



Phase II Geo-Environmental Assessment

Land off Rodney Street

Manchester
M4 6JJ

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LAND OFF RODNEY STREET, MANCHESTER

NON-TECHNICAL CLIENT SUMMARY

This report presents the findings of a Phase II Intrusive Investigation undertaken to determine ground conditions, establish if there are any environmental risks associated with the study site and its development and provide a geotechnical appraisal. Pertinent findings and conclusions are summarised as follows:

- The site is currently a predominantly undeveloped plot of land that was formerly used for both residential and commercial/industrial purposes. Development Proposals include the construction of a 6-8 storey residential block, along with multiple townhouses, associated access roads and soft landscaping.
- Through consideration of the site history and environmental setting, a previous desk study completed by others in July 2021 established a number of plausible risks to be present at the site.
- Intrusive investigations comprised the drilling of 13 boreholes (shallow and deep) to a maximum depth of 35m and 10 trial pits. Ground conditions were identified to comprise a significant thickness (up to 2.6m) of made ground, overlying slightly gravelly clays (with some bands of granular soils) to depths of up to 28m. Below this lay weathered sandstone to the base of the boreholes. Shallow perched groundwater was identified, whilst the natural groundwater table is indicated to lie at around 15-20m.
- Laboratory analysis of sub-surface soils has identified concentrations of contaminants within the made ground which are not suitable for use in proposed landscaped areas. Therefore, options have been provided to further assess or mitigate these risks via further sampling or the implementation of remedial cover systems within proposed landscaped areas. These, along with further measures to protect the health and safety of construction workers are outlined in Section 7 of this report.
- Ground gas monitoring and an assessment of the specific sources has concluded the gassing regime falls into a Characteristic Situation 2 (CS2) 'low risk' scenario, whereby basic ground gas protection measures will need to be incorporated into the proposed buildings.

ENGINEERING SUMMARY

- The ground condition may be suitable for the use of conventional spread foundations with a bearing capacity of 150kN/m² at a depth of 1.0m, although piles are likely to be required for the multi-storey development, with preliminary capacities summarised below;

Pile Depth (m bgl)	Approximate Allowable Pile Load (kN)		
	Pile diameter (m)		
	0.30	0.45	0.60
12	300	470	650
15	385	600	850
18	470	730	1010

- A design CBR value of between 3% has been recommended for the shallow natural soils, with 2% suggested for the Made Ground.
- A design sulphate class of DS-2 together with an aggressive chemical environment for concrete (ACEC) of AC-2 is considered suitable for buried concrete.

The above points represent a simplified summary of the findings of this assessment and **must not** form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we'll talk you through it.



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Where ground investigations have been conducted, these have been limited to the level of detail required for the site in order to achieve the objectives of the investigation.

The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

The National Planning Policy Framework 2019 requires a competent person to prepare site investigation information, which is defined as a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation. EPS considers that it fulfils these criteria and would welcome any request for staff CVs or case studies to demonstrate it.

As stated within DEFRA's Contaminated Land Statutory Guidance (2012), with any complex risk assessment it is possible that different suitably qualified people may reach slightly different conclusions when interpreting the same information. EPS recognises this and considers the conclusions presented within this report to be robust and appropriate but input from the Local Authority and their judgement in line with this guidance would still be welcomed.

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1 INTRODUCTION

In August 2021, Environmental Protection Strategies Ltd (EPS) was commissioned by Mace Group Ltd to complete a Phase II Geo-Environmental Assessment Report at land off Rodney Street, Manchester, M4 6JJ ('the site'); see Figure 1.

The work was commissioned in order to fulfil pre-planning requirements to construct a 6-8 storey residential block, along with multiple townhouses, associated access roads and soft landscaping.

This report presents a summary of the findings of a Phase I Desk Study previously undertaken by Curtins Consulting Ltd in July 2021, and provides the findings, conclusions, and recommendations of the subsequent Phase II Intrusive Investigation undertaken as instructed.

1.1 Objectives

The objectives of this investigation were as follows:

- a) Investigate potential contaminant linkages identified in the previous Phase I investigation by means of investigating shallow soils, groundwater and soil gases.
- b) Determine the potential risks posed by the site and make recommendations for further work that may be required, to ensure safe development in accordance the Environment Agency's *Land Contamination: Risk Management* guidance (LC:RM, 2020) and the *National Planning Policy Framework*.
- c) To collect information on ground conditions and strength in order to make appropriate recommendations for geotechnical design.
- d) Undertake falling head infiltration testing to provide a preliminary assessment of infiltration characteristics for soils at the site

1.2 Scope of Work

To perform an exploratory assessment of the site in accordance with the principles and requirements of DEFRA's '*Contaminated Land Statutory Guidance*' (2012), BS10175 – '*Investigation of Potentially Contaminated Sites*', BS5930:2015 '*Code of practice for ground investigations*', and BS EN 1997 '*Geotechnical Design*', the following tasks were undertaken:

Intrusive Investigation:

- Site walkover, inspection of any visual evidence of contamination at the site, obtaining photographic records.
- Health and safety briefing / site supervision.
- Drilling of four cable percussion boreholes to a maximum depth of 35m below ground level (bgl)
- Drilling of nine window sample boreholes to a maximum depth of 6m bgl using a track-mounted percussive rig.
- Excavation of ten machine-dug trial pits to investigate the presence of underground structures across the site and provide soil quality data.
- Continual logging of ground conditions including inspection of samples for visual and olfactory contamination, and laboratory analysis of selected representative samples.

- Installation of gas and groundwater monitoring standpipes at selected locations, with a return ground gas monitoring programme conducted.
- Falling head infiltration testing at selected locations.

Reporting:

- Data collection
- Interpretation of data including completion of Generic Quantitative Risk Assessment

The findings and conclusions of these investigations are presented in the following sections.

1.3 Limitations and Constraints

The purpose of this report is to present the findings of a soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and / or trial pits to recover soil and / or groundwater samples. The locations of these excavations and sampling points are considered to be representative of the condition of the whole site subsurface however, ground conditions are naturally variable and it may be possible that the conditions encountered may differ to those found during the investigation.

No visible evidence of Japanese Knotweed was identified during the site walkover. However, this plant can be difficult to identify in the early stages of growth and therefore it is not always possible to identify its' presence at certain times of the year. For this reason, EPS cannot confirm that Japanese Knotweed rhizomes do not exist and it is recommended that if it is suspected that this species, or other similarly invasive plants are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

The investigation was carried out to assess the significance of contamination resulting from the use of the site as identified in this report. Unless EPS has otherwise indicated, no assessment of potential impact of any other previous uses has been made.

2 SITE CONTEXT

The following section provides a summary of the geo-environmental context of the site, as well as previous reports undertaken for the site.

2.1 Previous Reports

A previous Phase I Preliminary Risk Assessment has been undertaken for the site by Curtins. It is recommended that the reader also review the following document in full:

- *Rodney Street, Ancoats -Phase 1 Preliminary Risk Assessment'* (Curtins Ref: 079056-CUR-00-XX-DR-GE-001, Revision: V01, Issue Date: 09 July 2021)

Pertinent details from this report are included and summarised in the sections below.

2.2 Site & Location Description

Detail	Description
Location	The site lies to the east of Ancoats, Manchester, and approximately 1.30km east of Manchester Victoria train station.
National Grid Reference	385304, 398959
Topographic Elevation	Approximately 51.2-51.70m Above Ordnance Datum (AOD) and slopes gently down towards the south.
Description of Site	The site lies in an area of predominantly soft landscaping between Rodney Street to the east, Jersey Street in the south, and Wadeford Close to the west. The site is roughly rectangular shaped and measures approximately 0.65ha in surface area. There are small areas of hardstanding throughout the site including asphalt, concrete and flagstone covered sections, that are just below grassed cover to the south of the site. Northern sections of the proposed development are also surrounded by a bund of soil, which is around 0.50m above ground level. An iron fence surrounds the perimeter of the southern half of the site, and several mature deciduous trees are found within the site boundary and along the perimeter of the site.
Surrounding Land Use	The site is adjacent to terraced housing in the south and east, with a multi-storey residential block to the immediate north. Land to the northeast was being developed during the intrusive works, and land to the immediate west was a public open space, with light industrial units further west.

A plan showing the site location is provided as Figure 1, and an aerial photograph is included as Figure 2. Selected site photographs are included as Appendix A and a proposed development plan is included as Appendix B.

2.3 Geo-Environmental Setting

Detail	Description
Geology	Geological mapping indicates the ground conditions beneath the site are likely to consist of superficial Devensian Till overlying bedrock geology of the Collyhurst Sandstone Formation. An historic borehole log from the BGS for a location around 20m to the north indicates Boulder Clay to a depth of 35.66m bgl (with bands of sand and gravels) overlying weathered bedrock of soft, friable, fine grained sandstone from 35.66m to 36.58m bgl.
Mining Activities	The site is located within a Coal Mining reporting area. However, there are no recorded mine entries, coal workings or probable coal workings within 500m of the site. The risk from shallow coal mining is therefore considered to be Low.
Hydrogeology	The superficial deposits are classified as a Secondary Aquifer, whilst the underlying bedrock is classified as a Principal Aquifer. The site is not located within a Source Protection Zone (SPZ).
Hydrology	The nearest surface water feature is Rochdale Canal recorded 110m southeast of the site flowing east.
Known Site Drainage & Utilities	An enquiry to Line Search Before U Dig dated 27/09/2021 showed the following services on the site; • Electricity Northwest assets consisting of a single low voltage cable entering the south of the site from Jersey Street, and multiple low voltage cables entering the north of site from the east along Butler Street, which are connected to a 6Kv cable. • Cadent assets comprising an intermediate pressure 16'' steel pipe running across the entire eastern section of the site and parallel to Rodney Street, with two 63mm PE pipes entering the south and north of the site along the same orientation. • Virgin Media owned assets along the southern and eastern perimeter which enter the site in the north from Butler Street. • United Utilities owned assets consisting of combined sewers which run around the entire perimeter of the site, and a 100mm ductile iron pipe which runs around the southern and western perimeter. A section of the main enters the site from Wadeford Close where it is shown as abandoned.

Detail	Description
Landfill & Waste	There are no BGS recorded landfill sites within 250m, and no historical landfill sites recorded within 500m. However, there are five potentially infilled water features within 250m; the nearest being around 80m southwest and relating to the back-filled canal arms.
Summary of Site History	Earliest mapping (1840's) shows the site as developed with rows of terraced housing with gardens and outhouses. By 1963, the site was re-developed after demolition of terraced residential dwellings and an unnamed works was constructed in the north of the site. Industrial works and factories are developed surrounding the site up to 1969. Derwent residential building was constructed in the south of the site by 1969, and new terraced residential properties in the north of the site. Infilling of Rochdale Canal arms west of the site for new industrial estates and residential dwellings around the site occurred by 1983. By 1999, Poland Street Industrial Estate is shown constructed on part of the recreation ground west of the site. All buildings on site were demolished by 2006 and site is covered mainly by landscaping areas as of today.

2.4 Conceptual Site Model

The Curtin's Preliminary Risk Assessment identified a number of potential risks to both human health and controlled waters associated with the sites historic industrial use and that of the surrounding area.

Risks to controlled waters were generally identified to be low due to the low permeability of the anticipated ground conditions, however risks to human health associated with interaction with made ground soils and from ingress of ground gases to future buildings were considered to be moderate.

On this basis, recommendations were made for intrusive investigation, including a programme of ground gas monitoring and completion of a generic quantitative risk assessment.

3 SUMMARY OF INTRUSIVE INVESTIGATIONS

Intrusive ground investigations were undertaken between 27th September 2021 and 14th October 2021 in accordance with EPS standard operating procedures, copies of which will be made available on request. A summary of all site activities is presented in the following sections:

3.1 Exploratory Hole Locations

Exploratory hole locations were selected through consideration of the potential contaminant linkages identified through the Phase I Desk Study, requests from the client, the proposed development layout and the location of below ground utilities, as well as operational and health & safety considerations.

Four cable percussion boreholes (BH01 – BH04) were formed at the site to a maximum depth of 35m using a cable percussive drilling rig. These exploratory holes were undertaken to provide sufficient vertical profiling of the underlying soils.

Nine window sample boreholes (WS01A, WS01B, WS01C, WS02A, WS02B, WS03A, WS03B, WS04, WS05) were formed at the site to a maximum depth of 6.0m using a track-mounted percussive drilling rig.

Ten machine excavated trial pits (TP01-TP10) were also undertaken across the site to a maximum depth of 1.60m.

The overall objective in terms of exploratory hole locations was to provide an appropriate lateral and vertical coverage of the soils underlying the site in order to offer information relating to their quality and nature, as well as to provide information for geotechnical design. Further rationale for each sampling location is provided within the table below:

Location	Rationale
WS01A – WS05	Provide information on the nature, strength and quality of shallow soils across the property (up to a maximum depth of 6.0m), and to facilitate the installation of monitoring standpipes at selected locations.
BH01 - BH04	Provide information on the nature and strength of underlying soils, particularly at depth, to assist with geotechnical design (specifically piling parameters should they be required).
TP01 – TP10	Provide additional information on the nature and quality of shallow soils across the property, and investigate the presence of relict foundations across the site.

Standpipes were installed within five window sample boreholes (WS01C, WS02B, WS03B, WS04, WS05), and four cable percussion boreholes (BH01 - BH04). Groundwater and gas monitoring pipes were installed using 50mm diameter uPVC well casing and fitted with a gas tap. Slotted casing (1mm slot) was installed at each location from the depths given on the borehole logs, to approximately 1.0m below the surface. Groundwater monitoring pipes consisting of 19mm diameter uPVC pipe were also installed in BH01 – BH04, with a slotted section from the depths given on the borehole logs to 1m below ground level, and a plain section from this depth to ground level. The installations were completed to ground surface using plain casing. A filter pack of 2-3mm of washed gravel extended from the base of the boreholes to approximately 0.1m above the slotted section with a bentonite seal to surface. All installations were finished with flush-mounted, bolt-down headworks.

A borehole and trial pit location plan is presented as Figure 4.

3.2 In-Situ Testing & Soil Sampling

Each borehole was logged for ground conditions encountered and inspected for any physical evidence of contamination, such as soil staining, odour and the presence of separate phase liquids on a precautionary basis. Borehole and trial pit logs are presented in Appendix C.

Standard or cone penetration tests (SPT / CPT) were carried out in all materials using an automatic trip hammer. The number of blows required to advance a standard split spoon, (or solid 60° nose cone for the CPT test) over the final 300mm of a 450mm total drive was recorded, and is shown on the borehole records at the penetration resistance (“N” value).

Where potentially volatile organic compounds are suspected, EPS carries a Photoionisation Detector (PID), which can be used to measure the relative concentrations of vapour associated with soil samples collected from different depths and locations at the site. In these circumstances, soil samples will be placed into plastic bags, sealed, shaken and then allowed to rest for a few minutes to allow time for volatile vapour to accumulate in the air trapped within the bag. The PID probe will then be used to pierce the bag and sample the air above the soil to measure the concentration of volatile compounds that have accumulated. PID readings are only used to provide EPS with a basic means to quantify areas of volatile organic compound in the field to help guide the investigation. As potentially volatile organic compounds, specifically including petroleum hydrocarbons, were identified in the conceptual site model, PID readings were collected during this intrusive investigation. These readings are included within borehole logs presented as Appendix C and the results are discussed further in later sections.

In-situ shear vane tests were undertaken in clay soils within selected boreholes / trial pits. The results of these tests are included on the logs in kPa.

A laboratory testing schedule is included as Table 1.

3.3 Laboratory Testing

Samples obtained for analysis of identified contaminants of concern were submitted to Element Materials Technology Limited of Deeside, and Eurofins Chemtest Ltd of Newmarket, who hold appropriate UKAS / MCERT accreditation for the required testing. Samples were transported in laboratory supplied containers and delivered to the laboratory by approved courier.

Geotechnical testing was undertaken by Soil Property Testing, Huntingdon, a UKAS accredited laboratory.

Copies of chain of custody documentation are held by EPS and will be made available on request.

3.4 Soil Gas and Organic Vapour Monitoring

As part of the intrusive investigation, six return monitoring visits were completed in order to assess the presence and concentration of ground gas (including carbon dioxide, oxygen and methane) and organic vapour, as well as borehole flow. These parameters were measured using a GFM 435 gas analyser and photo ionisation detector (PID) respectively. The return monitoring visits took place on the 26th October, 11th November, 24th November, 3rd December, 8th December and 15th December 2021.

The results of the return monitoring visits are presented in Table 3 – 8

3.5 Falling head Testing

Falling head infiltration testing was undertaken within two boreholes (WS03 and WS05) during a return monitoring visit, the results of which are discussed in Section 5.7.

4 FINDINGS OF THE INVESTIGATION

This section of the report provides a summary of the findings of the various aspects of the ground investigation.

4.1 Ground Conditions

A total of 23 exploratory holes were formed at the site and the ground conditions encountered, from surface level, have been interpreted to comprise:

- Made Ground
- Devensian Till
- Collyhurst Sandstone

Site specific borehole logs are included as Appendix C and give descriptions and depths of strata encountered. A summary of the general strata encountered across the site is provided in the table below, with more detailed description given in the following sub sections.

Geological Strata	Maximum Depth to Base of Strata (m bgl)	Strata Thickness (m)
Made Ground	2.60	0.50 - 2.60
Devensian Till	28.00	16.90 – 25.60
Collyhurst Sandstone	>35.00 (Not proven)	>7.00 - >15.50 (Not proven)

5.1.1 *Made Ground*

Made ground was variable across the site but generally consisted of a dark brown, sandy, gravelly silt, with cobbles and boulders of brick and concrete at ground level. Cobble and boulder content generally increased with depth.

In the south, around the area of the historic care home (TP05-TP10), made ground consisted of ashy, sandy, gravelly cobbles of brick, concrete and other demolition rubble including timber and steel rods.

5.1.2 *Devensian Till*

Beneath the Made Ground, Devensian Till has been interpreted, which comprised variable strata, but typically consisted of a stiff brown, slightly sandy, slightly gravelly clay. Significant bands (Between 0.40m to 4.90m thick) of sand and/or gravel were also encountered at various depths. A firm to stiff laminated silty clay with bands of sand and silt partings was also present at various depths (Between 0.50m to 4.50m thick).

5.1.3 Collyhurst Sandstone

Below the Devensian Till, a very dense, reddish-brown, fine to coarse sand was encountered (between 1.50m to 9.50m thick) which was interpreted as a highly weathered horizon of the Collyhurst Sandstone. A very weak reddish-brown sandstone was encountered below this stratum (at between 24.00m to 29.00m), which was also recovered as a reddish-brown fine to coarse sand.

4.2 Groundwater

Groundwater was encountered in BH04 at 26.50m, which rose to 22.00m over 20 minutes. Groundwater was not recorded in any other borehole during the intrusive investigation. It should be noted that the presence of groundwater may have been masked where water has been added to progress the borehole.

Groundwater was recorded during subsequent monitoring visits following the intrusive works, as outlined in the table below.

Monitoring Well	Depth to Groundwater					
	26/10/21	11/11/21	24/11/21	03/12/21	08/12/21	15/12/21
WS01C	3.891	2.213	2.874	0.431	0.365	0.463
WS02B	0.549	0.420	0.457	0.375	0.199	0.442
WS03B	3.054	0.350	1.268	0.665	0.665	0.705
WS04	-	-	-	-	-	-
WS05	-	2.569	2.350	2.175	2.100	1.992
BH01 (50mm)	2.639	2.981	2.856	2.870	2.581	2.846
BH01 (19mm)	5.500	5.571	5.742	3.992	2.575	2.835
BH02 (50mm)	3.068	2.590	2.585	2.592	2.585	2.586
BH02 (19mm)	*	16.105	16.065	15.952	15.765	16.008
BH03 (50mm)	2.115	-	-	2.031	-	-
BH03 (19mm)	*	19.621	19.832	17.981	17.670	17.892
BH04 (50mm)	3.239	-	-	3.142	-	-
BH04 (19mm)	2.225	9.031	-	-	-	-

- Denotes the well was dry at the time of monitoring

* Denotes unable to take reading from the well

The shallow groundwater identified in the top few metres is considered representative of perched groundwater, whilst the deeper levels identified within BH02 and BH03 are considered representative of the natural groundwater table.

4.3 Results of Ground Gas Monitoring

Ground gas monitoring was conducted on six occasions following the intrusive investigation. Methane was not detected in any borehole on any occasion.

Positive flow readings were observed on multiple occasions in several boreholes, with the highest being 1.0l/hr in WS04. Concentrations of carbon dioxide were encountered at varying levels in each borehole on multiple occasions, up to 11.8% in BH02. Organic vapours were also recorded at very low levels (<0.5ppmV) in every borehole during several monitoring visits. The table below summarises the recorded concentrations of methane, carbon dioxide, oxygen, and VOC. The full results of gas monitoring are presented in Tables 3a-f.

Borehole	CH ₄ Range of Detections (% v/v)	CO ₂ Range of Detections (% v/v)	O ₂ Range of Detections (% v/v)	VOC Range of Detections (ppmV)
WS01C	<0.1	0.2-1.7	18.4-21.5	0.1-0.3
WS02B	<0.1	0.6-2.2	17.9-20.6	<0.1-0.3
WS03B	<0.1	1.6-2.3	15.0-19.5	<0.1-0.2
WS04	<0.1	1.1-1.8	18.7-20.4	<0.1-0.1
WS05	<0.1	1.4-2.5	18.0-20.0	<0.1-0.1
BH01	<0.1	<0.1-0.2	7.6-20.4	<0.1-0.1
BH02	<0.1	<0.1-11.8	2.2-22.7	<0.1-0.2
BH03	<0.1	0.7-7.1	2.7-20.7	<0.1-0.1
BH04	<0.1	<0.1-10.7	4.2-21.7	<0.1-0.1

Notes: CH₄ Methane CO₂ Carbon Dioxide O₂ Oxygen

4.4 Physical Evidence of Contamination

Despite the presence of a significant thickness of made ground (as detailed above), there was no palpable evidence of contamination encountered in any of the sampling locations during the investigation including any visual or olfactory evidence of hydrocarbon staining. This was supported by headspace testing undertaken in soil samples during the field works which did not identify any concentrations of organic vapours above instrument detection levels. However, putrescible material in the form of timber was noted in some areas of made ground.

4.5 Existing Foundations

Evidence of relic foundations was found in several trial pits (TP04, TP05, TP07, TP08, TP09), two window sampler boreholes (WS01A & WS01B) and in one borehole (BH01).

A brick wall was exposed from 0.40m to 1.20m in TP04 in the western face of the trial pit. No other evidence of relict foundations was found in TP01 to TP03 (the north of the site). A concrete slab of unknown thickness was also encountered in WS01A and WS01B, around the centre west of the site.

The foundations which were exposed in trial pits in the south of the site are assumed to be the relic foundations of the historic care home. The very thin surface cover of grass/topsoil was scraped back in this area during the investigation which revealed brick walls and paving slabs following the rough line of the building as outlined in historic maps. The made ground appeared to predominantly consist of demolition rubble and extended to between 1.00m and 1.20m. A concrete slab was encountered at these depths within the trial pits, which prevented their further progress. Two brick walls were also encountered between 0.30m and 1.20m in TP08, with a concrete slab in the north face of the trial pit at 0.20m.

