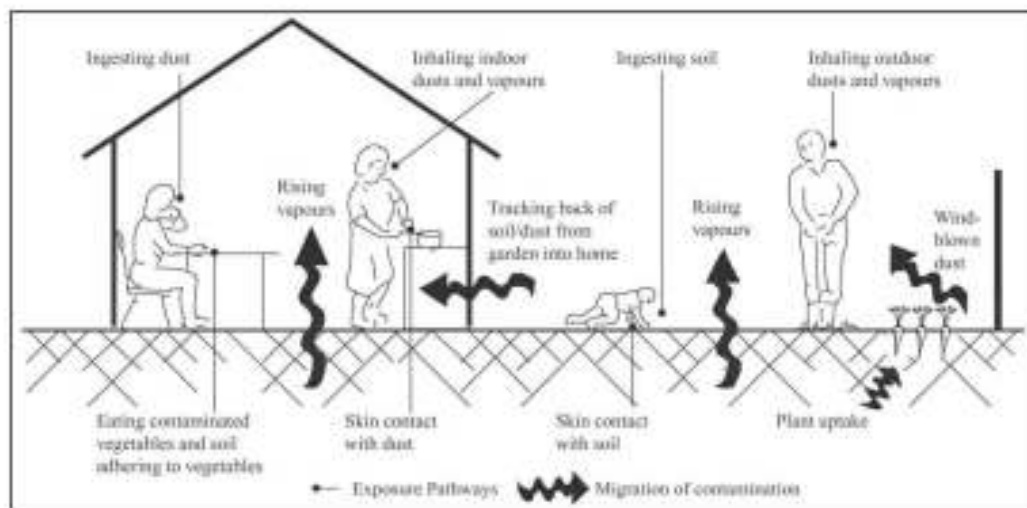
Some form of Detailed Quantitative Risk Assessment (DQRA) will be essential for those cases where appropriate GAC values cannot be established for the contaminant linkages under consideration.

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 \(www.gov.uk\)](http://www.gov.uk/government/publications/using-soil-guideline-values)
- “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 (Version 1.05) 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 Part 2A 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/AGS/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	60000 0	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	62000 0	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)	11000 0	65000 (8.48)	92000 (21)	110000	26000 0	270000	27000 0	160000 0	1700000	180000 0	250000	250000	25000 0	450000	480000	490000	LQM (2014)
Aliphatic EC >35-44	65000 (8.48)	92000 (21)	11000 0	65000 (8.48)	92000 (21)	110000	26000 0	270000	27000 0	160000 0	1700000	180000 0	250000	250000	25000 0	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%	
Hexachlorobenze ne	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 pentachlorophen ol)	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)
Pentachlorophen ol	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)
Hexachlorobutadi ene	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 G - 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, they 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 types 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:

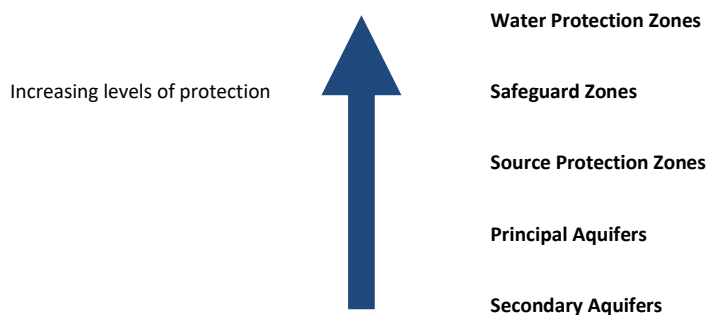
"to protect and manage groundwater resources for present and future generations in ways that are appropriate for the risks we identify"
(Groundwater Protection: Policy and Practice GP3, 2012).

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 H - ASSESSMENT CRITERIA APPLIED FOR GROUND GAS

Ground Gas Monitoring Methodology

Monitoring for the following is generally performed as part of ground gas assessment:

- Methane (CH₄): an odourless, flammable gas. Mixtures of methane with air containing between 5 and 15% v/v methane are explosive.
- Carbon dioxide (CO₂): an asphyxiant at elevated concentrations. Denser than air, it can accumulate in excavations, and within low points inside buildings.
- Oxygen (O₂): 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 CO₂ asphyxiation.
- Hydrogen sulphide (H₂S): 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 (CH₄) and carbon dioxide (CO₂)

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.:

$$\text{GSV} = (\text{Concentration} / 100) \times \text{Flow rate.}$$

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 mixture. 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 (CH ₄ or CO ₂ ; 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 (mercaptans). 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 I - 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 <i>or</i> 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.

It 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.