The underlying ground conditions in BH01 were very similar with the same made ground extending to 1.10m, at which point the concrete slab was encountered. The borehole was progressed through the slab which was found to contain reinforcement bars and extended to 1.70m at this location. A clayey made ground was then noted below the slab extending to 2.60m. Photos of the trial pits are included in Appendix A.

4.6 Laboratory Analysis – Soil

A laboratory analysis testing schedule is presented as Table 1 and all environmental sample results obtained from the laboratory are included as Appendix D. The key results of laboratory testing on environmental soil samples are summarised below.

Contaminant	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)
			Min	Max	
Arsenic	10	10	7.6	66.4	TP06 (0.50-0.60)
Cadmium	10	8	0.1	3.1	TP04 (0.20-0.30) & TP06 (0.50-0.60)
Chromium	10	10	17.2	89.4	TP06 (0.50-0.60)
Copper	10	10	15	124	TP06 (0.50-0.60)
Lead	10	10	13	458	TP06 (0.50-0.60)
Mercury	10	5	0.1	0.5	TP04 (0.20-0.30)
Nickel	10	10	19.8	45.6	WS01C (1.00-1.50)
Selenium	10	2	1	2	WS01C (1.00-1.50)
Zinc	10	10	39	451	TP06 (0.50-0.60)
Naphthalene	10	6	0.07	34.40	TP03 (0.40-0.50)
Benzo[a]pyrene	10	7	0.24	20.16	TP01 (0.40-0.50).
Dibenz(ah)anthracene	10	6	0.13	3.05	TP01 (0.40-0.50)
m/p-Xylene	10	2	0.007	0.009	WS03B (0.1-0.5)
TPH CWG Total Aliphatics & Aromatic (C5-C40).	10	7	152	866	TP03 (0.80-0.90)
Total Cyanide	7	1	2.3		TP06 (0.50-0.60)
Asbestos (%)	10	4	0.001%	0.016%	TP08 (0.40-0.50)

Notes: - Contaminant not found above laboratory detection limits PAH Polycyclic Aromatic Hydrocarbons

BTEX Benzene, Toluene, Ethylbenzene, Xylenes
TPH CWG Total Petroleum Hydrocarbons (Criteria Working Group)

- Detectable concentrations of ACM, in the form of chrysotile fibre bundles were identified in shallow soils recovered from TP01, TP02, TP08 & WS03B, with the asbestos screen indicating that the concentration was less than 0.1% in TP1 and TP2. Quantification of the samples obtained from TP08 and WS03b identified concentrations to be 0.016% and 0.001% respectively.
- No Phenols, PCB's or hexavalent chromium were detected in any of the tested samples.

4.7 Waste Analysis

Waste classification (i.e. hazardous or non-hazardous) was undertaken on samples of both made ground and natural soils, which included total concentrations of metals and hydrocarbons, using computer software provided by HazWaste Online™. Waste Acceptance Criteria was subsequently undertaken on one sample of made ground and two samples of Devensian Till. The results of the WAC analysis are included within Appendix D and the outputs from the software are included in a Waste Classification Report in Appendix E.

These results, together with those of the waste classification above are summarised in the following table:

Strata	Typical Depth (m bgl) and Description	Is it Hazardous? (number of hazardous samples)	Waste Acceptance Criteria	Appropriate Landfill
Made Ground	0.0-1.0- Dark brown, sandy, gravelly silt, with cobbles and boulders of brick and concrete and occasional timber and steel fragments.	No (0 of 6)	Passed criteria for inert landfill	INERT
Devensian Till	1.00 – 25.00, Stiff brown, slightly sandy, slightly gravelly clay with bands of sand.	No (0 of 4)	Passed criteria for inert landfill†	INERT†

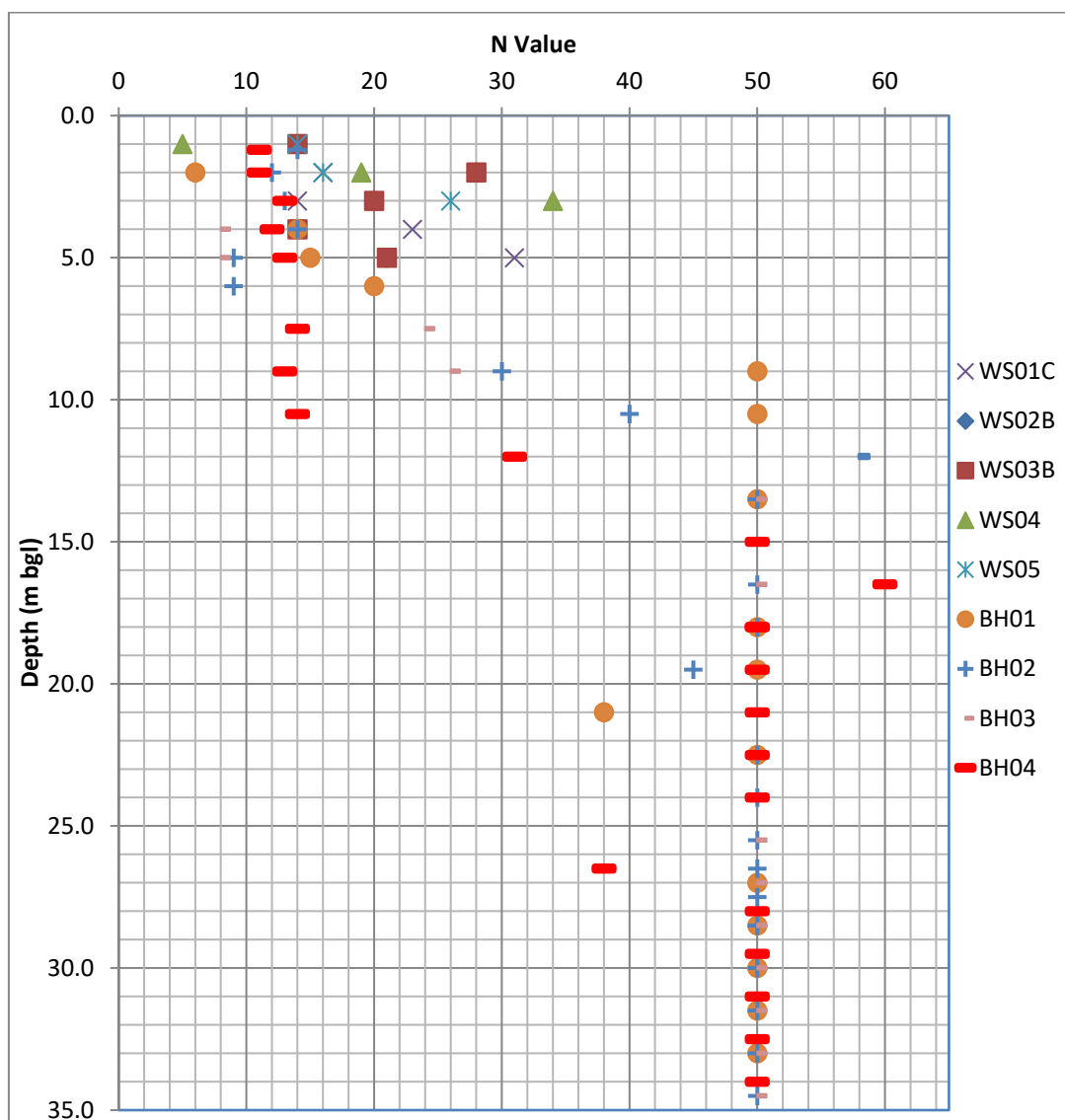
Based on the above the made ground and the Devensian Till can be classified as **INERT** for the purpose of disposal to landfill, with both falling under the waste code **17 05 04**.

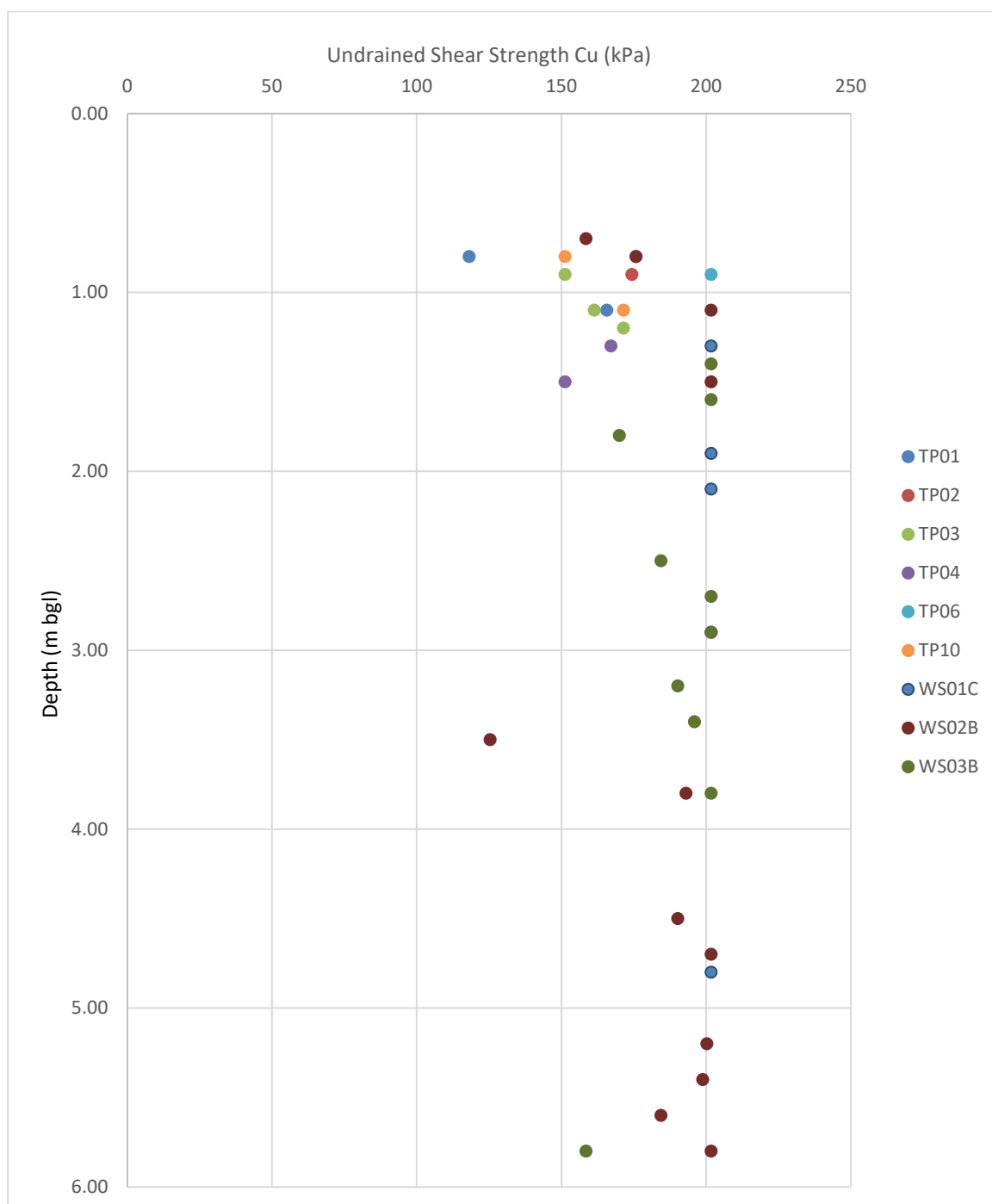
For made ground present on a brownfield site such as this, although the soil sampling process did not identify potentially hazardous concentrations of Asbestos Containing Material (ACM) within the soil, it must be acknowledged that the material may exist within areas which were not sampled or accessible during the investigation. Any visually identifiable fragments of ACM can invalidate any non-hazardous waste classification, as such, the above waste classifications are made on the proviso that any visually identifiable fragments of ACM are removed from the material prior to its disposal off-site. The subsequent ACM must then be disposed of in accordance with the Control of Asbestos Regulations 2012.

4.8 Geotechnical Testing

4.8.1 In-Situ Geotechnical Testing

The results of in-situ geotechnical testing are summarised in the graphs below.





4.8.2 Laboratory Geotechnical Testing

The results of geotechnical laboratory testing are summarised in the table below and all geotechnical sample results obtained from the laboratory are included as Appendix F. The key results of laboratory testing on geotechnical soil samples are summarised below.

Strata	Range of Parameters					
	Moisture Content (%)		Plasticity Index (%)		Undrained Shear Strength (kPa)*	
	Min	Max	Min	Max	Min	Max
Devensian Till	12	29	10 (9)	33	37	111

Strata	Range of Parameters									
	Particle Size Distribution (PSD)						CBR (%)			
	Fines (%)		Sand (%)		Gravel (%)		Top (%)		Base (%)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Devensian Till	3	24	28	90	1	69	3	5.5	4.2	5.2

Natural moisture content and atterberg limit tests were undertaken on eleven samples of cohesive soils in accordance with BS EN ISO: 17892-1: 2014, BS 1377: Part 2: 1990: 4.2 (preparation) and BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 (testing).

Particle Size Distribution was undertaken on three samples in accordance with BS1377: Part 2: 1990; 9.2 (preparation) and BS1377: Part 1: 2016: 8.3 & 8.4.5 (testing).

Three California Bearing Ratio tests were undertaken on selected samples in accordance with BS 1377: Part 4: 1990.

Undrained Triaxial Compression testing was undertaken on eight undisturbed samples of cohesive material in accordance with BS1377: Part 1: 1990: 7.4.2 & 9, Part 2: 1990: 7.2, Part 7: 1990: 8.3 (preparation) and BS1377: Part 2: 1990: Determination of Moisture Content, Part 2: 1990: 7 Determination of Density, Part 7: 1990: 8 Undrained Shear Strength, 9 Multistage Loading.

Sulphate contents and pH values determinations were also carried out by the analytical laboratory, and are included in Appendix D & Appendix F. A laboratory analysis testing schedule is presented in Table 2.

5 GEOTECHNICAL APPRAISAL

The ground conditions have been found to comprise a notable thickness of made ground underlain by stiff clay with significant bands of sand and gravel, and weak sandstone bedrock below. The development is understood to comprise a 6-8 storey residential block along with multiple townhouses.

5.1 Geotechnical Category

Geotechnical Category (BS EN 1997-1:2004)	Definition
GC1	Geotechnical Category 1 (GC1) should only include small and relatively simple structures for which it is possible to ensure that the fundamental requirements will be satisfied on the basis of experience and qualitative geotechnical investigations with negligible risk in terms of overall stability or ground movements and in ground conditions which are known.
GC2	Geotechnical Category 2 (GC2) should include conventional types of structure and foundation with no exceptional risk or difficult or loading conditions. Designs for structures in Geotechnical Category 2 should normally include quantitative geotechnical data and analysis.
GC3	Geotechnical Category 3 (GC3) should include structures or parts of structures, which fall outside the limits of Geotechnical Categories 1 and 2. This may include very large or unusual structures, structures involving abnormal risks, or unusual or exceptionally difficult ground or loading conditions, or structures in areas of probable site instability or persistent ground movements that require separate investigation or special measures.

The proposed development comprises the construction of a multi-storey residential block along with multiple town houses, and therefore the below assessment has been undertaken in accordance with Geotechnical Category 2 (GC2), including conventional types of structure and foundation with no exceptional risk or difficult ground or loading conditions, as defined by BS EN 1997-1:2004.

5.2 Structural Foundations

5.2.1 Spread Foundations

As detailed above, the development is understood to comprise the construction of a multi-storey residential block and smaller single storey residential developments, with foundations being vertically loaded. The foundation assessment has been undertaken in accordance with BS EN 1997-1:2004 to take in to account;

- Bearing Pressure (Ultimate Limit State)
- Settlement (Serviceability Limit State)

The ground conditions are considered suitable for the use of conventional spread foundations, either strip footings or pad foundations bearing on the underlying Devensian Till.

Allowable bearing capacities have been calculated for the underlying natural soils and are provided in the table below:

Foundation Depth (m bgl)	Allowable Bearing Capacity* (kN/m ²)
	Strip
1.0	150
1.5	195

* BS EN 1997 (EC7) Geo Load Combination 2

The allowable bearing capacity is the permissible increase in vertical stress at the level of the underside of the foundation, above existing overburden pressure, which may be calculated on the basis of a soil density of 19kN/m³.

At the above bearing capacity, total settlements in soils are unlikely to exceed approximately 20mm. Settlements in cohesive soils will comprise a relatively small proportion of immediate settlement and a larger portion of consolidation settlement which will take place over a long period of time.

A minimum foundation depth of 0.9m, below existing or proposed ground level is considered suitable for the site, subject to the following provisos: -

- a) Foundations should fully penetrate any made/ disturbed ground and should extend a minimum of 150mm in to undisturbed natural strata. It is acknowledged that a notable thickness of made ground has been encountered throughout the ground investigation works and this could become more common/ deeper at close proximity to and beneath the relic foundations, which may result in increased foundation formation depth in areas which have been previously developed.
- b) The Devensian Till will be subject to volume change (subsidence and / or heave) due to the presence of trees / vegetation. Foundations will therefore need to take into account the presence of trees, including those adjacent to the site boundaries. Laboratory analysis has established that the shallow natural soils have a 'medium volume change' potential in accordance with NHBC Standards Chapter 4.2 'Building Near Trees'.

It is recommended that all trees present locally, including those to be planted or recently removed, are given full consideration in the design process so that the impact of these may be taken in to account in foundation design.

Where foundations exceed 1.5m in depth due to the influence of trees / vegetation, full anti-heave precautions will need to be adopted.

5.2.2 Piles

Given the nature of the intended development, it is noted that a piled foundation solution will need to be adopted for multi-storey structure. Purely as an initial guide, the following approximate allowable capacities have been calculated for single isolated continuous flight auger (CFA) piles.

Pile Depth (m bgl)	Approximate Allowable Pile Load (kN)		
	Pile diameter (m)		
	0.30	0.45	0.60
12	300	470	650
15	385	600	850
18	470	730	1010

It should be noted that significant bands of sand and gravel were encountered at around 11m to 13m in the three of the boreholes (BH01, BH02, BH04), and boulders were noted in the stiff clay encountered in BH01 at around 13m, which may impede the progression of piled foundations. Groundwater is also likely to be encountered at around 2m to 5m across the site, and from within the bands of sand and gravel, which may also present an issue when progressing piles and should be considered in the design of piles.

In view of the wide variety of piles sizes available, and the range of installation plant and techniques, the design of the piles should be carried out by and remain the responsibility of the specialist piling contractor, who will reflect their own methods, experience and design procedures within their proposals.

5.3 Ground Floor Construction

Given that made ground is present across the site to depths of greater than 0.6m and the near surface soils are likely to be susceptible to volume change, suspended ground floor slabs are recommended for the site, incorporating a sub-floor void suitable for a medium volume change potential soil.

5.4 Groundworks

Whilst excavations in the natural clay may remain stable for short periods during construction the long-term stability of these and any excavations in made or disturbed ground should not be relied upon in unsupported excavations.

Heavy plant and stockpiles of materials should not be permitted close to the edges of unsupported excavations. Further reference may be made to CIRIA Report No. 97 'Trenching Practice' 1992.

On the basis of the findings of the ground investigation, significant quantities of groundwater could be encountered within shallow excavations for foundations or drainage in the form of perched water. This may not be laterally continuous across the site, but provisions should be made to deal with the water entering excavations.

All due attention must also be given to the potential for the presence of in-ground obstructions. As detailed in Section 4.5, a number of obstructions have been encountered during the intrusive investigation including suspected relic foundations and cobbles.

5.5 Drainage

As part of this investigation, falling head infiltration was undertaken within WS03 and WS05 to give an indication of the potential for shallow infiltration drainage to be used at the site. This testing was undertaken despite the presence of perched groundwater within the wells and identified negligible infiltration across the test period. This combined with the nature of the shallow soils, which comprise a significant thickness of cohesive soils, are indicative that infiltration drainage is unlikely to be suitable at this site and alternative means of surface water disposal will need to be investigated.

5.6 Pavement Design

The selected geotechnical samples of shallow natural soils which were tested for California Bearing Ratio returned values between 3% and 5.5%.

On the basis of the above results, together with consideration of EPS' own experience of the soil layers encountered, a characteristic design CBR value of 3% is recommended for the natural shallow soils (cohesive material with a plasticity of approximately 30%).

Made ground samples were not tested for CBR design values but it is reasonable to assume a low CBR value where made ground may form the subgrade. A nominal CBR value of 2% should be applied to made ground.

Once the formation level for the new pavement has been achieved, proof rolling should be carried out using a heavy roller, and any soft areas revealed should be excavated and a greater depth of sub-base provided.

Exposed subgrades will likely deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Sub-base should be placed as soon as possible to minimise the exposure of the subgrade to adverse weather conditions.

5.7 Concrete Grade

Sulphate contents and pH values determinations were carried out for the recovered soils by the analytical laboratory, the results of which are also included within Appendix D & Appendix F. Results for concrete grade are summarised within the following table:

Strata	Water Soluble Sulphate (mg/l SO ₄)		pH	
	Min	Max	Min	Max
Made Ground	63.9	1409	7.56	8.66
Devensian Till	7	110	7.79	8.60

In accordance with Part 1 of the BRE Special Digest 1 '*Concrete in Aggressive Ground*' 2005, the mean of the highest two water soluble sulphate values has been used. This gives a Design Sulphate Class (DS) of DS-2 with an aggressive chemical environment for concrete (ACEC) of AC-2.

6 ENVIRONMENTAL APPRAISAL

The following section outlines the approach applied to assessing the risks posed to human health and controlled waters, then identifies any sample results found by this investigation which warrant further consideration. In accordance with the Environment Agency's Land Contamination: Risk Management, this section represents the second tier of Stage 1, the Generic Quantitative Risk Assessment.

6.1 Human Health

6.1.1 Land Use Setting

It is understood that development proposals for the site includes the provision of soft landscaped areas within the residential plots. In order to screen laboratory data for concentrations of contaminants in soil with potential to cause harm to human health in these soft landscaped areas, relevant generic screening values most applicable to this land use have been utilised. A land use setting of Residential with plant uptake has been adopted as it is considered the most representative.

The technical framework used to derive DEFRA's Category 4 Screening Levels (Policy Companion Document '*SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination*') outlines the relevant factors for determining land use selection in the application of the screening levels and the following key considerations have been taken into account.

6.1.2 Generic Screening – Soils

The technical framework used to derive the assessment criteria and the documents in which they are published are summarised as follows:

- *EA Science Reports* (SC050021/SR2, SC050021/SR3, and SC050021/SR7)
- *EA Soil Guideline Value Science Reports*
- *Suitable For Use Levels (S4ULs) for Human Health Risk Assessment* – LQM and CIEH (2015)
- *Soil Generic Assessment Criteria for Human Health Risk Assessment* - EIC/AGS/CL:AIRE (2010)

Category 4 Screening Levels (C4SLs) provide generic suitable for use screening values for common contaminants in a variety of land uses and are also utilised as appropriate generic screening criteria.

Where assessment of the risk to human health from asbestos in soil is concerned there is no nationally recognised suitable for use /generic screening value commonly referred to through the planning system. Due to this, it is necessary to take a more qualitative approach to the risks posed to future site users from asbestos on a site-specific basis.

For assessing concentrations of cyanide in soil, in the absence of any commonly accepted national criteria, reference has been made to the Dutch Intervention Value (DIV) of 20mg/kg for free cyanide. It is acknowledged that there are significant limitations in the derivation of these figures and they are not based on UK exposure modelling, so they have only been used to further inform the initial screening of the dataset.

For the distribution of PAHs, it is considered reasonable to utilise recorded concentrations of Benzo(a)pyrene (BaP) as a risk driver, or marker, representative of genotoxic PAHs (including Dibenzo(ah)anthracene) to further assess the data set. Two exceedances of Benzo(a)pyrene have been recorded with one at almost six times the adopted screening criteria limit.

A summary of the screening criteria and the methodology used to derive them is included in Appendix G.

6.1.3 Assessment of Results- Human Health

The results of the screening process for on-site human receptors showed that generic screening criteria representative of risks to future site users were exceeded for multiple contaminants at several locations. The table below summarises the exceedances.

Contaminant	Screening Criteria (mg/kg)	No. of Exceedances	Highest Exceedance (mg/kg) & Sampling Location (m bgl)
Lead	210	2	TP06 (458, 0.50-0.60)
Benzo(a)pyrene	5.0	2	TP01 (29.16, 0.40-0.50)

In addition to the above, four of the tested samples from across the site were found to contain ACM. However, the percentage of ACM by sample mass was identified at below 0.1% for all samples.

On this basis, further assessment and / or remedial measures will be required to manage these risks in the context of the proposed development and protect future site users. Recommendations for mitigation measures are made in Section 6.5.

6.2 Controlled Waters

6.2.1 Generic Screening

In addition to screening the recorded concentrations of contaminants to pose risks to human health, EPS has also screened the results of soil analysis for potential to cause harm to water resources.

The criteria used for this process were derived by EPS using the following technical guidance

- *Environment Agency Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination.*

Resource Sensitivity of Area	Basis of Tier 1 Criteria
High Groundwater Resource Potential (HGwRP) - Principal Aquifers	UK Drinking Water Standards (UKDWS)
Low Groundwater Resource Potential (LGwRP) - Secondary Aquifers not being abstracted and Unproductive groundwater strata	UK Environmental Quality Standards (EQS)

Screening criteria for Low Groundwater Resource Potential (LGwRP) have been adopted for this site. Although the underlying bedrock is classified as a Principal Aquifer, there is a significant thickness of cohesive superficial Strata (minimum of around 9.50m). The superficial Devensian Till is recorded as a Secondary Aquifer with no nearby water abstractions, and as such the LGwRP is deemed to the most applicable screening criteria for controlled waters.

6.2.2 Assessment of Results- Controlled Waters

The screening process has shown that screening criteria representative of suitability of soil concentrations as applicable to controlled waters have also been exceeded. The table below summarises the exceedances.

Contaminant	Screening Criteria (mg/kg)	No. of Exceedances	Highest Exceedance (mg/kg) & Sampling Location (m bgl)
Naphthalene	0.934	2	TP01 (34.4, 0.40-0.50)
Benzo(a)pyrene	10.0	1	TP01 (29.16, 0.40-0.50)
TPH CWG Aromatic (C12-C16)	27.5	1	TP03 (35, 0.80-0.90)
TPH CWG Aromatic (C16-C21)	86.9	1	TP03 (175, 0.80-0.90)

Although the table above offers a comparison between the values received from sampling and generic screening criteria, the fact that some values exceed those of the screening values does not necessarily indicate that an unacceptable risk to groundwater resources exists. The generic screening values are by their very nature, extremely conservative and in the first instance an exceedance should lead to qualitative consideration of the risks that may be posed given the context of a specific site / proposed development.

The presence of laterally inconstant body of groundwater across the site demonstrates that the shallow groundwater is most likely perched water. Groundwater is present at depths of around 15m to 20m in the deeper wells installed in BH02 & BH03, which is thought to be reflective of the natural groundwater table. Given the shallow location of the identified exceedances relative to the depth of potential groundwater, separated by a layer (at least 10m) of low permeability predominantly cohesive clayey soils between the made ground and underlying aquifer, it is unlikely that contamination will be able to migrate through the soils to the groundwater.

In addition to this, a deeper sample from TP01, where the most pertinent exceedance of naphthalene was encountered (approx. 6x screening value), did not identify a concentration above the screening value, whilst samples from nearby WS02 and TP02 also did not identify concentrations above screening values, which suggests it is an isolated occurrence.

Also important are the specific nature of the hydrocarbon impacts, which have been interpreted by the testing laboratory as PAHs and lubricating oil and will inherently have relatively low environmental mobility and are not within the volatile range.

Given that the site is also not located within a source protection zone for groundwater abstraction, these impacts are not considered to pose an unacceptable risk to either human health receptors or deep groundwater.

However, should a pathway be generated to the underlying aquifer through the use of piles at the site, a full risk assessment should be undertaken and remedial measures may be required to prevent migration of contaminants to the underlying aquifer.

6.3 Ground Gas and Organic Vapour Risk Assessment

Gas screening values have been calculated using the gas monitoring data collected across 6 visits between the 26th October and 15th December 2021, as set out in BS8485:2015 – ‘Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings’.

The maximum individual GSV is calculated by multiplying the maximum borehole flow rate (l/hr) by the maximum gas concentration (%). For example, monitoring data reporting a maximum flow rate of 3.5l/hr and a maximum concentration of 4% methane would have a GSV of 0.14 ($4/100 \times 3.5$).

The maximum GSV has been calculated as <0.001l/hr for methane and 0.118l/hr for carbon dioxide. The calculated GSV for Carbon Dioxide is representative of Characteristic Situation 2 (CS2) conditions, which suggests a ‘low risk’ from ground gases to be present at the site, for which ground gas protection measures are required in new buildings.

Significant concentrations of organic vapours were not recorded from monitoring wells although detectable concentrations were recorded in all of the wells on occasions. Risks from organic vapour ingress into future dwellings have therefore not been identified.

6.4 Summary of Findings

Multiple exploratory holes were undertaken across the site and revealed made ground deposits up to 2.60m below ground level, with generally stiff glacial clays underlying this (although with bands of granular deposits), up to 28.00m below ground level. Below this, lay sandstone bedrock. No evidence of contamination was identified beyond the presence of made ground materials. Return monitoring visits have identified perched groundwater to be present in the top few metres, whilst the natural groundwater table lies around 15-20m bgl.

Laboratory analysis of shallow soils sampled from the proposed soft landscaped areas across the site has shown that adopted screening criteria protective of future site users (including residents) have been exceeded for a number of contaminants of concern. Therefore, a remedial control measure is warranted to ensure future soft landscaped areas are safe and suitable for use.

Results of the laboratory testing has also identified contaminants in soils to exceed screening criteria protective of controlled waters. However, for the reasons outlined within section 6.2.2 above, most notably the presence of a significant thickness of low permeability clays between the shallow made ground and natural groundwater table, no unacceptable risks to controlled waters are considered to be present.

Ground gas was identified as a risk at the site and monitoring over six visits has proven that the site must be classified as CS2, for which basic ground gas protection measures are required.

In the context of potentially unacceptable or acceptable risks as outlined within the Environment Agency's *Land Contamination: Risk Management* guidance (LC:RM, 2020), the risks identified by this work can be addressed through implementation of the following recommendations.

6.5 Recommendations

The risks identified by this work may be addressed as follows:

- a) In order to address the risks associated with interaction with elevated concentrations of PAH compounds in shallow soils, either of the following options could be applied.
 - i) In the first instance, it is recommended that consideration be given to undertaking additional shallow soil sampling across the site, particularly targeting the areas where exceedances have been found, in order to further assess the risks and allow more targeted implementation of the required remedial measures;

Although this is the recommended approach, alternatively, in the absence of any further testing / assessment the following would be required.

- ii) In all domestic garden areas, a simple cover system comprising **600mm** clean soils would be required, whilst in any areas of communal landscaping, an engineered cover system could be employed, comprising **300mm** of clean soils but also underlain by a clear no-dig barrier, such as a geo-textile. The engineered cover system should comprise the installation of a 50-100mm layer of free draining single sized stone, (forming a capillary break layer) situated between two layers of high visibility geotextile at the base of excavations across the landscaped areas of the site, then brought up to final elevations using soils certified as chemically and physically clean and suitable for use.

There is no requirement to install this recommended cover system under any buildings or areas of permanent hardstanding.

All imported topsoil for use within the cover system should be of appropriate quality and suitable for use within a residential setting both in terms of chemical and physical characteristics. Specific requirements of the clean topsoil cover system are outlined within the cover soils checklist included as Appendix H. All soil arisings must be disposed of under the appropriate duty of care at a suitably permitted facility, and the waste transfer documentation retained by the site owner/ developer. If an established supplier such as British Sugar was used, then the soil is tested at source and no further analysis would typically be needed.

Upon completion / installation of the cover system (which typically 'book ends' a redevelopment of this nature), the cover system should be verified and the findings of this process reported to Manchester City Council for approval.

- b) Ground gas monitoring has identified the need for gas protection measures to be installed within the proposed buildings on the site. Selection of appropriate measures will depend upon the combination of methods preferred by the client within the framework of BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' which will need to include at least two of the following – resulting in a gas protection score of at least 3.5 points (given the sites classification as a Type B building in characteristic situation 2):
- i. Choice of the structural barrier of the floor slab to be implemented at the site.
 - ii. Implementing ventilation measures in the proposed building.
 - iii. Installation of a proprietary gas resistant membrane.

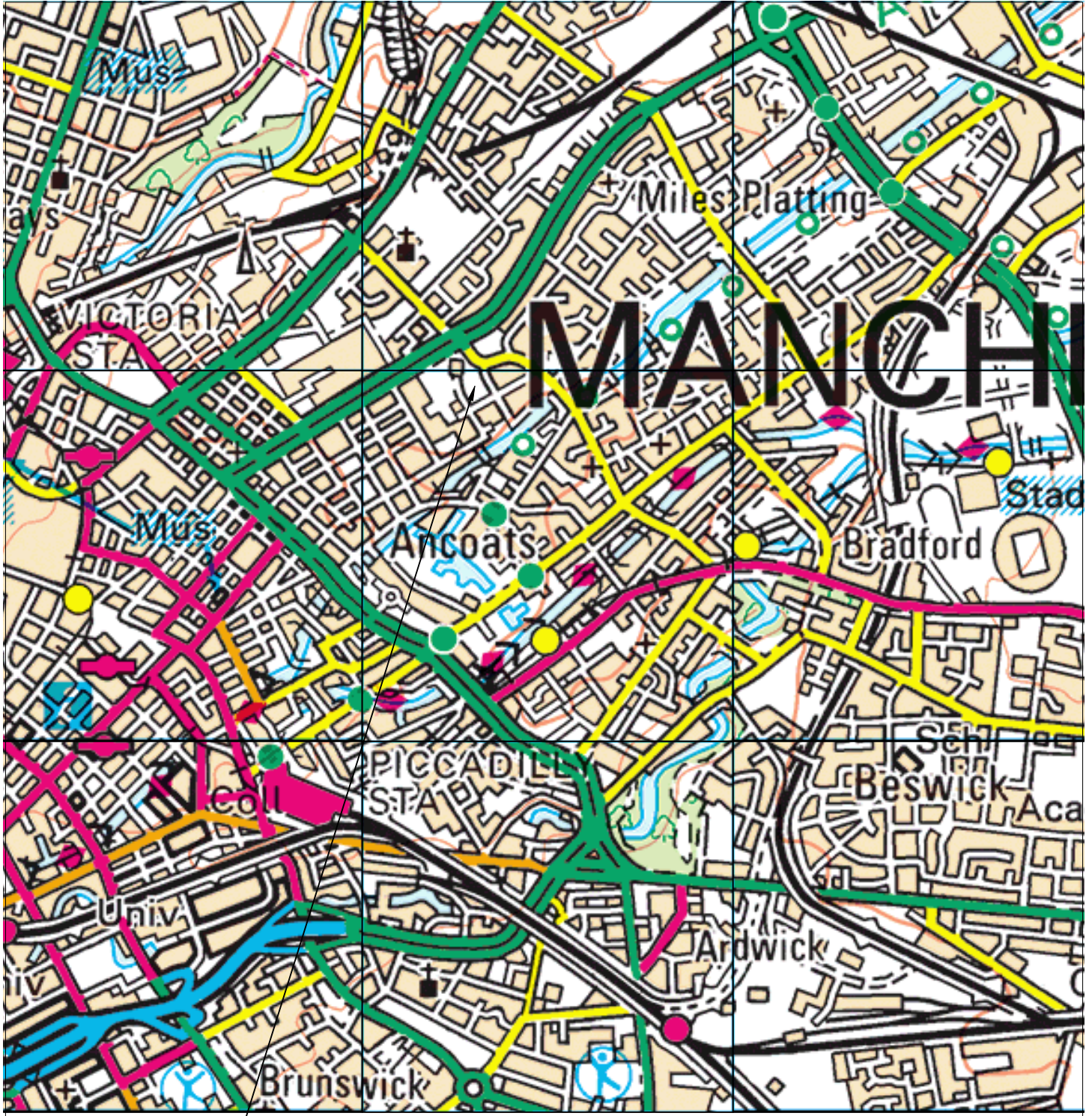
The membrane should be installed in accordance with manufacturer's instructions by suitably qualified and experienced personnel and the installation must be verified by a third-party with integrity testing, in accordance with CIRIA 735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*'.

The following precautionary measures are also recommended to ensure safe development, as follows:

- a) All construction workers operating at the site should be advised of the potential for contact with made ground material within shallow soils, particularly beneath the existing buildings and hardstanding. Appropriate health and safety precautions should be adopted during any excavation works to avoid exposure to infilled soils. Reference should be made to relevant health & safety guidance including the following CIRIA document: *R132 Guide to Safe Working on Contaminated Sites*.
- b) The findings of the investigation would suggest that significant quantities of asbestos are unlikely to be encountered, but the possibility of discrete pockets of this material existing within the made ground remains. If any evidence of visually identifiable ACM is suspected and is to be disturbed during the site development it is recommended that all works are postponed until suitable assessment and control measures (including a Working Method Statement (WMS)) are created. This WMS should be in accordance with guidance from CIRIA as well as the CL:AIRE /Joint Industry Working Group industry guidance on Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials (2016).
- c) Should any palpable evidence of unexpected contamination be encountered during the redevelopment work, it should be reported to EPS so that an inspection can be made and appropriate sampling and assessment work carried out, a method statement for this is provided as Appendix I.

It is recommended that a copy of this report be provided to the Environmental Health Department of Manchester City Council so that the information may be incorporated into their land quality records and used to support the current planning application. This report should satisfy the pre-commencement requirements of the planning process relating to contamination. A Verification Report will be required documenting the implementation of the remediation prior to completion.

FIGURES



Approximate Site Location

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Title: Site Location Plan

Project: Rodney Street, Manchester

Fig No: 1

Scale: NTS

Drawn By: JJ **Approved By:**

Job No: UK21.5551

Dwg No: Rodney/1221/Fig1

Date: December 2021



— Approximate Site Boundary

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Title: Aerial Plan

Project: Rodney Street, Manchester

Fig No: 2

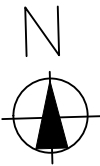
Scale: NTS

Drawn By: JJ **Approved By:**

Job No: UK21.5551

Dwg No: Rodney/1221/Fig2

Date: December 2021



KEY:

-  Approximate Site Boundary
-  Approximate Trial Pit Location
-  Approximate Window Sampler Borehole Location
-  Approximate Cable Percussion Borehole Location

Fig No: 3

Title: Exploratory Location Plan

Project: Rodney Street, Manchester

Scale: NTS - For Illustration purposes only
Drawn By: JJ
Job No: UK21.5551
Dwg No: Rodney/1221/Fig3
Date: December 2021



TABLES

Table 1 – Laboratory Testing Schedule (Environmental)

Sample ID	Sample Depth (m bgl)	EPS Mini Suite	EPS TPH Suite	EPS Waste Suite	EPS Geotechnical Suite	pH and Water Soluble Sulphate
TP01 ES1	0.40-0.50	x	x			
TP02 ES1	0.50-0.60					
TP03 ES1	0.40-0.50	x	x			
TP03 ES2	0.80-0.90			x		x
TP03 GEO1	1.00				x	
TP04 ES1	0.20-0.30	x	x			
TP05 ES1	0.50-0.60	x	x			
TP08 ES1	0.40-0.50			x		x
TP10 GEO1	1.10				x	
WS01C ES1	0.20-0.30					
WS01C ES2	1.00-1.50			x		x
WS02B ES1	0.20-0.40					
WS02B ES2	1.00-1.50	x	x		x	
WS02B ES3	3.50-3.80				x	
WS02B ES4	5.00-5.60				x	
WS03B ES1	0.10-0.50	x	x			
WS03B ES2	2.00-2.50				x	
WS04 ES1	0.50-1.00				x	
WS04 ES2	2.50-2.80	x	x		x	
WS05 ES1	0.30-0.50					
WS05 ES2	1.50-1.80				x	

Notes:

mbgl

x

EPS TPH Suite

meters below ground level

Sample analysed

Aromatic and Aliphatic TPH fractions,
MTBE, BTEX

EPS Mini Suite

EPS Waste Suite

EPS Geotechnical Suite

Organic Matter, Cyanide, Metals, PAH's, Phenols, Asbestos

Waste Characterisation Suite

Soluble Sulphate, Sulphate, pH

Table 2 – Laboratory Testing Schedule (Geotechnical)

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
TP01 B1	0.8-1.0	x	x		x	
TP01 D1	1.10					
TP03 B1	1.00-1.20	x	x		x	
TP06 B1	0.70-0.90	x	x		x	
TP10 B1	0.90-1.10					
WS01C D1	0.80-1.00					
WS01C D2	1.80-2.00					
WS01CD3	2.80-3.00					
WS01C D4	3.80-4.00	x	x			
WS01C D5	4.80-5.00					
WS02B D1	0.80-1.00					
WS02B D2	1.20					
WS02B D3	2.80					
WS02B D4	3.80-4.00					
WS02B D5	4.80-5.00					
WS02B D6	5.80-6.00					
WS03B D1	2.00-2.20					
WS03B D2	5.00-5.20					
WS04 D1	2.8-3.00					
WS05 D1	1.50-2.00					
WS05 D2	2.80-3.00					
BH01 D	1.70					
BH01 B	2.00-2.45					
BH01 D	2.00-2.45					
BH01 B	2.60-3.00					
BH01 UT	3.00-3.45					x

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH01 D	3.50					
BH01 B	4.00-4.45					
BH01 D	4.00-4.45					
BH01 B	5.00-5.45					
BH01 D	5.00-5.45	x	x			
BH01 D	6.00-6.45					
BH01 B	9.00-9.45	x	x			
BH01 D	9.00-9.45					
BH01 D	10.50					
BH01 UT	12-12.45					x
BH01 D	12.50					
BH01 B	12.60-13.00					
BH01 B	13.00-13.50			x		
BH01 D	15.00-15.45					
BH01 B	16.00-16.45					
BH01 B	18.00-18.45					
BH01 D	18.00-18.45					
BH01 B	19.5-19.95					
BH01 D	19.5-19.95					
BH01 B	21.00-21.45					
BH01 D	21.00-21.45					
BH01 D	22.50-22.95					
BH01 D	24.00-24.45					
BH01 D	25.50-25.95					
BH01 B	25.50-25.95					
BH01 D	27.00-27.45					
BH01 B	28.50-28.85					

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH01 D	28.5-28.95					
BH01 D	30.00-30.45					
BH01 D	31.50-31.95					
BH01 B	33.00-33.45					
BH01 D	33.00-33.45					
BH01 D	34.50-34.95					
BH02 B	0.00-1.20					
BH02 D	1.20-1.65					
BH02 D	2.00-2.65					
BH02 B	3.00-3.45					
BH02 D	3.00-3.45					
BH02 D	4.00-4.45					
BH02 D	5.00-5.45					
BH02 D	6.00-6.45					
BH02 UT	7.50-7.95					x
BH02 D	8.00					
BH02 D	9.00-9.45					
BH02 D	10.50-10.95					
BH02 UT	12.00-12.45					x
BH02 D	12.50					
BH02 D	12.60					
BH02 B	13.50-13.95	x	x			
BH02 D	13.5-13.95					
BH02 UT	15.00-15.45					x
BH02 D	15.50					
BH02 D	16.50-16.95					
BH02 D	17.10					

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH02 D	18.00					
BH02 D	18.60					
BH02 B	19.50-19.95					
BH02 D	19.50-19.95					
BH02 UT	21.00-21.45					x
BH02 D	21.50					
BH02 D	22.30					
BH02 B	22.50-22.95			x		
BH02 D	26.80					
BH02 B	27.5-27.95					
BH02 D	27.5-27.95					
BH02 B	28.50-28.95					
BH02 D	28.50-28.95					
BH02 D	30.00-30.45					
BH02 D	31.50-31.95					
BH02 D	33.00-3.45					
BH02 B	34.50-34.95					
BH02 D	34.50-34.95					
BH03 B	0.00-1.00					
BH03 B	1.00-1.90					
BH03 D	1.90					
BH03 D	2.00-2.45					
BH03 B	3.00-3.45					
BH03 D	3.00-3.45	x	x			
BH03 D	4.00-4.45					
BH03 D	5.00-5.45					
BH03 UT	6.00-6.45					x

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH03 D	6.50	x	x			
BH03 D	7.50-7.95					
BH03 B	7.50-7.95					
BH03 D	9.00-9.45					
BH03 UT	10.50-10.95					x
BH03 D	11.00					
BH03 D	11.50					
BH03 D	12.00-12.45					
BH03 D	13.50-13.95					
BH03 D	14.10					
BH03 D	15.00-15.45					
BH03 D	16.50-16.95					
BH03 D	18.00-18.45					
BH03 D	19.50-19.95					
BH03 B	19.50-19.95					
BH03 D	21.00-21.45					
BH03 D	22.50-22.95					
BH03 D	24.00-24.45					
BH03 B	24.00-24.45					
BH03 D	25.50-25.95					
BH03 D	27.00-27.45					
BH03 D	28.50-28.95					
BH03 D	30.0-30.45					
BH03 B	30.00-30.5					
BH03 D	31.50-31.95					
BH03 D	33.00-33.45					
BH03 D	34.50-34.95					

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH04 D	1.00					
BH04 B	0.00-1.00					
BH04 D	1.20-1.65					
BH04 D	2.00-2.45					
BH04 B	2.00-2.45					
BH04 D	3.00-3.45					
BH04 D	4.00-4.45					
BH04 D	5.00-5.45					
BH04 UT	6.00-6.45					
BH04 D	6.50					
BH04 D	7.50-7.95					
BH04 D	9.00-9.45					
BH04 D	10.50-10.95					
BH04 D	11.10					
BH04 D	12.00-12.45					
BH04 D	14.00					
BH04 D	15.00-15.45					
BH04 D	16.50-16.95					
BH04 B	16.50-16.95	x	x			
BH04 D	18.00-18.45					
BH04 D	19.50-19.95					
BH04 B	19.50-19.95			x		
BH04 D	21.00-21.45					
BH04 D	22.00					
BH04 D	22.50-22.95	x	x			
BH04 D	24.00-24.45					
BH04 B	26.50-26.95					



Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	PSD Wet Sieve	CBR Compaction 2.5kg	Single Stage Triaxial 102mm
BH04 D	28.00-28.45					
BH04 D	29.50-29.95					
BH04 D	31.00-31.45					
BH04 D	32.50-32.95					
BH04 D	34.00-34.50					

Notes:
mbgl meters below ground level
x Sample analysed

Table 3a – Gas Monitoring Well Analysis (26/10/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	<0.1	<0.1	<0.1	1.7	1.7	19.5	19.1	<1	0.000	-
WS02B	<0.1	<0.1	<0.1	1.4	1.3	18.8	18.7	<1	0.000	-
WS03B	<0.1	<0.1	<0.1	2.3	2.3	15.5	13.9	<1	0.000	-
WS04	1.0	<0.1	<0.1	1.1	1.1	19.4	19.4	<1	0.000	-
WS05	<0.1	<0.1	<0.1	2.1	2.1	18.6	18.6	<1	0.000	-
BH01	<0.1	<0.1	<0.1	0.2	0.2	20.2	20.1	<1	0.000	-
BH02	<0.1	<0.1	<0.1	<0.1	<0.1	19.8	9.3	<1	0.000	-
BH03	<0.1	<0.1	<0.1	1.2	1.2	19.0	14.4	<1	0.000	-
BH04	<0.1	<0.1	<0.1	5.7	5.7	9.5	8.0	<1	0.000	-

Readings collected on 26/10/2021 at an atmospheric pressure of 1006mbar falling to 1005mbar during an overcast, mild windy day at around 13°C. – Denotes reading not undertaken.

Table 3b – Gas Monitoring Well Analysis (11/11/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	0.1	<0.1	<0.1	1.7	1.7	18.4	17.8	<1	0.000	0.3
WS02B	<0.1	<0.1	<0.1	2.0	2.0	17.9	17.5	<1	0.000	0.3
WS03B	<0.1	<0.1	<0.1	2.2	2.2	18.4	12.7	<1	0.000	0.2
WS04	<0.1	<0.1	<0.1	1.7	1.7	18.9	18.6	<1	0.000	<0.1
WS05	0.3	<0.1	<0.1	2.2	2.1	18.6	18.1	<1	0.000	<0.1
BH01	-0.1	<0.1	<0.1	<0.1	<0.1	19.0	8.0	<1	0.000	<0.1
BH02	<0.1	<0.1	<0.1	0.6	0.6	20.8	19.6	<1	0.000	<0.1
BH03	0.1	<0.1	<0.1	0.7	0.7	19.5	19.3	<1	0.000	<0.1
BH04	-0.1	<0.1	<0.1	<0.1	<0.1	20.5	20.4	<1	0.000	<0.1

Readings collected on 11/11/2021 at an atmospheric pressure of 1016mbar falling to 1013mbar during an overcast, mild day at around 9°C, with slight rain towards the end of monitoring.

Table 3c – Gas Monitoring Well Analysis (24/11/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	-0.1	<0.1	<0.1	1.1	0.9	20.3	19.7	<1	0.000	0.1
WS02B	0.1	<0.1	<0.1	2.2	2.1	19.0	17.5	<1	0.000	<0.1
WS03B	<0.1	<0.1	<0.1	2.3	2.3	15.0	13.5	<1	0.000	0.1
WS04	<0.1	<0.1	<0.1	1.1	0.9	20.4	19.7	<1	0.000	<0.1
WS05	-0.1	<0.1	<0.1	1.4	1.4	20.0	20.0	<1	0.000	0.1
BH01	<0.1	<0.1	<0.1	<0.1	<0.1	9.0	7.6	<1	0.000	0.1
BH02	<0.1	<0.1	<0.1	0.8	0.8	22.6	19.3	<1	0.000	0.2
BH03	<0.1	<0.1	<0.1	0.8	0.8	20.4	19.8	<1	0.000	<0.1
BH04	<0.1	<0.1	<0.1	0.6	0.6	18.7	18.7	<1	0.000	<0.1

Readings collected on 24/11/2021 at an atmospheric pressure of 1015mbar falling to 1013mbar during an overcast day at around 8°C.

Table 3d – Gas Monitoring Well Analysis (03/12/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	<0.1	<0.1	<0.1	0.2	0.2	21.5	21.3	<0.1	0.000	0.1
WS02B	<0.1	<0.1	<0.1	0.6	0.6	20.6	20.6	<0.1	0.000	0.1
WS03B	-0.4	<0.1	<0.1	1.6	1.6	15.5	15.5	<0.1	0.000	<0.1
WS04	-0.1	<0.1	<0.1	1.6	1.6	18.9	18.9	<0.1	0.000	<0.1
WS05	-0.1	<0.1	<0.1	2.5	2.5	18.0	18.0	<0.1	0.000	<0.1
BH01	<0.1	<0.1	<0.1	<0.1	<0.1	7.8	7.8	<0.1	0.000	<0.1
BH02	-0.1	<0.1	<0.1	2.1	2.1	19.7	18.0	<0.1	0.000	<0.1
BH03	-0.1	<0.1	<0.1	1.5	1.5	18.5	17.9	<0.1	0.000	<0.1
BH04	<0.1	<0.1	<0.1	2.3	2.3	18.5	15.7	<0.1	0.000	<0.1

Readings collected on 03/12/2021 at an atmospheric pressure of 995mbar falling to 993mbar during an overcast, cold day at around 5°C.

Table 3e – Gas Monitoring Well Analysis (08/12/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	-0.6	<0.1	<0.1	0.7	0.7	20.7	20.7	<0.1	0.000	0.2
WS02B	<0.1	<0.1	<0.1	2.0	0.9	19.8	19.8	<0.1	0.000	0.1
WS03B	0.3	<0.1	<0.1	1.8	1.8	19.5	18.4	<0.1	0.000	0.1
WS04	<0.1	<0.1	<0.1	1.8	1.0	20.2	19.4	<0.1	0.000	0.1
WS05	<0.1	<0.1	<0.1	2.0	2.0	19.0	18.1	<0.1	0.000	0.1
BH01	-0.3	<0.1	<0.1	<0.1	<0.1	20.4	20.3	<0.1	0.000	0.1
BH02	-0.4	<0.1	<0.1	11.8	11.8	12.0	2.2	<0.1	0.000	0.1
BH03	<0.1	<0.1	<0.1	7.1	7.1	4.2	2.7	<0.1	0.000	0.1
BH04	-0.4	<0.1	<0.1	10.2	10.2	4.8	4.2	<0.1	0.000	0.1

Readings collected on 08/12/2021 at an atmospheric pressure of 971mbar falling to 970mbar during an overcast, rainy day at around 4-5°C.

Table 3f – Gas Monitoring Well Analysis (15/12/2021)

BH ID	Flow (1/hr)	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		H ₂ S (ppm)	HEX (%v/v)	VOC (ppmV)
		Peak	Steady	Peak	Steady	Peak	Steady	Peak	Peak	
WS01C	-0.3	<0.1	<0.1	1.2	0.7	21.0	21.0	<0.1	0.000	<0.1
WS02B	<0.1	<0.1	<0.1	2.0	2.0	20.2	20.2	<0.1	0.000	<0.1
WS03B	-0.1	<0.1	<0.1	1.7	1.7	20.1	16.8	<0.1	0.000	0.1
WS04	<0.1	<0.1	<0.1	1.7	1.5	18.9	18.7	<0.1	0.000	<0.1
WS05	-0.2	<0.1	<0.1	2.2	2.1	18.5	18.4	<0.1	0.000	<0.1
BH01	<0.1	<0.1	<0.1	<0.1	<0.1	20.3	18.6	<0.1	0.000	<0.1
BH02	-0.4	<0.1	<0.1	<0.1	<0.1	22.0	21.5	<0.1	0.000	<0.1
BH03	-0.4	<0.1	<0.1	0.6	0.6	20.8	20.7	<0.1	0.000	<0.1
BH04	-0.1	<0.1	<0.1	1.1	1.1	21.7	21.7	<0.1	0.000	<0.1

Readings collected on 15/12/2021 at an atmospheric pressure of 1020mbar falling to 1019mbar during a clear, cold day.

APPENDICES

APPENDIX A

Selected Site Photographs



Key:

-  Approximate Site Boundary
-  Approximate Photo Location

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Title: Photo Location Plan

Project: Rodney Street, Manchester

Fig No: App. A

Scale: NTS

Drawn By: JJ **Approved By:**

Job No: UK21.5551

Dwg No: Rodney/1221/App.A

Date: December 2021

Photo 1: Showing made ground and shallow natural soils in TP01, facing south east.



Photo 2: Showing made ground in TP02, facing east.



Photo 3: Showing made ground and brick wall in TP04, facing south west.



Photo 4: Showing made ground in TP05, facing north.



Photo 5: Showing made ground and natural soils in TP06,
Facing north east



Photo 6: Showing exposed foundations in TP08, facing north
east.



Photo 7: Showing foundation brick wall (right) and
paving (left) exposed at the surface around TP05 &
TP06, facing north.



Photo 8: Showing foundation brick wall (left) and
paving (right) exposed at the surface around TP07,
facing north.

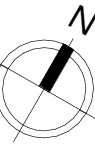


APPENDIX B

Proposed Development Plan



Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.



Rodney Street

- 1B 2P
- 2B 4P
- 3B 6P
- ANCILLARY/ ENW SUBSTATION
- BIKE STORE
- CONCIERGE
- ENW SUBSTATION
- LOBBY
- MEZZANINE
- PLANT
- POST
- REFUSE
- RESIDENTIAL ENTRANCE
- RESIDENTS AMENITY
- SMOKE SHAFT
- STAFF WELFARE
- WC
- TOWNHOUSE - 3 BED
- TOWNHOUSE - 4 BED

NOTE:

Areas are appropriate to the current design stage and are liable to change as a result of design development.
Internal apartment layouts are indicative and subject to further review.

P3	20/09/21	AMP	Preliminary Issue - Design development updates to apartments and townhouses
P2	07/09/21	AMP	Preliminary Issue - Step omitted in Block A massing and updates in line with Fire Strategy
P1	25/08/21	AMP	Preliminary Issue

Rev	Date	Ints	Details
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W www.buttress.net

Project Title	Rodney Street, Ancoats
Client	This City
Location	Rodney Street

Drawing ref	Site Plan - Proposed
-------------	----------------------

Date	20/09/2021 14:47:14	Scale	1 : 200
Checker	Checker	Orig Paper Size	A1

Job No:	9139	Status	PRELIMINARY
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Project:	Origin:	Zone:	Level:	Type:	Disc:	Number:	Rev:
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9139-BA-ZZ-00-DR-A- (04) 001- P3

APPENDIX C

Site Specific Borehole Logs



Borehole Log

Borehole No.

BH01

Sheet 1 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385325.00 - 398925.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10			0.10	51.10		TOPSOIL: Soft dark brown sandy silt with many rootlets.	
		1.10			1.10	50.10		MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.	1
		1.70	D		1.70	49.50		MADE GROUND: Concrete with reinforcement bar.	
		2.00		N=6 (1,1/1,2,1,2)				MADE GROUND: Soft to firm brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone and brick.	2
		2.00 - 2.45	B						
		2.00 - 2.45	D						
		2.60 - 3.00	B		2.60	48.60			
		3.00 - 3.45	UT					Stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	3
		3.50	D		3.50	47.70		Stiff brown occasionally laminated slightly sandy silty CLAY.	
		4.00		N=14 (3,3/3,3,4,4)	4.00	47.20		Firm brown occasionally laminated slightly sandy silty CLAY with occasional sand partings.	4
		4.00 - 4.45	B						
		4.00 - 4.45	D						
		5.00		N=15 (3,3/4,3,4,4)					5
		5.00 - 5.45	B						
		5.00 - 5.45	D						
		6.00		N=20 (3,3/3,5,5,7)	6.00	45.20		Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	6
		6.00 - 6.45	D						7
									8
		9.00		N=50 (5,7/50 for 295mm)	9.00	42.20		Stiff brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	9
		9.00 - 9.45	B						
		9.00 - 9.45	D						10
		10.50		N=50 (25 for 70mm/50 for 150mm)	10.50	40.70		Stiff brown slightly sandy gravelly CLAY with low cobble and boulder content of subangular sandstone. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	11
		10.50	D						
		12.00 - 12.45	UT		12.00	39.20		Continued on next sheet	12

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH01

Sheet 2 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385325.00 - 398925.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		12.50	D		12.60	38.60		Stiff brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	
		12.60 - 13.00	B					Dense brown fine to coarse silty SAND.	
		13.00 - 13.50	B						
		13.50		N=50 (25 for 60mm/50 for 95mm)	13.00	38.20		Very dense brown slightly gravelly silty fine to coarse SAND with low cobble and boulder content of subangular to subrounded sandstone. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone. <i>Between 13.00m to 13.50m, Low gravel content.</i>	
		15.00 - 15.45	D		15.00	36.20		Stiff brown slightly gravelly very sandy CLAY with medium cobble content of subangular to subrounded sandstone. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	
		16.50 - 16.95	B						
		18.00		N=50 (25 for 145mm/50 for 210mm)					
		18.00 - 18.45	B						
		18.00 - 18.45	D						
		19.50		N=50 (8,10/50 for 275mm)	19.50	31.70			
		19.50 - 19.95	B						
		19.50 - 19.95	D					Very dense reddish brown fine to coarse sand.	
		21.00		N=38 (8,9/9,9,10,10)					
		21.00 - 21.45	B						
		21.00 - 21.45	D						
		22.50		N=50 (25 for 70mm/50 for 65mm)					
		22.50 - 22.95	D						

Continued on next sheet

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH01

Sheet 3 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385325.00 - 398925.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		24.00		N=50 (25 for 60mm/50 for 45mm)	29.00	22.20		Very weak reddish brown SANDSTONE. Recovered as fine to coarse sand.	25
		24.00 - 24.45	D						
		25.50		N=50 (25 for 55mm/50 for 45mm)					26
		25.50 - 25.95	B						
		25.50 - 25.95	D						
		27.00		N=50 (25 for 65mm/50 for 50mm)					27
		27.00 - 27.45	D						
		28.50		N=50 (25 for 55mm/50 for 40mm)					28
		28.50 - 28.95	B						
		28.50 - 28.95	D						
		30.00		N=50 (25 for 65mm/50 for 50mm)					30
		30.00 - 30.45	D						
		31.50		N=50 (25 for 70mm/50 for 50mm)					31
		31.50 - 31.95	D						
		33.00		N=50 (25 for 60mm/50 for 35mm)					32
		33.00 - 33.45	B						
		33.00 - 33.45	D						
		34.50 - 34.95	D						33
									34
					35.00	16.20		End of borehole at 35.00 m	35
									36

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH02

Sheet 1 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385327.00 - 398967.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.30

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 1.20	B					MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.	1
		1.20 - 1.65	D	N=14 (2,2/3,4,3,4)	1.20	50.10		Firm brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	2
		2.00 - 2.45	D	N=14 (2,3/3,4,3,4)					3
		3.00 - 3.45	B	N=13 (2,2/3,3,3,4)					4
		3.00 - 3.45	D						5
		4.00 - 4.45	D	N=14 (2,2/3,3,4,4)					6
		5.00 - 5.45	D	N=9 (2,2/2,3,2,2)					7
		6.00 - 6.45	D	N=9 (2,2/2,2,3,2)					8
		7.50 - 7.95	UT		7.50	43.80		Firm brown sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	9
		8.00	D						10
		9.00 - 9.45	D	N=30 (6,6/6,6,8,10)	9.00	42.30		Stiff brown sandy slightly gravelly CLAY with bands of fine sand. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	11
		10.50 - 10.95	D	N=40 (5,5/6,11,12,11)					12
		12.00 - 12.45	UT		12.00	39.30		Continued on next sheet	

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH02

Sheet 2 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385327.00 - 398967.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

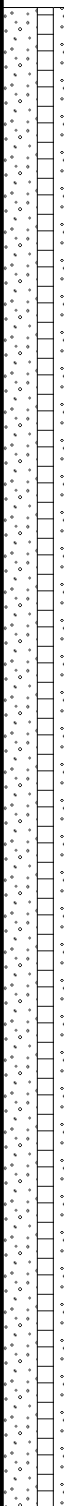
Level: 51.30

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		12.50 12.60	D D	N=50 (4,8/50 for 170mm)	12.60	38.70		Firm brown sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	13
								Brown clayey fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of sandstone, mudstone, quartz and limestone.	
		13.50 13.50 - 13.95 13.50 - 13.95	B D			13.50	37.80		14
								Stiff brown occasionally laminated slightly gravelly slightly sandy CLAY with some bands of sand. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	
		15.00 - 15.45	UT						15
		15.50	D						16
		16.50 16.50 - 16.95 17.10	D D	N=50 (25 for 115mm/50 for 155mm)	17.10	34.20			17
								Dense, brown silty fine to coarse SAND.	18
		18.00 18.00 - 18.45 18.60	D D		N=50 (3,3/50 for 265mm)	18.00 18.60	33.30 32.70		
								Very dense brown silty fine to coarse SAND.	19
		19.50 19.50 - 19.95 19.50 - 19.95	B D	N=45 (9,10/10,11,12,12)					
									Stiff laminated brown slightly sandy silty CLAY with some bands of sand and occasional silt partings.
		21.00 - 21.45	UT						
		21.50	D						22
22.30 22.50 22.50 - 22.95	D B	N=50 (25 for 40mm/50 for 125mm)	22.30	29.00			23		
								Very dense brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of sandstone, quartz, limestone and mudstone with low cobble and boulder content of subangular sandstone.	
Continued on next sheet									24

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH02

Sheet 3 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385327.00 - 398967.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.30

Scale
1:60

Client: Mace Group

Dates: 27/09/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		24.00		N=50 (10, 10/50 for 190mm)	26.80	24.50			25
		25.50		N=50 (25 for 30mm/50 for 40mm)					26
		26.00		N=50 (25 for 40mm/50 for 50mm)					
		26.80	D		28.50	22.80		Very dense reddish brown fine to coarse SAND.	27
		27.50		N=50 (25 for 40mm/50 for 30mm)					
		27.50 - 27.95 27.50 - 27.95	B D						28
		28.50		N=50 (25 for 40mm/50 for 20mm)	29	22.80		Very weak reddish brown SANDSTONE. Recovered as fine to coarse sand.	29
		28.50 - 28.95 28.50 - 28.95	B D						
		30.00		N=50 (25 for 30mm/50 for 20mm)					
		30.00 - 30.45	D		31	22.80			30
		31.50		N=50 (25 for 20mm/50 for 30mm)					
		31.50 - 31.95	D						31
		33.00		N=50 (25 for 30mm/50 for 20mm)	32	22.80			32
		33.00 - 33.45	D						
		34.50		N=50 (21 for 20mm/50 for 20mm)					
		34.50 - 34.95 34.50 - 34.95	B D		35.00	16.30		End of borehole at 35.00 m	35

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH03

Sheet 1 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385288.00 - 398937.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 01/10/2021 - 07/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.00 - 1.00	B	N=10 (1,2/2,2,3,3)	1.00 1.40	50.20 49.80		MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.	1	
	1.00 - 1.90	B					MADE GROUND: Concrete with reinforcement bar.			
	1.90 2.00 2.00 - 2.45	D D					Soft becoming firm brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	2		
	3.00 3.00 - 3.45 3.00 - 3.45	B D		N=13 (2,3/3,3,3,4)	3					
	4.00 4.00 - 4.45	D				N=8 (1,2/2,2,2,2)			4.00 47.20	
	5.00 5.00 - 5.45	D	N=8 (2,2/2,2,2,2)				5			
	6.00 - 6.45	UT		6						
	6.50	D			7					
	7.50 7.50 - 7.95 7.50 - 7.95	B D	N=24 (5,6/6,5,6,7)			7.50 43.70		Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	8	
	9.00 9.00 - 9.45	D		N=26 (6,6/6,7,6,7)						9
	10.50 - 10.95	UT			10.50 40.70					
	11.00	D	11.50 39.70				Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of	12		
	11.50	D								

Continued on next sheet

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH03

Sheet 2 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385288.00 - 398937.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 01/10/2021 - 07/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
		12.00	D	N=58 (10,12/12,13,15,18)	14.10	37.10		sandstone, limestone and mudstone.	13						
		12.00 - 12.45													
		13.50	D	N=50 (10,10/50 for 180mm)			16.50	34.70		Stiff laminated brown slightly sandy silty CLAY with some bands of sand.	14				
		13.50 - 13.95													
		14.10	D	N=50 (11,11/50 for 150mm)					18.00	33.20		Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	15		
		15.00													
		15.00 - 15.45	D		N=50 (25 for 85mm/50 for 115mm)	19.50					20		Stiff laminated brown slightly sandy silty CLAY with some bands of sand.	16	
		16.50													
		16.50 - 16.95	D				N=50 (12,12/50 for 235mm)	21				22		Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	17
		18.00													
		18.00 - 18.45	D	N=50 (25 for 95mm/50 for 165mm)					22.50	28.70				Stiff laminated brown slightly sandy silty CLAY with some bands of sand.	18
		19.50													
		19.50 - 19.95	B		N=50 (25 for 50mm/50 for 105mm)	24.00					27.20			Very dense brown silty fine to coarse SAND.	19
		19.50 - 19.95	D												
		21.00	D				N=50 (25 for 50mm/50 for 105mm)	22.50				28.70		Very dense brown silty fine to coarse SAND.	20
		21.00 - 21.45													
		22.50 - 22.95	D	N=50 (25 for 50mm/50 for 105mm)					24.00	27.20				Very dense brown silty fine to coarse SAND.	21
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20						Very dense brown silty fine to coarse SAND.		22		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	23		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	24		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	25		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	26		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	27		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	28		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	29		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	30		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	31		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	32		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	33		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	34		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	35		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	36		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	37		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	38		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	39		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	40		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	41		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	42		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	43		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	44		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	45		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	46		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	47		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	48		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	49		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	50		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	51		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	52		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	53		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	54		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	55		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	56		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	57		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	58		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	59		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	60		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	61		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	62		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	63		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	64		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	65		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	66		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	67		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	68		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	69		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	70		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	71		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	72		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	73		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	74		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	75		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	76		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	77		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	78		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	79		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	80		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	81		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	82		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	83		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	84		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	85		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	86		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	87		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	88		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	89		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	90		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	91		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	92		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	93		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	94		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	95		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	96		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	97		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	98		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	99		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	100		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	101		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	102		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	103		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	104		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	105		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	106		
						N=50 (25 for 50mm/50 for 105mm)	24.00	27.20				Very dense brown silty fine to coarse SAND.	107		
				N=50 (25 for 50mm/50 for 105mm)					24.00	27.20		Very dense brown silty fine to coarse SAND.	108		
		N=50 (25 for 50mm/50 for 105mm)	24.00		27.20							Very dense brown silty fine to coarse SAND.	109		

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH03

Sheet 3 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385288.00 - 398937.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.20

Scale
1:60

Client: Mace Group

Dates: 01/10/2021 - 07/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		24.00		N=50 (25 for 30mm/50 for 20mm)				Very weak reddish brown SANDSTONE. Recovered as fine to coarse sand.	25
		24.00 - 24.45	B						
		24.00 - 24.45	D						
		25.50		N=50 (25 for 20mm/50 for 20mm)					26
		25.50 - 25.95	D						
		27.00		N=50 (25 for 30mm/50 for 20mm)					27
		27.00 - 27.45	D						
		28.50		N=50 (25 for 20mm/50 for 30mm)					28
		28.50 - 28.95	D						
		30.00		N=50 (25 for 20mm/50 for 20mm)					30
		30.00 - 30.45	D						
		30.00 - 30.50	B						31
		31.50		N=50 (25 for 30mm/50 for 20mm)					32
		31.50 - 31.95	D						
		33.00		N=50 (25 for 30mm/50 for 20mm)					33
		33.00 - 33.45	D						
		34.50		N=50 (25 for 20mm/50 for 20mm)					34
		34.50 - 34.95	D						
					35.00	16.20		End of borehole at 35.00 m	35
									36

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH04

Sheet 1 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385283.00 - 398988.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.60

Scale
1:60

Client: Mace Group

Dates: 07/10/2021 - 14/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 1.00	B					MADE GROUND: Soft dark brown slightly sandy gravelly SILT with high angular cobble and boulder content of concrete and brick. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, metal and plastic fragments.	
		1.00	D	N=11 (2,2/2,3,3,3)	1.00	50.60		Firm brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.	1
		1.20	D						
		1.20 - 1.65	D						
		2.00		N=11 (2,3/2,3,3,3)					2
		2.00 - 2.45	B						
		2.00 - 2.45	D						
		3.00		N=13 (2,3/3,4,3,3)					3
		3.00 - 3.45	D						
		4.00		N=12 (2,3/3,2,3,4)					4
		4.00 - 4.45	D						
		5.00		N=13 (2,3/3,3,3,4)					5
		5.00 - 5.45	D						
		6.00 - 6.45	UT						6
		6.50	D						7
		7.50		N=14 (2,3/4,3,3,4)					8
		7.50 - 7.95	D						
		9.00		N=13 (2,3/3,3,4,3)	9.00	42.60		Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	9
		9.00 - 9.45	D						
		10.50		N=14 (3,3/4,3,3,4)					10
		10.50 - 10.95	D						
		11.10	D		11.10	40.50		Brown clayey fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of sandstone, mudstone, quartz and limestone.	11
		12.00		N=31 (5,6/5,8,8,10)	12.00	39.60			12

Continued on next sheet

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH04

Sheet 2 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385283.00 - 398988.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.60

Scale
1:60

Client: Mace Group

Dates: 07/10/2021 - 14/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		12.00 - 12.45	D		16.00	35.60		Dense becoming very dense brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subrounded of mudstone, sandstone, limestone and quartz.	13
		14.00	D						14
		15.00		N=50 (25 for 20mm/50 for 30mm)					15
		15.00 - 15.45	D						15
		16.50		N=60 (10,12/60 for 245mm)	19.50	32.10		Stiff brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone, quartz and mudstone.	16
		16.50 - 16.95	B						17
		16.50 - 16.95	D						17
		18.00		N=50 (12,12/50 for 170mm)					18
		18.00 - 18.45	D						19
		19.50		N=48 (10,11/10,12,13,13)	22.00	29.60		Very dense brown slightly gravelly silty clayey fine to coarse SAND. Gravel is angular to subrounded of mudstone, sandstone, quartz and occasional coal fragments.	20
		19.50 - 19.95	B						21
		19.50 - 19.95	D						21
		21.00		N=50 (9,12/50 for 180mm)					22
		21.00 - 21.45	D						22
		22.00	D		22.00	29.60		Stiff brown occasionally laminated slightly sandy silty CLAY with occasional silt partings.	23
		22.50		N=50 (25 for 105mm/50 for 160mm)					23
		22.50 - 22.95	D						24

Continued on next sheet

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Borehole Log

Borehole No.

BH04

Sheet 3 of 3

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385283.00 - 398988.00

Hole Type
CP

Location: Rodney Street, Manchester, M4 6JJ

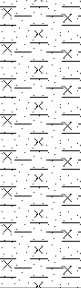
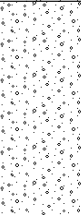
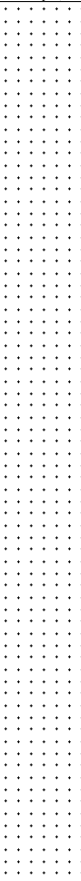
Level: 51.60

Scale
1:60

Client: Mace Group

Dates: 07/10/2021 - 14/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		24.00 24.00 - 24.45	D	N=50 (25 for 50mm/50 for 115mm)	26.30	25.30			25
		26.50 26.50 - 26.95	B	N=38 (9,9/9,10,9,10)					26
		28.00 28.00 - 28.45	D	N=50 (10,12/50 for 240mm)	28.00	23.60		Very dense brown subangular to subrounded fine to coarse sandy GRAVEL of sandstone, quartz, limestone and mudstone.	27
		29.50 29.50 - 29.95	D	N=50 (11,14/50 for 200mm)					28
		31.00 31.00 - 31.45	D	N=50 (7,9/50 for 215mm)	35.00	16.60		Very weak reddish brown SANDSTONE. Recovered as fine to coarse sand.	29
		32.50 32.50 - 32.95	D	N=50 (10,10/50 for 190mm)					30
		34.00 34.00 - 34.50	D	N=50 (15,15/50 for 45mm)					31
									32
								End of borehole at 35.00 m	33
									34
									35
									36

Remarks

Cable percussion hole terminated at target depth of 35.00m.





Trial Pit Log

Trialpit No

TP01

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

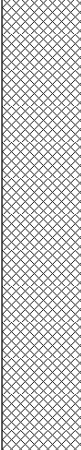
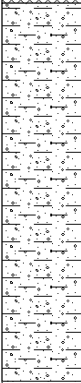
Project No.
UK21.5551Co-ords: 385277.00 - 398994.00
Level: 51.70Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.10Scale
1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.50	ES	PID=0	0.60	51.10		MADE GROUND: Soft dark brown slightly sandy gravelly SILT with high angular cobble and boulder content of concrete and brick. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, metal and plastic fragments. <i>At 0.50m, Clay pipe encountered orientated north to south.</i>
	0.80 - 1.00	B	HVP=118				Firm becoming stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.
	1.10	D	HVP=166	1.10	50.60		End of pit at 1.10 m

1

2

Remarks: Trial pit terminated at 1.10m due to encountering natural strata. No groundwater encountered.

Stability:





Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

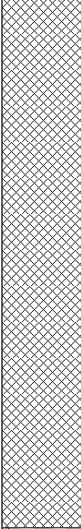
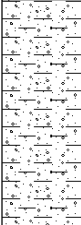
Project No.
UK21.5551Co-ords: 385296.00 - 398991.00
Level: 51.70Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.00Scale
1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 - 0.60	ES	PID=0	0.70	51.00		MADE GROUND: Soft dark brown slightly sandy gravelly SILT with high angular cobble and boulder content of concrete and brick. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, metal and plastic fragments. <i>At 0.20m, Copper pipe and plastic pipe encountered orientated north to south.</i> <i>At 0.40m, Electric cable encountered orientated east to west.</i>
			HVP=174				Stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. <i>At 0.80m, Clay pipe encountered orientated north to south.</i>
			HVP=184	1.00	50.70		End of pit at 1.00 m

1

2

Remarks: Trial pit terminated at 1.00m due to encountering natural strata. No groundwater encountered.

Stability:





Trial Pit Log

Trialpit No

TP03

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

Project No.
UK21.5551Co-ords: 385292.00 - 398973.00
Level: 51.50Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.20

Scale

1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	ES	PID=0	0.30	51.20		MADE GROUND: Soft dark brown slightly sandy gravelly SILT with high angular cobble and boulder content of concrete and brick. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, metal and plastic fragments.
				0.40	51.10		MADE GROUND: Beige sandy clayey angular to subangular fine to coarse gravel of limestone with low cobble content of subangular limestone.
				0.60	50.90		MADE GROUND: Soft dark brown slightly sandy gravelly SILT with high angular cobble and boulder content of concrete and brick and some pockets of brown sandy clay. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, metal and plastic fragments.
	0.80 - 0.90	ES	HVP=151				Stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.
	1.00 1.00 - 1.20	D B	HVP=161 HVP=171	1.20	50.30		End of pit at 1.20 m

1

2

Remarks: Trial pit terminated at 1.20m due to encountering natural strata. no groundwater encountered.

Stability:







Trial Pit Log

Trialpit No

TP05

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

Project No.
UK21.5551

Co-ords: 385319.00 - 398925.00

Level: 51.20

Date

27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

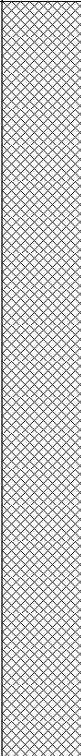
Dimensions
(m):Depth
1.00

Scale

1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 - 0.60	ES	PID=0	1.00	50.20		MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.
							End of pit at 1.00 m

1

2

Remarks: Trial pit terminated at 1.00m due to encountering concrete slab. No groundwater encountered.

Stability:







Trial Pit Log

Trialpit No

TP07

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

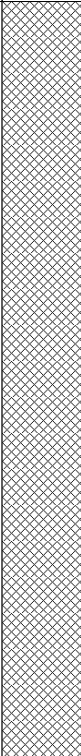
Project No.
UK21.5551Co-ords: 385322.00 - 398940.00
Level: 51.20Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.00Scale
1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
			PID=0	1.00	50.20		MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.	1
							End of pit at 1.00 m	2

Remarks: Trial pit terminated at 1.00m due to encountering concrete slab. No groundwater encountered.

Stability:





Trial Pit Log

Trialpit No

TP08

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

Project No.
UK21.5551

Co-ords: 385313.00 - 398943.00

Level: 51.30

Date

27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

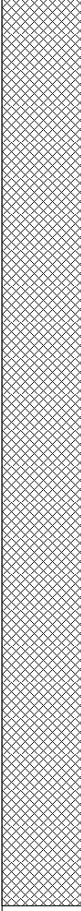
Dimensions
(m):Depth
1.20

Scale

1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.50	ES		1.20	50.10		MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments. <u>At 0.20m, Flagstone set in concrete in the north face of the trial pit.</u> <u>From 0.30m to 1.20m, Two brick walls were encountered. One 0.60m from the north face of the trial pit and one 1.10m from the south face of the pit.</u> <u>At 1.20m, Concrete slab encountered across the base of the trial pit.</u> End of pit at 1.20 m

1

2

Remarks: Trial pit terminated at 1.20m due to encountering concrete slab. No groundwater encountered.

Stability:





Trial Pit Log

Trialpit No

TP09

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

Project No.
UK21.5551Co-ords: 385298.00 - 398940.00
Level: 51.25Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.10Scale
1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
			PID=0				MADE GROUND: Brown ashy sandy gravelly angular brick and concrete boulders and cobbles with steel rods and timber. Gravel is angular to subangular fine to coarse of ceramic, brick, concrete, plastic and glass fragments.	
				1.10	50.15		End of pit at 1.10 m	1
								2

Remarks: Trial pit terminated at 1.10m due to encountering concrete slab. No groundwater encountered.

Stability:





Trial Pit Log

Trialpit No

TP10

Sheet 1 of 1

Project Name: Land Off Rodney Street, Manchester

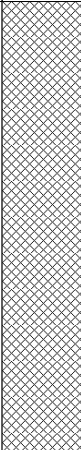
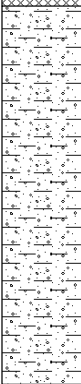
Project No.
UK21.5551Co-ords: 385294.00 - 398951.00
Level: 51.20Date
27/09/2021

Location: Rodney Street, Manchester, M4 6JJ

Dimensions
(m):Depth
1.10Scale
1:10

Logged

Client: Mace Group

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.60	50.60		MADE GROUND: Soft dark brown slightly sandy gravelly SILT with low angular cobble and boulder content of concrete and brick. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass and plastic fragments.
	0.90 - 1.10	B	HVP=151				Stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of sandstone, limestone and mudstone.
	1.10	D	HVP=171	1.10	50.10		End of pit at 1.10 m

1

2

Remarks: Trial pit terminated at 1.10m due to encountering natural strata. No groundwater encountered.

Stability:





Borehole Log

Borehole No.

WS01A

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385280.00 - 398964.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.60

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	51.30		MADE GROUND: Firm brown slightly gravelly silty sandy clay. Gravel is angular to subrounded fine to medium of brick and glass fragments.	
					0.30	51.30		MADE GROUND: Concrete. End of borehole at 0.30 m	
									1
									2
									3
									4
									5
									6

Remarks

Window sampler borehole terminated at 0.30m due to the presence of concrete. Unable to break using CPT. No groundwater encountered.





Borehole Log

Borehole No.

WS01B

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385280.00 - 398973.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.70

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35	51.35		MADE GROUND: Firm brown slightly gravelly silty sandy clay. Gravel is angular to subrounded fine to medium of brick, concrete, glass and ceramic fragments.	
					0.35	51.35		MADE GROUND: Concrete. End of borehole at 0.35 m	

1

2

3

4

5

6

Remarks

Window sampler borehole terminated at 0.35m due to the presence of concrete. Unable to break with CPT. No groundwater encountered.





Borehole Log

Borehole No.

WS01C

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385286.00 - 398961.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.60

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	ES		0.30	51.30		MADE GROUND: Soft brown silty sandy gravelly silt. Gravel is angular to subangular fine to coarse of brick, concrete and wire fragments.	
					0.50	51.10		MADE GROUND: Brown sandy gravelly angular to subangular brick and concrete cobbles. Gravel is angular to subangular fine to medium of ceramic, brick, concrete, glass and metal gravel.	
		0.80 - 1.00	D	HVP=176				Firm becoming stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded medium to coarse of sandstone, quartz and limestone.	1
		1.00		N=14 (2,2/3,3,4,4)					
		1.00 - 1.50	ES						
				HVP=202					
		1.80 - 2.00	D						
		2.00		HVP=202 N=16 (3,3/3,4,4,5) HVP=202					2
		2.80 - 3.00	D						
		3.00		HVP=202 N=14 (3,3/3,3,4,4)					3
		3.80 - 4.00	D					<i>Below 3.80m, Occasionally laminated.</i>	
		4.00		N=23 (3,3/4,5,6,8)				<i>Below 4.00m, Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and mudstone. Silty.</i>	4
		4.80 - 5.00	D						
		5.00		HVP=202 N=31 (3,5/7,8,8,8)	5.00	46.60		End of borehole at 5.00 m	5
									6

Remarks

Window sampler borehole terminated at 5.00m due to barrel refusal. No groundwater encountered.





Borehole Log

Borehole No.

WS02A

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385271.00 - 399003.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 52.00

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	51.80		MADE GROUND: Firm brown slightly gravelly sandy silty clay. Gravel is angular to subangular fine to medium of brick and metal fragments.	
					0.40	51.60		MADE GROUND: Beige sandy clayey angular to subangular fine to coarse gravel of limestone with low cobble content of subangular limestone. <i>At 0.40m, Clay pipe encountered in the hand pit.</i> End of borehole at 0.40 m	
									1
									2
									3
									4
									5
									6

Remarks

Window sampler borehole terminated at 0.40m due to the presence of a buried clay pipe (thought to be disused)





Borehole Log

Borehole No.

WS02B

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385274.00 - 399000.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.90

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.40	ES		0.40	51.50		MADE GROUND: Firm dark brown silty sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick, metal and glass fragments.	
		0.80 - 1.00	D	HVP=159	0.60	51.30		MADE GROUND: Greyish brown sandy clayey angular to subangular fine to coarse gravel of limestone, brick and concrete with low cobble content of subangular limestone.	
		1.00		N=14 (1,2/3,3,4,4)				Firm to stiff occasionally laminated brown slightly sandy slightly gravelly CLAY with some sand partings. Gravel is subangular to subrounded fine to coarse of sandstone, mudstone, quartz and limestone.	1
		1.00 - 1.50	ES	HVP=202					
		1.20	D					Between 0.60m and 3.00m, Mottled blueish grey.	
				HVP=202					
		2.00		N=28 (2,4/5,7,8,8)					2
		2.80 - 3.00	D						
		3.00		N=20 (3,4/4,5,5,6)					3
		3.50 - 3.80	ES	HVP=125					
		3.80 - 4.00	D	HVP=193					
		4.00		N=14 (2,3/3,3,4,4)				Between 4.00m to 4.45m, Firm.	4
		4.80 - 5.00	D	HVP=190 HVP=202					
		5.00		N=21 (3,3/4,5,6,6)				Below 5.00m, Silty.	5
		5.00 - 5.60	ES	HVP=200 HVP=199 HVP=184 HVP=202					
		5.80 - 6.00	D		6.00	45.90		End of borehole at 6.00 m	6

Remarks

Window sampler borehole terminated at target depth of 6.00m. Groundwater seepage encountered at 0.60m - resting at 2.00m.





Borehole Log

Borehole No.

WS03A

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385329.00 - 398988.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.70

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	51.40		MADE GROUND: Firm dark brown silty sandy gravelly clay. Gravel is angular to subrounded fine to coarse of brick, concrete, glass and metal fragments. <i>At 0.30m, Boulder encountered.</i> End of borehole at 0.30 m	1 2 3 4 5 6

Remarks

Window sampler borehole terminated at 0.30m due to the presence of a boulder obstructing the hand pit.





Borehole Log

Borehole No.

WS03B

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385329.00 - 398985.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

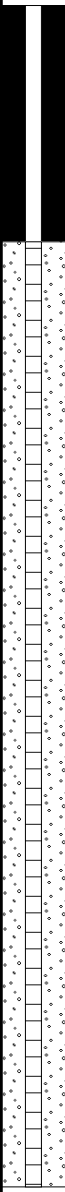
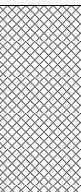
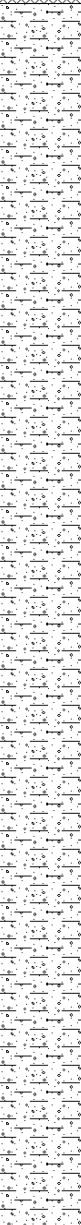
Level: 51.70

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.50	ES		0.80	50.90		MADE GROUND: Firm dark brown silty sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick, concrete, ceramic, glass, and plastic fragments.	
		1.00		N=14 (2,2/2,3,4,5) HVP=202 HVP=202 HVP=170				Firm becoming stiff brown occasionally mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and mudstone.	1
		2.00 2.00 - 2.20 2.00 - 2.50	D ES	N=14 (2,2/2,3,4,5) HVP=184 HVP=202 HVP=202 N=20 (4,4/4,5,5,6) HVP=190 HVP=196					2
		3.00		HVP=202 N=20 (4,4/4,5,5,6) HVP=190 HVP=196					3
		4.00		HVP=202 N=22 (3,3/4,5,7,6)					4
		5.00 5.00 - 5.20	D	N=16 (3,3/4,4,4,4) HVP=159					5
		6.00		N=20 (3,4/4,5,5,6)	6.00	45.70		End of borehole at 6.00 m	6

Remarks

Window sampler borehole terminated at target depth of 6.00m. No groundwater encountered.





Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385352.00 - 398937.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.30

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20	51.10		MADE GROUND: Firm dark brown slightly sandy slightly gravelly silty clay. Gravel is angular to subangular fine to coarse of brick and glass fragments.	1
		0.50 - 1.00	ES					MADE GROUND: Grey gravelly slightly clayey sand. Gravel is angular to subangular fine to coarse of brick, concrete, glass, ceramic and metal fragments.	
		1.00		N=5 (1,1/1,1,1,2)					
		1.30			1.30	50.00		MADE GROUND: Beige sandy angular to subangular fine to coarse gravel of limestone.	
		1.40			1.40	49.90		Firm becoming stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and mudstone.	2
		2.00		N=19 (1,5/7,4,3,5)				Between 1.40 to 2.00m, Poor recovery.	
		2.50 - 2.80	ES						
		2.80 - 3.00	D						
		3.00		N=34 (8,8/8,8,9,9)	3.00	48.30		End of borehole at 3.00 m	
									3
									4
									5
									6

Remarks

Window sampler borehole terminated at 3.00m due to barrel refusal. No groundwater encountered.





Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: Land Off Rodney Street,
ManchesterProject No.
UK21.5551

Co-ords: 385295.00 - 398931.00

Hole Type
WLS

Location: Rodney Street, Manchester, M4 6JJ

Level: 51.10

Scale
1:32

Client: Mace Group

Dates: 01/10/2021 - 01/10/2021

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.50	ES		0.20	50.90		TOPSOIL: Firm dark brown slightly gravelly sandy silty clay. Gravel is angular to subrounded fine to medium of sandstone.	
		1.00		N=14 (2,3/3,3,4,4)				MADE GROUND: Firm dark grey sandy gravelly clay with medium cobble content of angular brick and concrete. Gravel is angular to subangular fine to coarse of brick and concrete.	1
		1.50 - 1.80 1.50 - 2.00	ES D		1.40	49.70		Firm becoming stiff brown mottled blueish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and mudstone.	
		2.00		N=16 (3,3/4,4,4,4)					2
		2.80 - 3.00 3.00	D	N=26 (4,5/5,6,7,8)	3.00	48.10		End of borehole at 3.00 m	3
									4
									5
									6

Remarks

Window sampler borehole terminated at 3.00m due to barrel refusal. No groundwater encountered.



APPENDIX D

Laboratory Results – Environmental

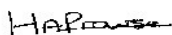
EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN



Attention : Jack Johnson
Date : 6th October, 2021
Your reference : UK21.5551
Our reference : Test Report 21/15202 Batch 1 Schedule A
Location : Land Off Rodney Street, Manchester
Date samples received : 29th September, 2021
Status : Final Report
Issue : 1

Eight samples were received for analysis on 29th September, 2021 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Hayley Prowse
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson
EMT Job No: 21/15202

Report : Solid

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

EMT Sample No.	1-3	4-5	9	10-11	12-14	18					Please see attached notes for all abbreviations and acronyms		
Sample ID	TP01	TP02	TP03	TP04	TP06	TP10							
Depth	0.40-0.50	0.50-0.60	1.00	0.20-0.30	0.50-0.60	1.10							
COC No / misc													
Containers	V J T	V J	B	V J	V J T	B							
Sample Date	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021							
Sample Type	Clay	Clay	Clay	Clayey Sand	Clay	Clay							
Batch Number	1	1	1	1	1	1							
Date of Receipt	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021					LOD/LOR	Units	Method No.
Arsenic ^{#M}	-	-	-	27.2	66.4	-					<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	-	-	-	3.1	3.1	-					<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	-	-	-	61.9	89.4	-					<0.5	mg/kg	TM30/PM15
Copper ^{#M}	-	-	-	87	124	-					<1	mg/kg	TM30/PM15
Lead ^{#M}	-	-	-	195	458	-					<5	mg/kg	TM30/PM15
Mercury ^{#M}	-	-	-	0.5	0.2	-					<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	-	-	-	32.5	24.6	-					<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	-	-	-	<1	<1	-					<1	mg/kg	TM30/PM15
Sulphur as S	-	-	0.01	-	-	<0.01					<0.01	%	TM30/PM15
Total Sulphate as SO4 ^{#M}	-	-	146	851	5478	64					<50	mg/kg	TM50/PM29
Zinc ^{#M}	-	-	-	244	451	-					<5	mg/kg	TM30/PM15
Arsenic	10.2	26.9	-	-	-	-					<0.5	mg/kg	TM30/PM62
Cadmium	0.5	0.6	-	-	-	-					<0.1	mg/kg	TM30/PM62
Chromium	17.2	32.2	-	-	-	-					<0.5	mg/kg	TM30/PM62
Copper	130	74	-	-	-	-					<1	mg/kg	TM30/PM62
Lead	121	155	-	-	-	-					<5	mg/kg	TM30/PM62
Mercury	<0.1	0.4	-	-	-	-					<0.1	mg/kg	TM30/PM62
Nickel	22.8	32.6	-	-	-	-					<0.7	mg/kg	TM30/PM62
Selenium	<1	<1	-	-	-	-					<1	mg/kg	TM30/PM62
Total Sulphate as SO4	598	1028	-	-	-	-					<50	mg/kg	TM50/PM129
Zinc	118	157	-	-	-	-					<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene ^{#M}	34.40 ^{AA}	0.09	-	0.20	0.07	-					<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.76 ^{AA}	0.05	-	<0.03	0.05	-					<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	26.12 ^{AA}	0.12	-	0.31	0.09	-					<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	16.90 ^{AA}	0.09	-	0.21	0.07	-					<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	120.08 ^{AA}	1.11	-	1.85	0.88	-					<0.03	mg/kg	TM4/PM8
Anthracene [#]	24.56 ^{AA}	0.32	-	0.44	0.28	-					<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	92.08 ^{AA}	2.53	-	2.02	1.71	-					<0.03	mg/kg	TM4/PM8
Pyrene [#]	76.15 ^{AA}	2.31	-	1.81	1.51	-					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	34.10 ^{AA}	1.27	-	1.17	0.98	-					<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	40.05 ^{AA}	1.46	-	1.10	1.10	-					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	52.83 ^{AA}	2.33	-	1.50	1.86	-					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	29.16 ^{AA}	1.37	-	0.87	1.11	-					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	16.48 ^{AA}	0.85	-	0.54	0.76	-					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	3.05 ^{AA}	0.16	-	0.13	0.15	-					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	16.36 ^{AA}	0.91	-	0.55	0.74	-					<0.04	mg/kg	TM4/PM8
PAH 16 Total	583.1 ^{AA}	15.0	-	12.7	11.4	-					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	38.04 ^{AA}	1.68	-	1.08	1.34	-					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	14.79 ^{AA}	0.65	-	0.42	0.52	-					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88 ^{AA}	92	-	90	91	-					<0	%	TM4/PM8

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson
EMT Job No: 21/15202

Report : Solid

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

EMT Sample No.	1-3	4-5	9	10-11	12-14	18					Please see attached notes for all abbreviations and acronyms		
Sample ID	TP01	TP02	TP03	TP04	TP06	TP10							
Depth	0.40-0.50	0.50-0.60	1.00	0.20-0.30	0.50-0.60	1.10							
COC No / misc													
Containers	V J T	V J	B	V J	V J T	B							
Sample Date	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021							
Sample Type	Clay	Clay	Clay	Clayey Sand	Clay	Clay							
Batch Number	1	1	1	1	1	1							
Date of Receipt	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) ^{#M}	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) ^{#M}	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) ^{#M}	<0.2	<0.2	-	<0.2	<0.2	-					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) ^{#M}	<4	<4	-	<4	<4	-					<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) ^{#M}	<7	<7	-	<7	<7	-					<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) ^{#M}	34	<7	-	<7	<7	-					<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	<7	-	<7	<7	-					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	34	<26	-	<26	<26	-					<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 (HS_1D_AR) [#]	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) [#]	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) ^{#M}	<0.1	<0.1 ^{SV}	-	<0.1 ^{SV}	<0.1 ^{SV}	-					<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) [#]	<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	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) [#]	40	35	-	35	<7	-					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) [#]	189	117	-	137	211	-					<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	21	<7	-	13	45	-					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	250	152	-	185	256	-					<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	284	152	-	185	256	-					<52	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
Benzene [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
Toluene [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
Ethylbenzene [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
m/p-Xylene [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
o-Xylene [#]	<5	<5 ^{SV}	-	<5 ^{SV}	<5 ^{SV}	-					<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	-	<0.15	<0.15	-					<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	17.3	23.4	-	34.1	32.7	-					<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	<0.3	-	<0.3	<0.3	-					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) ^{#M}	-	-	0.0490	0.0738	1.4099	0.0070					<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	0.0639	0.1074	-	-	-	-					<0.0015	g/l	TM38/PM60
Chromium III	-	-	-	61.9	89.4	-					<0.5	mg/kg	NONE/NONE
Chromium III	17.2	32.2	-	-	-	-					<0.5	mg/kg	NONE/NONE
Total Cyanide ^{#M}	<0.5	<0.5	-	<0.5	2.3	-					<0.5	mg/kg	TM89/PM45
Organic Matter	NDP	NDP	-	11.3	5.1	-					<0.2	%	TM21/PM24
Organic Matter	5.1	9.2	-	-	-	-					<0.2	%	TM21/PM89

Matrix : Solid

5 of 14

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

[illegible]

Matrix : Solid

[illegible]

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson

[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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/15202

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

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

EMT Job No: 21/15202

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°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
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	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	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
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	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	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

EMT Job No: 21/15202

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
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, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	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, March 2012 v4.	PM89	Preparation of positive asbestos samples for Eltra analysis			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. 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 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			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.			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.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	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), NH ₄ ⁺ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	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	Yes	AD	Yes

EMT Job No: 21/15202

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.	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	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM129	A hot hydrochloric acid digest is performed on an as received sample, and the resulting liquor is analysed.			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	Yes	AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	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.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN



Attention : Jack Johnson
Date : 21st October, 2021
Your reference : UK21.5551
Our reference : Test Report 21/15202 Batch 1 Schedule B
Location : Land Off Rodney Street, Manchester
Date samples received : 29th September, 2021
Status : Final report
Issue : 2

Eight samples were received for analysis on 29th September, 2021 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson
EMT Job No: 21/15202

Report : Solid

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

EMT Sample No.	6-8	15-17									Please see attached notes for all abbreviations and acronyms		
Sample ID	TP03	TP08											
Depth	0.80-0.90	0.40-0.50											
COC No / misc													
Containers	V J T	V J T											
Sample Date	27/09/2021	27/09/2021											
Sample Type	Clay	Clayey Sand											
Batch Number	1	1											
Date of Receipt	29/09/2021	29/09/2021									LOD/LOR	Units	Method No.
Arsenic ^{#M}	16.7	-									<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	0.3	-									<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	45.4	-									<0.5	mg/kg	TM30/PM15
Copper ^{#M}	42	-									<1	mg/kg	TM30/PM15
Lead ^{#M}	143	-									<5	mg/kg	TM30/PM15
Mercury ^{#M}	<0.1	-									<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	35.8	-									<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	<1	-									<1	mg/kg	TM30/PM15
Zinc ^{#M}	91	-									<5	mg/kg	TM30/PM15
Arsenic	-	41.8									<0.5	mg/kg	TM30/PM62
Cadmium	-	0.5									<0.1	mg/kg	TM30/PM62
Chromium	-	53.6									<0.5	mg/kg	TM30/PM62
Copper	-	81									<1	mg/kg	TM30/PM62
Lead	-	413									<5	mg/kg	TM30/PM62
Mercury	-	0.1									<0.1	mg/kg	TM30/PM62
Nickel	-	15.2									<0.7	mg/kg	TM30/PM62
Selenium	-	<1									<1	mg/kg	TM30/PM62
Zinc	-	254									<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene ^{#M}	0.30	<0.04									<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.18	<0.03									<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	0.48	<0.05									<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	0.48	<0.04									<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	3.94	0.20									<0.03	mg/kg	TM4/PM8
Anthracene [#]	1.06	0.06									<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	6.65	0.41									<0.03	mg/kg	TM4/PM8
Pyrene [#]	6.52	0.38									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	2.97	0.24									<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	3.36	0.23									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	5.72	0.46									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	3.51	0.24									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	1.83	0.15									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	0.41	<0.04									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	2.22	0.19									<0.04	mg/kg	TM4/PM8
Coronene	0.32	<0.04									<0.04	mg/kg	TM4/PM8
PAH 16 Total	39.6	2.6									<0.6	mg/kg	TM4/PM8
PAH 17 Total	39.95	2.56									<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	4.12	0.33									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	1.60	0.13									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	125	120									<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	388	187									<30	mg/kg	TM5/PM8/PM16

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson
EMT Job No: 21/15202

Report : Solid

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

EMT Sample No.	6-8	15-17									Please see attached notes for all abbreviations and acronyms		
Sample ID	TP03	TP08											
Depth	0.80-0.90	0.40-0.50											
COC No / misc													
Containers	V J T	V J T											
Sample Date	27/09/2021	27/09/2021											
Sample Type	Clay	Clayey Sand											
Batch Number	1	1											
Date of Receipt	29/09/2021	29/09/2021									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) ^{#M}	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) ^{#M}	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) ^{#M}	6.2	<0.2									<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) ^{#M}	114	<4									<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) ^{#M}	210	16									<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) ^{#M}	58	171									<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	<7									<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	388	187									<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 (HS_1D_AR) [#]	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) [#]	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) ^{#M}	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) [#]	<0.2	<0.2									<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) [#]	35	<4									<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) [#]	175	16									<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) [#]	252	239									<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	16	46									<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	478	301									<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics (C5-40) (EH+HS_CU_1D_Total)	866	488									<52	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
Benzene [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
Toluene [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
Ethylbenzene [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
m/p-Xylene [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
o-Xylene [#]	<5	<5 ^{SV}									<5	ug/kg	TM36/PM12
PCB 28 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 52 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 101 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 118 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 138 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 153 [#]	<5	<5									<5	ug/kg	TM17/PM8
PCB 180 [#]	<5	<5									<5	ug/kg	TM17/PM8
Total 7 PCBs [#]	<35	<35									<35	ug/kg	TM17/PM8
Natural Moisture Content	19.9	26.6									<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	<1.5 ^{AA}									<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) ^{#M}	0.1321	-									<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	0.2185									<0.0015	g/l	TM38/PM60

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson
EMT Job No: 21/15202

Report : Solid

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

[illegible]

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	20.7
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	82.8
Particle Size <4mm =	>95%		
EMT Job No	21/15202	Landfill Waste Acceptance Criteria Limits	
Sample No	8		
Client Sample No	TP03		
Depth/Other	0.80-0.90		
Sample Date	27/09/2021		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	2.30	3	5
Loss on Ignition (%)	4.6	-	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)	388	500	-
PAH Sum of 17(mg/kg)	39.95	100	-
pH (pH Units)	8.02	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	0.0030	0.030	0.5
Barium	0.022	0.22	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	0.007	0.07	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	0.3	<3	800
Fluoride	0.9	9	10
Sulphate as SO ₄	24.1	241	1000
Total Dissolved Solids	105	1050	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	<2	<20	500

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	26.4
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	79.1
Particle Size <4mm =	>95%		
EMT Job No	21/15202	Landfill Waste Acceptance Criteria Limits	
Sample No	17		
Client Sample No	TP08		
Depth/Other	0.40-0.50		
Sample Date	27/09/2021		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	NDP	3	5
Loss on Ignition (%)	NDP	-	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)	187	500	-
PAH Sum of 17(mg/kg)	2.56	100	-
pH (pH Units)	7.56	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	0.0240	0.240	0.5
Barium	0.058	0.58	20
Cadmium	<0.0005	<0.005	0.04
Chromium	0.0070	0.070	0.5
Copper	0.008	0.08	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	0.004	0.04	4
Chloride	<0.3	<3	800
Fluoride	0.6	6	10
Sulphate as SO ₄	64.9	649	1000
Total Dissolved Solids	161	1610	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	2	<20	500

Matrix : Solid

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Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/15202	1	TP03	0.80-0.90	7	01/10/2021	General Description (Bulk Analysis)	Soil/Stones
					01/10/2021	Asbestos Fibres	NAD
					01/10/2021	Asbestos ACM	NAD
					01/10/2021	Asbestos Type	NAD
					01/10/2021	Asbestos Level Screen	NAD
21/15202	1	TP08	0.40-0.50	16	01/10/2021	General Description (Bulk Analysis)	soil
					01/10/2021	Asbestos Fibres	Fibre Bundles
					01/10/2021	Asbestos ACM	ACM Debris
					01/10/2021	Asbestos Type	Amosite
					01/10/2021	Asbestos Level Screen	Asbestos level cannot be determined from Screen. Quantification required.
					21/10/2021	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					21/10/2021	Total Detailed Gravimetric Quantification (% Asb)	0.016 (mass %)
					21/10/2021	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.016 (mass %)
					21/10/2021	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					21/10/2021	Asbestos Gravimetric & PCOM Total	0.016 (mass %)

Matrix : Solid

9 of 17

Client Name: EPS Ltd
Reference: UK21.5551
Location: Land Off Rodney Street, Manchester
Contact: Jack Johnson

[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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/15202

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

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: 21/15202

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S 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°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
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	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	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
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	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	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

EMT Job No: 21/15202

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
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM89	Preparation of positive asbestos samples for Eltra analysis			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.			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
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 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	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.	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	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes

EMT Job No: 21/15202

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
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	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: 2013	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: 2013	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	Yes	AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	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
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: 2013	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	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 First edition (2006)	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.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No

EMT Job No: 21/15202

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
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
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	NONE	No Method Code			AD	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN



Attention : Lee Anderson
Date : 21st October, 2021
Your reference : UK21.5551
Our reference : Test Report 21/15661 Batch 1
Location : Rodney St Manchester
Date samples received : 6th October, 2021
Status : Final report
Issue : 1

Three samples were received for analysis on 6th October, 2021 of which one was 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.

Authorised By:



Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

EMT Sample No.	3-4										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01C-ES2												
Depth	1-1.50												
COC No / misc													
Containers	V J												
Sample Date	01/10/2021												
Sample Type	Clay												
Batch Number	1												
Date of Receipt	06/10/2021										LOD/LOR	Units	Method No.
Arsenic ^{#M}	8.6										<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	<0.1										<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	43.4										<0.5	mg/kg	TM30/PM15
Copper ^{#M}	30										<1	mg/kg	TM30/PM15
Lead ^{#M}	13										<5	mg/kg	TM30/PM15
Mercury ^{#M}	<0.1										<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	45.6										<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	2										<1	mg/kg	TM30/PM15
Zinc ^{#M}	73										<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene ^{#M}	<0.04										<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03										<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	<0.05										<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	<0.04										<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	<0.03										<0.03	mg/kg	TM4/PM8
Anthracene [#]	<0.04										<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	<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 ^{#M}	<0.02										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	<0.07										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	<0.04										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	<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										<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6										<0.6	mg/kg	TM4/PM8
PAH 17 Total	<0.64										<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	98										<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_ID_AL)	<30										<30	mg/kg	TM5/PM8/PM16

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

EMT Sample No.	3-4												
Sample ID	WS01C-ES2												
Depth	1-1.50												
COC No / misc													
Containers	V J												
Sample Date	01/10/2021												
Sample Type	Clay												
Batch Number	1												
Date of Receipt	06/10/2021												
Please see attached notes for all abbreviations and acronyms													
											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) ^{#M}	<0.1										<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) ^{#M}	<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) ^{#M}	<0.2										<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) ^{#M}	<4										<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) ^{#M}	<7										<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) ^{#M}	<7										<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7										<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26										<26	mg/kg	TM5/PM8/PM16/PM12/PM10
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) ^{#M}	<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_1D_AR)	<7										<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	<26										<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52										<52	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE [#]													
MTBE [#]	<5										<5	ug/kg	TM36/PM12
Benzene [#]													
Benzene [#]	<5										<5	ug/kg	TM36/PM12
Toluene [#]													
Toluene [#]	<5										<5	ug/kg	TM36/PM12
Ethylbenzene [#]													
Ethylbenzene [#]	<5										<5	ug/kg	TM36/PM12
m/p-Xylene [#]													
m/p-Xylene [#]	7										<5	ug/kg	TM36/PM12
o-Xylene [#]													
o-Xylene [#]	<5										<5	ug/kg	TM36/PM12
PCB 28 [#]													
PCB 28 [#]	<5										<5	ug/kg	TM17/PM8
PCB 52 [#]													
PCB 52 [#]	<5										<5	ug/kg	TM17/PM8
PCB 101 [#]													
PCB 101 [#]	<5										<5	ug/kg	TM17/PM8
PCB 118 [#]													
PCB 118 [#]	<5										<5	ug/kg	TM17/PM8
PCB 138 [#]													
PCB 138 [#]	<5										<5	ug/kg	TM17/PM8
PCB 153 [#]													
PCB 153 [#]	<5										<5	ug/kg	TM17/PM8
PCB 180 [#]													
PCB 180 [#]	<5										<5	ug/kg	TM17/PM8
Total 7 PCBs [#]	<35										<35	ug/kg	TM17/PM8
Natural Moisture Content													
Natural Moisture Content	16.0										<0.1	%	PM4/PM0
Hexavalent Chromium [#]													
Hexavalent Chromium [#]	<0.3										<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) ^{#M}													
Sulphate as SO4 (2:1 Ext) ^{#M}	0.0547										<0.0015	g/l	TM38/PM20
Chromium III													
Chromium III	43.4										<0.5	mg/kg	NONE/NONE

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

[illegible]

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	19.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	83.8
Particle Size <4mm =	>95%		
EMT Job No	21/15661	Landfill Waste Acceptance Criteria Limits	
Sample No	4		
Client Sample No	WS01C-ES2		
Depth/Other	1-1.50		
Sample Date	01/10/2021		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	0.76	3	5
Loss on Ignition (%)	3.8	-	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)	8.31	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	0.004	0.04	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	0.004	0.04	4
Chloride	0.7	7	800
Fluoride	1.0	10	10
Sulphate as SO ₄	13.5	135	1000
Total Dissolved Solids	71	710	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	<2	<20	500

Matrix : Solid

6 of 15

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

[illegible]

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson

[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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/15661

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

Please include all sections of this report if it is reproduced

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 21/15661

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S 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°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
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	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	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
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	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	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

EMT Job No: 21/15661

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
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, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	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, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	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, March 2012 v4.	PM89	Preparation of positive asbestos samples for Eltra analysis			AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. 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 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes

EMT Job No: 21/15661

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	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.	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	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			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.			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.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
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	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM129	A hot hydrochloric acid digest is performed on an as received sample, and the resulting liquor is analysed.			AR	Yes

EMT Job No: 21/15661

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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	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 First edition (2006)	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.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
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	NONE	No Method Code			AD	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN



Attention : Lee Anderson
Date : 21st October, 2021
Your reference : UK21.5551
Our reference : Test Report 21/15661 Batch 1
Location : Rodney St Manchester
Date samples received : 6th October, 2021
Status : Final report
Issue : 1

Seven samples were received for analysis on 6th October, 2021 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

EMT Sample No.	7-9	10-12	13-15	16-17	18-20	23-24					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS02B-ES2	WS02B-ES3	WS02B-ES4	WS03B-ES1	WS03B-ES2	WS04-ES2							
Depth	1-1.50	3.50-3.80	5-5.60	0.10-0.50	3.50-4.00	2.50-2.80							
COC No / misc													
Containers	V J T	V J T	V J T	V J	V J T	V J							
Sample Date	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021							
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay							
Batch Number	1	1	1	1	1	1							
Date of Receipt	06/10/2021	06/10/2021	06/10/2021	06/10/2021	06/10/2021	06/10/2021					LOD/LOR	Units	Method No.
Arsenic ^{#M}	7.6	-	-	-	-	12.9					<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	<0.1	-	-	-	-	0.1					<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	39.1	-	-	-	-	28.4					<0.5	mg/kg	TM30/PM15
Copper ^{#M}	29	-	-	-	-	15					<1	mg/kg	TM30/PM15
Lead ^{#M}	13	-	-	-	-	17					<5	mg/kg	TM30/PM15
Mercury ^{#M}	<0.1	-	-	-	-	<0.1					<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	40.9	-	-	-	-	19.8					<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	1	-	-	-	-	<1					<1	mg/kg	TM30/PM15
Sulphur as S	-	0.02	0.06	-	0.03	0.01					<0.01	%	TM30/PM15
Total Sulphate as SO4 ^{#M}	311	319	403	-	340	214					<50	mg/kg	TM50/PM29
Zinc ^{#M}	71	-	-	-	-	39					<5	mg/kg	TM30/PM15
Arsenic	-	-	-	18.6	-	-					<0.5	mg/kg	TM30/PM62
Cadmium	-	-	-	0.4	-	-					<0.1	mg/kg	TM30/PM62
Chromium	-	-	-	34.4	-	-					<0.5	mg/kg	TM30/PM62
Copper	-	-	-	91	-	-					<1	mg/kg	TM30/PM62
Lead	-	-	-	303	-	-					<5	mg/kg	TM30/PM62
Mercury	-	-	-	0.3	-	-					<0.1	mg/kg	TM30/PM62
Nickel	-	-	-	41.3	-	-					<0.7	mg/kg	TM30/PM62
Selenium	-	-	-	<1	-	-					<1	mg/kg	TM30/PM62
Total Sulphate as SO4	-	-	-	652	-	-					<50	mg/kg	TM50/PM129
Zinc	-	-	-	202	-	-					<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene ^{#M}	<0.04	-	-	4.32	-	<0.04					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	-	0.36	-	<0.03					<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	<0.05	-	-	3.67	-	<0.05					<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	<0.04	-	-	3.41	-	<0.04					<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	0.06	-	-	20.10	-	0.12					<0.03	mg/kg	TM4/PM8
Anthracene [#]	<0.04	-	-	5.68	-	<0.04					<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	0.04	-	-	21.09	-	0.04					<0.03	mg/kg	TM4/PM8
Pyrene [#]	0.05	-	-	19.10	-	0.05					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	<0.06	-	-	9.71	-	<0.06					<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	0.05	-	-	9.06	-	0.05					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	<0.07	-	-	13.98	-	<0.07					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	<0.04	-	-	8.54	-	<0.04					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	<0.04	-	-	5.04	-	<0.04					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	<0.04	-	-	1.15	-	<0.04					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	<0.04	-	-	5.64	-	<0.04					<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	-	130.9	-	<0.6					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	-	10.07	-	<0.05					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	-	3.91	-	<0.02					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	99	-	-	133 ^{SV}	-	88					<0	%	TM4/PM8

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

EMT Sample No.	7-9	10-12	13-15	16-17	18-20	23-24					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS02B-ES2	WS02B-ES3	WS02B-ES4	WS03B-ES1	WS03B-ES2	WS04-ES2							
Depth	1-1.50	3.50-3.80	5-5.60	0.10-0.50	3.50-4.00	2.50-2.80							
COC No / misc													
Containers	V J T	V J T	V J T	V J	V J T	V J							
Sample Date	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021							
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method No.
Date of Receipt	06/10/2021	06/10/2021	06/10/2021	06/10/2021	06/10/2021	06/10/2021							
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) ^{#M}	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) ^{#M}	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) ^{#M}	<0.2	-	-	<0.2	-	<0.2					<0.2	mg/kg	TMS/PM8/PM16
>C12-C16 (EH_CU_1D_AL) ^{#M}	<4	-	-	<4	-	<4					<4	mg/kg	TMS/PM8/PM16
>C16-C21 (EH_CU_1D_AL) ^{#M}	<7	-	-	<7	-	<7					<7	mg/kg	TMS/PM8/PM16
>C21-C35 (EH_CU_1D_AL) ^{#M}	<7	-	-	<7	-	<7					<7	mg/kg	TMS/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	-	-	<7	-	<7					<7	mg/kg	TMS/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26	-	-	<26	-	<26					<26	mg/kg	TMS/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 (HS_1D_AR) [#]	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) [#]	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) ^{#M}	<0.1 ^{SV}	-	-	<0.1 ^{SV}	-	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) [#]	<0.2	-	-	1.3	-	<0.2					<0.2	mg/kg	TMS/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) [#]	<4	-	-	14	-	<4					<4	mg/kg	TMS/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) [#]	<7	-	-	62	-	<7					<7	mg/kg	TMS/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) [#]	<7	-	-	182	-	<7					<7	mg/kg	TMS/PM8/PM16
>EC35-EC40 (EH_1D_AR)	<7	-	-	9	-	<7					<7	mg/kg	TMS/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	<26	-	-	268	-	<26					<26	mg/kg	TMS/PM8/PM16/PM12/PM10
Total aliphatics and aromatics (C5-40) (EH+HS_CU_1D_Total)	<52	-	-	268	-	<52					<52	mg/kg	TMS/PM8/PM16/PM12/PM10
MTBE [#]	<5 ^{SV}	-	-	<5 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
Benzene [#]	<5 ^{SV}	-	-	<5 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
Toluene [#]	<5 ^{SV}	-	-	<5 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
Ethylbenzene [#]	<5 ^{SV}	-	-	<5 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
m/p-Xylene [#]	<5 ^{SV}	-	-	9 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
o-Xylene [#]	<5 ^{SV}	-	-	<5 ^{SV}	-	<5 ^{SV}					<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	-	-	<0.15	-	<0.15					<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	20.0	-	-	30.2	-	19.5					<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	-	-	<0.3	-	<0.3					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) ^{#M}	0.0739	0.0731	0.0322	-	0.0675	0.0350					<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	0.0099	-	-					<0.0015	g/l	TM38/PM60
Chromium III	39.1	-	-	-	-	28.4					<0.5	mg/kg	NONE/NONE
Chromium III	-	-	-	34.4	-	-					<0.5	mg/kg	NONE/NONE
Total Cyanide ^{#M}	<0.5	-	-	<0.5	-	<0.5					<0.5	mg/kg	TM89/PM45
Organic Matter	1.4	-	-	NDP	-	0.4					<0.2	%	TM21/PM24
Organic Matter	-	-	-	7.3	-	-					<0.2	%	TM21/PM89

Element Materials Technology

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson
EMT Job No: 21/15661

Report : Solid

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

[illegible]

Matrix : Solid

5 of 15

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/15661	1	WS02B-ES2	1-1.50	9	10/10/2021	General Description (Bulk Analysis)	soil
					10/10/2021	Asbestos Fibres	NAD
					10/10/2021	Asbestos ACM	NAD
					10/10/2021	Asbestos Type	NAD
					10/10/2021	Asbestos Level Screen	NAD
21/15661	1	WS03B-ES1	0.10-0.50	17	11/10/2021	General Description (Bulk Analysis)	soil
					11/10/2021	Asbestos Fibres	Fibre Bundles
					11/10/2021	Asbestos ACM	ACM Debris
					11/10/2021	Asbestos Type	Chrysotile
					11/10/2021	Asbestos Level Screen	less than 0.1%
					21/10/2021	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					21/10/2021	Total Detailed Gravimetric Quantification (% Asb)	0.001 (mass %)
					21/10/2021	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.001 (mass %)
					21/10/2021	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					21/10/2021	Asbestos Gravimetric & PCOM Total	0.001 (mass %)
21/15661	1	WS04-ES2	2.50-2.80	24	11/10/2021	General Description (Bulk Analysis)	soil
					11/10/2021	Asbestos Fibres	NAD
					11/10/2021	Asbestos ACM	NAD
					11/10/2021	Asbestos Type	NAD
					11/10/2021	Asbestos Level Screen	NAD

Matrix : Solid

[illegible]

Client Name: EPS Ltd
Reference: UK21.5551
Location: Rodney St Manchester
Contact: Lee Anderson

[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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/15661

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

Please include all sections of this report if it is reproduced

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 21/15661

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°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
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	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	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
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	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	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

EMT Job No: 21/15661

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
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM89	Preparation of positive asbestos samples for Eltra analysis			AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. 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 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes

EMT Job No: 21/15661

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	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.	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	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			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.			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.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
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	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM129	A hot hydrochloric acid digest is performed on an as received sample, and the resulting liquor is analysed.			AR	Yes

EMT Job No: 21/15661

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
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	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 First edition (2006)	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.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
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	NONE	No Method Code			AD	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX E

Waste Classification Report



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)



G0L92-FGGZI-25Q1L

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

Job name

UK21.5551 Rodney Street, Manchester

Description/Comments

Results No.3 EMT-21-15661-Batch-1-202110211358

Project

UK21.5551

Site

Rodney Street, Manchester

Classified by

Name:

Lee Anderson

Date:

06 Dec 2021 17:55 GMT

Telephone:

0113 8730211

Company:

Environmental Strategies Ltd EPS**10-12 East Parade****Leeds****LS1 2BH**

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****Date****03 Dec 2020**

Next 3 year Refresher due by Dec 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01C-ES2-01/10/2021-1-1.50m	1.0-1.50	Non Hazardous		2
2	WS02B-ES2-01/10/2021-1-1.50m	1.0-1.50	Non Hazardous		5
3	WS03B-ES1-01/10/2021-0.10-0.50m	0.10-0.50	Non Hazardous		7
4	WS04-ES2-01/10/2021-2.50-2.80m	2.50-2.80	Non Hazardous		10
5	TP03-27/09/2021-0.80-0.90m	0.80-0.90	Non Hazardous		13
6	TP08-27/09/2021-0.40-0.50m	0.40-0.50	Non Hazardous		16
7	TP01-27/09/2021-0.40-0.50m	0.40-0.50	Non Hazardous		19
8	TP02-27/09/2021-0.50-0.60m	0.50-0.60	Non Hazardous		22
9	TP04-27/09/2021-0.20-0.30m	0.20-0.30	Non Hazardous		25
10	TP06-27/09/2021-0.50-0.60m	0.50-0.60	Non Hazardous		28

Related documents

#	Name	Description
1	EMT-21-15661-Batch-1-202110211358.HWOL	.hwol file used to create the Job
2	EMT-21-15202-Batch-1-Sched-BC-202110211354.HWOL	.hwol file used to create the Job
3	EMT-21-15202-Batch-1-Sched-A-202110061536.HWOL	.hwol file used to create the Job

Report

Created by: Lee Anderson

Created date: 06 Dec 2021 17:55 GMT

Appendices

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Appendix A: Classifier defined and non CLP determinands	31
Appendix B: Rationale for selection of metal species	33
Appendix C: Version	33

Classification of sample: WS01C-ES2-01/10/2021-1-1.50m

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

Sample details

Sample name:	LoW Code:
WS01C-ES2-01/10/2021-1-1.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.0-1.50 m	
Moisture content:	
16%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 16% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
2	benzene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
3	toluene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3								
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				43.4 mg/kg	1.462	54.682 mg/kg		0.00547 %	✓	
		215-160-9	1308-38-9								
6	polychlorobiphenyls; PCB				<35 µg/kg		<0.035 mg/kg		<0.0000035 %		<LOD
	602-039-00-4	215-648-1	1336-36-3								
7	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				8.6 mg/kg	1.895	14.046 mg/kg		0.0014 %	✓	
	033-005-00-1										
8	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
	048-001-00-5										
9	copper { copper(II) chloride; copper dichloride }				30 mg/kg	2.116	54.72 mg/kg		0.00547 %	✓	
		231-210-2	7447-39-4								
10	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	13 mg/kg		11.207 mg/kg		0.00112 %	✓	
	082-001-00-6										
11	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								
12	nickel { nickel diiodide }				45.6 mg/kg	5.324	209.3 mg/kg		0.0209 %	✓	
	028-029-00-4	236-666-6	13462-90-3								
13	selenium { selenium }				2 mg/kg		1.724 mg/kg		0.000172 %	✓	
	034-001-00-2	231-957-4	7782-49-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	zinc { zinc oxide }				73 mg/kg	1.245	78.331 mg/kg	0.00783 %		✓	
	030-013-00-7	215-222-5	1314-13-2								
15	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
16	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
17	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
18	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
19	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		201-695-5	86-73-7								
20	phenanthrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-581-5	85-01-8								
21	anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		204-371-1	120-12-7								
22	fluoranthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-912-4	206-44-0								
23	pyrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		204-927-3	129-00-0								
24	benzo[a]anthracene				<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
25	chrysene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
26	benzo[a]pyrene; benzo[def]chrysene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
27	indeno[123-cd]pyrene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-893-2	193-39-5								
28	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
29	benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-883-8	191-24-2								
30	coronene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-881-7	191-07-1								
31	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
33	TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %			<LOD
			TPH								
34	pH				8.31 pH		8.31 pH	8.31 pH			
			PH								
35	xylene				0.007 mg/kg		0.006 mg/kg	0.00000603 %	✓		
	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]								
Total:									0.0478 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

xylene: (conc.: 6.03e-07%)

Classification of sample: WS02B-ES2-01/10/2021-1-1.50m

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

Sample details

Sample name:	LoW Code:
WS02B-ES2-01/10/2021-1-1.50m	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-1.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
20%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 20% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
2	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
3	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				39.1 mg/kg	1.462	47.622 mg/kg	0.00476 %	✓	
		215-160-9	1308-38-9							
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				7.6 mg/kg	1.895	11.999 mg/kg	0.0012 %	✓	
	033-005-00-1									
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	048-001-00-5									
8	copper { copper(II) chloride; copper dichloride }				29 mg/kg	2.116	51.132 mg/kg	0.00511 %	✓	
		231-210-2	7447-39-4							
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	13 mg/kg		10.833 mg/kg	0.00108 %	✓	
	082-001-00-6									
10	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							
11	nickel { nickel diiodide }				40.9 mg/kg	5.324	181.47 mg/kg	0.0181 %	✓	
	028-029-00-4	236-666-6	13462-90-3							
12	selenium { selenium }				1 mg/kg		0.833 mg/kg	0.0000833 %	✓	
	034-001-00-2	231-957-4	7782-49-2							
13	zinc { zinc oxide }				71 mg/kg	1.245	73.646 mg/kg	0.00736 %	✓	
	030-013-00-7	215-222-5	1314-13-2							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
15	naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
17	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
18	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
19	phenanthrene				0.06	mg/kg		0.05	mg/kg	0.000005 %	✓	
		201-581-5	85-01-8									
20	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
21	fluoranthene				0.04	mg/kg		0.0333	mg/kg	0.00000333 %	✓	
		205-912-4	206-44-0									
22	pyrene				0.05	mg/kg		0.0417	mg/kg	0.00000417 %	✓	
		204-927-3	129-00-0									
23	benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				0.05	mg/kg		0.0417	mg/kg	0.00000417 %	✓	
	601-048-00-0	205-923-4	218-01-9									
25	benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
26	indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		205-893-2	193-39-5									
27	dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
28	benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		205-883-8	191-24-2									
29	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
30	benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
31	TPH (C6 to C40) petroleum group				<52	mg/kg		<52	mg/kg	<0.0052 %		<LOD
			TPH									
32	pH				8.48	pH		8.48	pH	8.48 pH		
			PH									
33	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											
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
Total:										0.0432 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS03B-ES1-01/10/2021-0.10-0.50m

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

Sample details

Sample name:	LoW Code:
WS03B-ES1-01/10/2021-0.10-0.50m	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
30.2%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 30.2% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
2	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
3	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				34.4 mg/kg	1.462	38.616 mg/kg	0.00386 %	✓	
		215-160-9	1308-38-9							
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				18.6 mg/kg	1.895	27.065 mg/kg	0.00271 %	✓	
	033-005-00-1									
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.4 mg/kg		0.307 mg/kg	0.0000307 %	✓	
	048-001-00-5									
8	copper { copper(II) chloride; copper dichloride }				91 mg/kg	2.116	147.88 mg/kg	0.0148 %	✓	
		231-210-2	7447-39-4							
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	303 mg/kg		232.719 mg/kg	0.0233 %	✓	
	082-001-00-6									
10	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.312 mg/kg	0.0000312 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
11	nickel { nickel diiodide }				41.3 mg/kg	5.324	168.889 mg/kg	0.0169 %	✓	
	028-029-00-4	236-666-6	13462-90-3							
12	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2							
13	zinc { zinc oxide }				202 mg/kg	1.245	193.112 mg/kg	0.0193 %	✓	
	030-013-00-7	215-222-5	1314-13-2							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
15	naphthalene	601-052-00-2	202-049-5	91-20-3	4.32	mg/kg		3.318	mg/kg	0.000332 %	✓	
16	acenaphthylene	205-917-1	208-96-8		0.36	mg/kg		0.276	mg/kg	0.0000276 %	✓	
17	acenaphthene	201-469-6	83-32-9		3.67	mg/kg		2.819	mg/kg	0.000282 %	✓	
18	fluorene	201-695-5	86-73-7		3.41	mg/kg		2.619	mg/kg	0.000262 %	✓	
19	phenanthrene	201-581-5	85-01-8		20.1	mg/kg		15.438	mg/kg	0.00154 %	✓	
20	anthracene	204-371-1	120-12-7		5.68	mg/kg		4.363	mg/kg	0.000436 %	✓	
21	fluoranthene	205-912-4	206-44-0		21.09	mg/kg		16.198	mg/kg	0.00162 %	✓	
22	pyrene	204-927-3	129-00-0		19.1	mg/kg		14.67	mg/kg	0.00147 %	✓	
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	9.71	mg/kg		7.458	mg/kg	0.000746 %	✓	
24	chrysene	601-048-00-0	205-923-4	218-01-9	9.06	mg/kg		6.959	mg/kg	0.000696 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	8.54	mg/kg		6.559	mg/kg	0.000656 %	✓	
26	indeno[123-cd]pyrene	205-893-2	193-39-5		5.04	mg/kg		3.871	mg/kg	0.000387 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	1.15	mg/kg		0.883	mg/kg	0.0000883 %	✓	
28	benzo[ghi]perylene	205-883-8	191-24-2		5.64	mg/kg		4.332	mg/kg	0.000433 %	✓	
29	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	10.07	mg/kg		7.734	mg/kg	0.000773 %	✓	
30	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	3.91	mg/kg		3.003	mg/kg	0.0003 %	✓	
31	TPH (C6 to C40) petroleum group		TPH		268	mg/kg		205.837	mg/kg	0.0206 %	✓	
32	pH		PH		8.47	pH		8.47	pH	8.47 pH		
33	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
34	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		0.001	%		0.0007	%	0.000768 %	✓	
35	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]	0.009	mg/kg		0.0069	mg/kg	0.000000691 %	✓	
Total:										0.113 %		



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
ND	Not detected
CLP: Note 1 Only the metal concentration has been used for classification	

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.0206%)

xylene: (conc.: 6.91e-07%)

Classification of sample: WS04-ES2-01/10/2021-2.50-2.80m

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

Sample details

Sample name:	LoW Code:
WS04-ES2-01/10/2021-2.50-2.80m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
2.50-2.80 m	
Moisture content:	
19.5%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19.5% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
2	benzene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
3	toluene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
4	ethylbenzene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				28.4	mg/kg	1.462	34.735	mg/kg	0.00347 %	✓	
		215-160-9	1308-38-9									
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				12.9	mg/kg	1.895	20.451	mg/kg	0.00205 %	✓	
	033-005-00-1											
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.1	mg/kg		0.0837	mg/kg	0.00000837 %	✓	
	048-001-00-5											
8	copper { copper(II) chloride; copper dichloride }				15	mg/kg	2.116	26.558	mg/kg	0.00266 %	✓	
		231-210-2	7447-39-4									
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	17	mg/kg		14.226	mg/kg	0.00142 %	✓	
	082-001-00-6											
10	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									
11	nickel { nickel diiodide }				19.8	mg/kg	5.324	88.219	mg/kg	0.00882 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
12	selenium { selenium }				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2									
13	zinc { zinc oxide }				39	mg/kg	1.245	40.622	mg/kg	0.00406 %	✓	
	030-013-00-7	215-222-5	1314-13-2									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
15	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
16	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8							
17	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
18	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
19	phenanthrene				0.12 mg/kg		0.1 mg/kg	0.00001 %	✓	
		201-581-5	85-01-8							
20	anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7							
21	fluoranthene				0.04 mg/kg		0.0335 mg/kg	0.00000335 %	✓	
		205-912-4	206-44-0							
22	pyrene				0.05 mg/kg		0.0418 mg/kg	0.00000418 %	✓	
		204-927-3	129-00-0							
23	benzo[a]anthracene				<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
24	chrysene				0.05 mg/kg		0.0418 mg/kg	0.00000418 %	✓	
	601-048-00-0	205-923-4	218-01-9							
25	benzo[a]pyrene; benzo[def]chrysene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
26	indeno[123-cd]pyrene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		205-893-2	193-39-5							
27	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
28	benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		205-883-8	191-24-2							
29	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
31	TPH (C6 to C40) petroleum group				<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
			TPH							
32	pH				8.07 pH		8.07 pH	8.07 pH		
			PH							
33	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									
34	sulfur { sulphur dichloride }				0.01 %	3.211	0.0269 %	0.0269 %	✓	
	016-013-00-X	234-129-0	10545-99-0							
35	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<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]							
Total:								0.0549 %		



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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP03-27/09/2021-0.80-0.90m

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

Sample details

Sample name:	LoW Code:
TP03-27/09/2021-0.80-0.90m	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.80-0.90 m	Entry:
Moisture content:	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
	CLP index number	EC Number	CAS Number							
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
2	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
3	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				45.4 mg/kg	1.462	55.342 mg/kg	0.00553 %	✓	
		215-160-9	1308-38-9							
6	polychlorobiphenyls; PCB				<35 µg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
7	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				16.7 mg/kg	1.895	26.387 mg/kg	0.00264 %	✓	
	033-005-00-1									
8	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.3 mg/kg		0.25 mg/kg	0.000025 %	✓	
	048-001-00-5									
9	copper { copper(II) chloride; copper dichloride }				42 mg/kg	2.116	74.116 mg/kg	0.00741 %	✓	
		231-210-2	7447-39-4							
10	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	143 mg/kg		119.266 mg/kg	0.0119 %	✓	
	082-001-00-6									
11	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							
12	nickel { nickel diiodide }				35.8 mg/kg	5.324	158.974 mg/kg	0.0159 %	✓	
	028-029-00-4	236-666-6	13462-90-3							
13	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	zinc { zinc oxide }				91	mg/kg	1.245	94.47	mg/kg	0.00945 %	✓	
	030-013-00-7	215-222-5	1314-13-2									
15	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
16	naphthalene				0.3	mg/kg		0.25	mg/kg	0.000025 %	✓	
	601-052-00-2	202-049-5	91-20-3									
17	acenaphthylene				0.18	mg/kg		0.15	mg/kg	0.000015 %	✓	
		205-917-1	208-96-8									
18	acenaphthene				0.48	mg/kg		0.4	mg/kg	0.00004 %	✓	
		201-469-6	83-32-9									
19	fluorene				0.48	mg/kg		0.4	mg/kg	0.00004 %	✓	
		201-695-5	86-73-7									
20	phenanthrene				3.94	mg/kg		3.286	mg/kg	0.000329 %	✓	
		201-581-5	85-01-8									
21	anthracene				1.06	mg/kg		0.884	mg/kg	0.0000884 %	✓	
		204-371-1	120-12-7									
22	fluoranthene				6.65	mg/kg		5.546	mg/kg	0.000555 %	✓	
		205-912-4	206-44-0									
23	pyrene				6.52	mg/kg		5.438	mg/kg	0.000544 %	✓	
		204-927-3	129-00-0									
24	benzo[a]anthracene				2.97	mg/kg		2.477	mg/kg	0.000248 %	✓	
	601-033-00-9	200-280-6	56-55-3									
25	chrysene				3.36	mg/kg		2.802	mg/kg	0.00028 %	✓	
	601-048-00-0	205-923-4	218-01-9									
26	benzo[a]pyrene; benzo[def]chrysene				3.51	mg/kg		2.927	mg/kg	0.000293 %	✓	
	601-032-00-3	200-028-5	50-32-8									
27	indeno[123-cd]pyrene				1.83	mg/kg		1.526	mg/kg	0.000153 %	✓	
		205-893-2	193-39-5									
28	dibenz[a,h]anthracene				0.41	mg/kg		0.342	mg/kg	0.0000342 %	✓	
	601-041-00-2	200-181-8	53-70-3									
29	benzo[ghi]perylene				2.22	mg/kg		1.852	mg/kg	0.000185 %	✓	
		205-883-8	191-24-2									
30	coronene				0.32	mg/kg		0.267	mg/kg	0.0000267 %	✓	
		205-881-7	191-07-1									
31	benzo[b]fluoranthene				4.12	mg/kg		3.436	mg/kg	0.000344 %	✓	
	601-034-00-4	205-911-9	205-99-2									
32	benzo[k]fluoranthene				1.6	mg/kg		1.334	mg/kg	0.000133 %	✓	
	601-036-00-5	205-916-6	207-08-9									
33	TPH (C6 to C40) petroleum group				866	mg/kg		722.269	mg/kg	0.0722 %	✓	
			TPH									
34	pH				8.02	pH		8.02	pH	8.02 pH		
			pH									
35	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
Total:										0.129 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0722%)

Classification of sample: TP08-27/09/2021-0.40-0.50m

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

Sample details

Sample name:	LoW Code:
TP08-27/09/2021-0.40-0.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40-0.50 m	
Moisture content:	
26.6%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 26.6% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
2	benzene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
3	toluene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3								
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				53.6 mg/kg	1.462	61.879 mg/kg		0.00619 %	✓	
		215-160-9	1308-38-9								
6	polychlorobiphenyls; PCB				<35 µg/kg		<0.035 mg/kg		<0.0000035 %		<LOD
	602-039-00-4	216-648-1	1336-36-3								
7	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				41.8 mg/kg	1.895	62.552 mg/kg		0.00626 %	✓	
	033-005-00-1										
8	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.5 mg/kg		0.395 mg/kg		0.0000395 %	✓	
	048-001-00-5										
9	copper { copper(II) chloride; copper dichloride }				81 mg/kg	2.116	135.372 mg/kg		0.0135 %	✓	
		231-210-2	7447-39-4								
10	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	413 mg/kg		326.224 mg/kg		0.0326 %	✓	
	082-001-00-6										
11	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.107 mg/kg		0.0000107 %	✓	
	080-010-00-X	231-299-8	7487-94-7								
12	nickel { nickel diiodide }				15.2 mg/kg	5.324	63.925 mg/kg		0.00639 %	✓	
	028-029-00-4	236-666-6	13462-90-3								
13	selenium { selenium }				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	zinc { zinc oxide }				254 mg/kg	1.245	249.729 mg/kg	0.025 %	✓		
	030-013-00-7	215-222-5	1314-13-2								
15	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.5 mg/kg	1.923	<2.885 mg/kg	<0.000288 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
16	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
17	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
18	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
19	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		201-695-5	86-73-7								
20	phenanthrene				0.2 mg/kg		0.158 mg/kg	0.0000158 %	✓		
		201-581-5	85-01-8								
21	anthracene				0.06 mg/kg		0.0474 mg/kg	0.00000474 %	✓		
		204-371-1	120-12-7								
22	fluoranthene				0.41 mg/kg		0.324 mg/kg	0.0000324 %	✓		
		205-912-4	206-44-0								
23	pyrene				0.38 mg/kg		0.3 mg/kg	0.00003 %	✓		
		204-927-3	129-00-0								
24	benzo[a]anthracene				0.24 mg/kg		0.19 mg/kg	0.000019 %	✓		
	601-033-00-9	200-280-6	56-55-3								
25	chrysene				0.23 mg/kg		0.182 mg/kg	0.0000182 %	✓		
	601-048-00-0	205-923-4	218-01-9								
26	benzo[a]pyrene; benzo[def]chrysene				0.24 mg/kg		0.19 mg/kg	0.000019 %	✓		
	601-032-00-3	200-028-5	50-32-8								
27	indeno[123-cd]pyrene				0.15 mg/kg		0.118 mg/kg	0.0000118 %	✓		
		205-893-2	193-39-5								
28	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
29	benzo[ghi]perylene				0.19 mg/kg		0.15 mg/kg	0.000015 %	✓		
		205-883-8	191-24-2								
30	coronene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
		205-881-7	191-07-1								
31	benzo[b]fluoranthene				0.33 mg/kg		0.261 mg/kg	0.0000261 %	✓		
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				0.13 mg/kg		0.103 mg/kg	0.0000103 %	✓		
	601-036-00-5	205-916-6	207-08-9								
33	TPH (C6 to C40) petroleum group				488 mg/kg		385.466 mg/kg	0.0385 %	✓		
			TPH								
34	pH				7.56 pH		7.56 pH	7.56 pH			
			PH								
35	asbestos				0.016 %		0.0126 %	0.0126 %	✓		
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5								
36	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<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]								
Total:									0.142 %		



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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0385%)

Classification of sample: TP01-27/09/2021-0.40-0.50m

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

Sample details

Sample name:	LoW Code:
TP01-27/09/2021-0.40-0.50m	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.40-0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
17.3%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 17.3% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X 216-653-1 1634-04-4				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
2	benzene 601-020-00-8 200-753-7 71-43-2				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
3	toluene 601-021-00-3 203-625-9 108-88-3				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
4	ethylbenzene 601-023-00-4 202-849-4 100-41-4				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				17.2 mg/kg	1.462	21.431 mg/kg	0.00214 %	✓	
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex } 033-005-00-1				10.2 mg/kg	1.895	16.474 mg/kg	0.00165 %	✓	
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex } 048-001-00-5			1	0.5 mg/kg		0.426 mg/kg	0.0000426 %	✓	
8	copper { copper(II) chloride; copper dichloride } 231-210-2 7447-39-4				130 mg/kg	2.116	234.49 mg/kg	0.0234 %	✓	
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) } 082-001-00-6			1	121 mg/kg		103.154 mg/kg	0.0103 %	✓	
10	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
11	nickel { nickel diiodide } 028-029-00-4 236-666-6 13462-90-3				22.8 mg/kg	5.324	103.49 mg/kg	0.0103 %	✓	
12	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
13	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				118 mg/kg	1.245	125.214 mg/kg	0.0125 %	✓	



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
15	naphthalene				34.4	mg/kg		29.327	mg/kg	0.00293 %	✓	
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				0.76	mg/kg		0.648	mg/kg	0.0000648 %	✓	
		205-917-1	208-96-8									
17	acenaphthene				26.12	mg/kg		22.268	mg/kg	0.00223 %	✓	
		201-469-6	83-32-9									
18	fluorene				16.9	mg/kg		14.408	mg/kg	0.00144 %	✓	
		201-695-5	86-73-7									
19	phenanthrene				120.08	mg/kg		102.37	mg/kg	0.0102 %	✓	
		201-581-5	85-01-8									
20	anthracene				24.56	mg/kg		20.938	mg/kg	0.00209 %	✓	
		204-371-1	120-12-7									
21	fluoranthene				92.08	mg/kg		78.5	mg/kg	0.00785 %	✓	
		205-912-4	206-44-0									
22	pyrene				76.15	mg/kg		64.919	mg/kg	0.00649 %	✓	
		204-927-3	129-00-0									
23	benzo[a]anthracene				34.1	mg/kg		29.071	mg/kg	0.00291 %	✓	
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				40.05	mg/kg		34.143	mg/kg	0.00341 %	✓	
	601-048-00-0	205-923-4	218-01-9									
25	benzo[a]pyrene; benzo[def]chrysene				29.16	mg/kg		24.859	mg/kg	0.00249 %	✓	
	601-032-00-3	200-028-5	50-32-8									
26	indeno[123-cd]pyrene				16.48	mg/kg		14.049	mg/kg	0.0014 %	✓	
		205-893-2	193-39-5									
27	dibenz[a,h]anthracene				3.05	mg/kg		2.6	mg/kg	0.00026 %	✓	
	601-041-00-2	200-181-8	53-70-3									
28	benzo[ghi]perylene				16.36	mg/kg		13.947	mg/kg	0.00139 %	✓	
		205-883-8	191-24-2									
29	benzo[b]fluoranthene				38.04	mg/kg		32.43	mg/kg	0.00324 %	✓	
	601-034-00-4	205-911-9	205-99-2									
30	benzo[k]fluoranthene				14.79	mg/kg		12.609	mg/kg	0.00126 %	✓	
	601-036-00-5	205-916-6	207-08-9									
31	TPH (C6 to C40) petroleum group				284	mg/kg		242.114	mg/kg	0.0242 %	✓	
			TPH									
32	pH				8.41	pH		8.41	pH	8.41 pH		
			PH									
33	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											
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
Total:										0.135 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0242%)

Classification of sample: TP02-27/09/2021-0.50-0.60m

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

Sample details

Sample name:	LoW Code:
TP02-27/09/2021-0.50-0.60m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50-0.60 m	
Moisture content:	
23.4%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 23.4% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
2	benzene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
3	toluene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
4	ethylbenzene				<5	µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				32.2	mg/kg	1.462	38.138	mg/kg	0.00381 %	✓	
		215-160-9	1308-38-9									
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				26.9	mg/kg	1.895	41.299	mg/kg	0.00413 %	✓	
	033-005-00-1											
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.6	mg/kg		0.486	mg/kg	0.0000486 %	✓	
	048-001-00-5											
8	copper { copper(II) chloride; copper dichloride }				74	mg/kg	2.116	126.881	mg/kg	0.0127 %	✓	
		231-210-2	7447-39-4									
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	155	mg/kg		125.608	mg/kg	0.0126 %	✓	
	082-001-00-6											
10	mercury { mercury dichloride }				0.4	mg/kg	1.353	0.439	mg/kg	0.0000439 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
11	nickel { nickel diiodide }				32.6	mg/kg	5.324	140.658	mg/kg	0.0141 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
12	selenium { selenium }				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2									
13	zinc { zinc oxide }				157	mg/kg	1.245	158.363	mg/kg	0.0158 %	✓	
	030-013-00-7	215-222-5	1314-13-2									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
15	naphthalene				0.09 mg/kg		0.0729 mg/kg	0.00000729 %	✓		
	601-052-00-2	202-049-5	91-20-3								
16	acenaphthylene				0.05 mg/kg		0.0405 mg/kg	0.00000405 %	✓		
		205-917-1	208-96-8								
17	acenaphthene				0.12 mg/kg		0.0972 mg/kg	0.00000972 %	✓		
		201-469-6	83-32-9								
18	fluorene				0.09 mg/kg		0.0729 mg/kg	0.00000729 %	✓		
		201-695-5	86-73-7								
19	phenanthrene				1.11 mg/kg		0.9 mg/kg	0.00009 %	✓		
		201-581-5	85-01-8								
20	anthracene				0.32 mg/kg		0.259 mg/kg	0.0000259 %	✓		
		204-371-1	120-12-7								
21	fluoranthene				2.53 mg/kg		2.05 mg/kg	0.000205 %	✓		
		205-912-4	206-44-0								
22	pyrene				2.31 mg/kg		1.872 mg/kg	0.000187 %	✓		
		204-927-3	129-00-0								
23	benzo[a]anthracene				1.27 mg/kg		1.029 mg/kg	0.000103 %	✓		
	601-033-00-9	200-280-6	56-55-3								
24	chrysene				1.46 mg/kg		1.183 mg/kg	0.000118 %	✓		
	601-048-00-0	205-923-4	218-01-9								
25	benzo[a]pyrene; benzo[def]chrysene				1.37 mg/kg		1.11 mg/kg	0.000111 %	✓		
	601-032-00-3	200-028-5	50-32-8								
26	indeno[123-cd]pyrene				0.85 mg/kg		0.689 mg/kg	0.0000689 %	✓		
		205-893-2	193-39-5								
27	dibenz[a,h]anthracene				0.16 mg/kg		0.13 mg/kg	0.000013 %	✓		
	601-041-00-2	200-181-8	53-70-3								
28	benzo[ghi]perylene				0.91 mg/kg		0.737 mg/kg	0.0000737 %	✓		
		205-883-8	191-24-2								
29	benzo[b]fluoranthene				1.68 mg/kg		1.361 mg/kg	0.000136 %	✓		
	601-034-00-4	205-911-9	205-99-2								
30	benzo[k]fluoranthene				0.65 mg/kg		0.527 mg/kg	0.0000527 %	✓		
	601-036-00-5	205-916-6	207-08-9								
31	TPH (C6 to C40) petroleum group				152 mg/kg		123.177 mg/kg	0.0123 %	✓		
			TPH								
32	pH				8.66 pH		8.66 pH	8.66 pH			
			PH								
33	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										
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<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]								
Total:									0.077 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0123%)

Classification of sample: TP04-27/09/2021-0.20-0.30m

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

Sample details

Sample name:	LoW Code:
TP04-27/09/2021-0.20-0.30m	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
34.1%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 34.1% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
2	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
3	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				61.9 mg/kg	1.462	67.465 mg/kg	0.00675 %	✓	
		215-160-9	1308-38-9							
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				27.2 mg/kg	1.895	38.427 mg/kg	0.00384 %	✓	
	033-005-00-1									
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	3.1 mg/kg		2.312 mg/kg	0.000231 %	✓	
	048-001-00-5									
8	copper { copper(II) chloride; copper dichloride }				87 mg/kg	2.116	137.268 mg/kg	0.0137 %	✓	
		231-210-2	7447-39-4							
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	195 mg/kg		145.414 mg/kg	0.0145 %	✓	
	082-001-00-6									
10	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.505 mg/kg	0.0000505 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
11	nickel { nickel diiodide }				32.5 mg/kg	5.324	129.038 mg/kg	0.0129 %	✓	
	028-029-00-4	236-666-6	13462-90-3							
12	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2							
13	zinc { zinc oxide }				244 mg/kg	1.245	226.48 mg/kg	0.0226 %	✓	
	030-013-00-7	215-222-5	1314-13-2							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
15	naphthalene				0.2	mg/kg		0.149	mg/kg	0.0000149 %	✓	
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
17	acenaphthene				0.31	mg/kg		0.231	mg/kg	0.0000231 %	✓	
		201-469-6	83-32-9									
18	fluorene				0.21	mg/kg		0.157	mg/kg	0.0000157 %	✓	
		201-695-5	86-73-7									
19	phenanthrene				1.85	mg/kg		1.38	mg/kg	0.000138 %	✓	
		201-581-5	85-01-8									
20	anthracene				0.44	mg/kg		0.328	mg/kg	0.0000328 %	✓	
		204-371-1	120-12-7									
21	fluoranthene				2.02	mg/kg		1.506	mg/kg	0.000151 %	✓	
		205-912-4	206-44-0									
22	pyrene				1.81	mg/kg		1.35	mg/kg	0.000135 %	✓	
		204-927-3	129-00-0									
23	benzo[a]anthracene				1.17	mg/kg		0.872	mg/kg	0.0000872 %	✓	
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				1.1	mg/kg		0.82	mg/kg	0.000082 %	✓	
	601-048-00-0	205-923-4	218-01-9									
25	benzo[a]pyrene; benzo[def]chrysene				0.87	mg/kg		0.649	mg/kg	0.0000649 %	✓	
	601-032-00-3	200-028-5	50-32-8									
26	indeno[123-cd]pyrene				0.54	mg/kg		0.403	mg/kg	0.0000403 %	✓	
		205-893-2	193-39-5									
27	dibenz[a,h]anthracene				0.13	mg/kg		0.0969	mg/kg	0.00000969 %	✓	
	601-041-00-2	200-181-8	53-70-3									
28	benzo[ghi]perylene				0.55	mg/kg		0.41	mg/kg	0.000041 %	✓	
		205-883-8	191-24-2									
29	benzo[b]fluoranthene				1.08	mg/kg		0.805	mg/kg	0.0000805 %	✓	
	601-034-00-4	205-911-9	205-99-2									
30	benzo[k]fluoranthene				0.42	mg/kg		0.313	mg/kg	0.0000313 %	✓	
	601-036-00-5	205-916-6	207-08-9									
31	TPH (C6 to C40) petroleum group				185	mg/kg		137.957	mg/kg	0.0138 %	✓	
			TPH									
32	pH				8.24	pH		8.24	pH	8.24 pH		
			PH									
33	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											
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
Total:										0.0897 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0138%)

Classification of sample: TP06-27/09/2021-0.50-0.60m

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

Sample details

Sample name:	LoW Code:
TP06-27/09/2021-0.50-0.60m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50-0.60 m	
Moisture content:	
32.7%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 32.7% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
2	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
3	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
4	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				89.4 mg/kg	1.462	98.465 mg/kg	0.00985 %		✓	
		215-160-9	1308-38-9								
6	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				66.4 mg/kg	1.895	94.798 mg/kg	0.00948 %		✓	
	033-005-00-1										
7	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	3.1 mg/kg		2.336 mg/kg	0.000234 %		✓	
	048-001-00-5										
8	copper { copper(II) chloride; copper dichloride }				124 mg/kg	2.116	197.711 mg/kg	0.0198 %		✓	
		231-210-2	7447-39-4								
9	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	458 mg/kg		345.139 mg/kg	0.0345 %		✓	
	082-001-00-6										
10	mercury { mercury dichloride }				0.2 mg/kg	1.353	0.204 mg/kg	0.0000204 %		✓	
	080-010-00-X	231-299-8	7487-94-7								
11	nickel { nickel diiodide }				24.6 mg/kg	5.324	98.702 mg/kg	0.00987 %		✓	
	028-029-00-4	236-666-6	13462-90-3								
12	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	034-001-00-2	231-957-4	7782-49-2								
13	zinc { zinc oxide }				451 mg/kg	1.245	423.034 mg/kg	0.0423 %		✓	
	030-013-00-7	215-222-5	1314-13-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
15	naphthalene				0.07 mg/kg		0.0528 mg/kg	0.00000528 %	✓		
	601-052-00-2	202-049-5	91-20-3								
16	acenaphthylene				0.05 mg/kg		0.0377 mg/kg	0.00000377 %	✓		
		205-917-1	208-96-8								
17	acenaphthene				0.09 mg/kg		0.0678 mg/kg	0.00000678 %	✓		
		201-469-6	83-32-9								
18	fluorene				0.07 mg/kg		0.0528 mg/kg	0.00000528 %	✓		
		201-695-5	86-73-7								
19	phenanthrene				0.88 mg/kg		0.663 mg/kg	0.0000663 %	✓		
		201-581-5	85-01-8								
20	anthracene				0.28 mg/kg		0.211 mg/kg	0.0000211 %	✓		
		204-371-1	120-12-7								
21	fluoranthene				1.71 mg/kg		1.289 mg/kg	0.000129 %	✓		
		205-912-4	206-44-0								
22	pyrene				1.51 mg/kg		1.138 mg/kg	0.000114 %	✓		
		204-927-3	129-00-0								
23	benzo[a]anthracene				0.98 mg/kg		0.739 mg/kg	0.0000739 %	✓		
	601-033-00-9	200-280-6	56-55-3								
24	chrysene				1.1 mg/kg		0.829 mg/kg	0.0000829 %	✓		
	601-048-00-0	205-923-4	218-01-9								
25	benzo[a]pyrene; benzo[def]chrysene				1.11 mg/kg		0.836 mg/kg	0.0000836 %	✓		
	601-032-00-3	200-028-5	50-32-8								
26	indeno[123-cd]pyrene				0.76 mg/kg		0.573 mg/kg	0.0000573 %	✓		
		205-893-2	193-39-5								
27	dibenz[a,h]anthracene				0.15 mg/kg		0.113 mg/kg	0.0000113 %	✓		
	601-041-00-2	200-181-8	53-70-3								
28	benzo[ghi]perylene				0.74 mg/kg		0.558 mg/kg	0.0000558 %	✓		
		205-883-8	191-24-2								
29	benzo[b]fluoranthene				1.34 mg/kg		1.01 mg/kg	0.000101 %	✓		
	601-034-00-4	205-911-9	205-99-2								
30	benzo[k]fluoranthene				0.52 mg/kg		0.392 mg/kg	0.0000392 %	✓		
	601-036-00-5	205-916-6	207-08-9								
31	TPH (C6 to C40) petroleum group				256 mg/kg		192.916 mg/kg	0.0193 %	✓		
			TPH								
32	pH				8.14 pH		8.14 pH	8.14 pH			
			PH								
33	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 }				2.3 mg/kg	1.884	3.265 mg/kg	0.000327 %	✓		
	006-007-00-5										
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<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]								
Total:									0.147 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore flammability is reduced.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0193%)

Appendix A: Classifier defined and non CLP determinands

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP 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.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

• **cadmium compounds, with the exception of cadmium sulposelenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex**

CLP index number: 048-001-00-5

Description/Comments: Worst Case: IARC considers cadmium compounds Group 1; Carcinogenic to humans

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

• **copper(II) chloride; copper dichloride** (EC Number: 231-210-2, CAS Number: 7447-39-4)

Description/Comments:

Data source: <https://echa.europa.eu/substance-information/-/substanceinfo/100.028.373>

Data source date: 03 Nov 2016

Hazard Statements: Skin Irrit. 2 H315 , Acute Tox. 4 H302 , Eye Dam. 1 H318 , Acute Tox. 4 H312 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 3 H301 , Acute Tox. 4 H332 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

CLP index number: 082-001-00-6

Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

• **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

■ **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

■ **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

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

▪ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

Appendix B: Rationale for selection of metal species

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Standard Approach

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst Case

cadmium {cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex}

Standard Approach

copper {copper(II) chloride; copper dichloride}

Standard Approach

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Standard Approach

mercury {mercury dichloride}

Worst Case

nickel {nickel diiodide}

Worst Case

selenium {selenium}

Standard Approach

zinc {zinc oxide}

Standard Approach

chromium in chromium(VI) compounds {chromium(VI) oxide}

Standard Approach

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}

Standard Approach

sulfur {sulphur dichloride}

Worst case

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2021.293.4891.9295 (20 Oct 2021)

HazWasteOnline Database: 2021.293.4891.9295 (20 Oct 2021)



This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

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 2019 - UK: 2019 No. 720 of 27th March 2019

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

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

APPENDIX F

Laboratory Results – Geotechnical



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



Contract	UK21.5551 - Rodney Street, Manchester		
Serial No.	39619_1		
Client: Environmental Protection Strategies Ltd Unit 7 Caxton House Broad Street Great Cambourne Cambridge CB23 6JN		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com	
Samples Submitted By: Environmental Protection Strategies Ltd Samples Labelled: UK21.5551 - Rodney Street, Manchester		Approved Signatories: ☐ J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager ☐ W. Johnstone Materials Lab Manager ☒ D. Sabnis Operations Manager 	
Date Received: 27/10/2021		Samples Tested Between: 27/10/2021 and 11/11/2021	
Remarks: For the attention of Jack Johnson Your Reference No: UK21.5551 Your Order No: 27646 BRE SD1 suite of tests subcontracted to Eurofins Chemtest - results included as Appendix A			
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory. 5 The results within this report only relate to the items tested or sampled.			



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



Contract			UK21.5551 - Rodney Street, Manchester																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



0998

Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
BH01	5.00 - 5.45	D	-	28.6	56	23	33	0.17	From Natural	0 (A)		69	Firm thinly laminated dark yellowish brown CLAY with rare bluish grey mottling	CH
BH01	9.00 - 9.45	B	-	12.0	26	13	13	-0.08	Wet Sieved	13 (M)	13.8*	26	Very stiff brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse subangular and subrounded quartzite	CL
BH02	13.50 - 13.95	B	-	23.2	27	15	12	0.68	Wet Sieved	5 (M)	24.4*	24	Very soft brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium subangular and subrounded quartzite	CL
BH03	3.00 - 3.44	D	-	16.8	47	21	26	-0.16	From Natural	0 (A)		70	Very stiff closely fissured dark yellowish brown CLAY with occasional bluish grey mottling, decayed roots and rare selenite crystals	CI
BH03	6.50	D	-	18.2	32	15	17	0.19	From Natural	0 (A)		25	Firm brown slightly gravelly slightly sandy silty CLAY with rare fine and medium subangular and subrounded quartzite	CL
BH04	16.50 - 16.95	B	-	12.6	22	12	10	0.06	Wet Sieved	10 (M)	14.0*	22	Firm brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse subangular and subrounded quartzite	CL
BH04	22.50 - 22.95	D	-	18.0	45	20	25	-0.08	From Natural	0 (A)		70	Very stiff brown silty CLAY with frequent light grey silt partings	CI
TP01	0.80 - 1.00	B	1	25.8	56	25	31	0.03	From Natural	0 (A)		24	Firm locally stiff closely fissured mottled bluish grey and dark yellowish brown CLAY with occasional decayed roots	CH

Method Of Preparation:

BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2

Method of Test:

BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4

Type of Sample Key:

U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments:

*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.

Table Notation:

Ret'd 0.425mm: (A) = Assumed, (M) = Measured



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



0998

Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP03	1.00 - 1.20	B	1	27.2	54	24	30	0.11	From Natural	0 (A)		24	Stiff yellowish brown CLAY with occasional light grey mottling, recently active and decayed roots, rare calcareous aggregations, and slightly sandy pockets.	CH
TP10	0.90 - 0.90	B	1	26.3	55	24	31	0.07	From Natural	0 (A)		24	Stiff yellowish brown CLAY with occasional light bluish grey mottling, and recently active and decayed roots.	CH
WS01C	3.80 - 4.00	D	4	20.3	43	20	23	0.01	From Natural	<1% (A)		70	Stiff thinly laminated dark yellowish brown silty CLAY with rare bluish grey mottling, fine quartzite gravel and decayed roots	CI

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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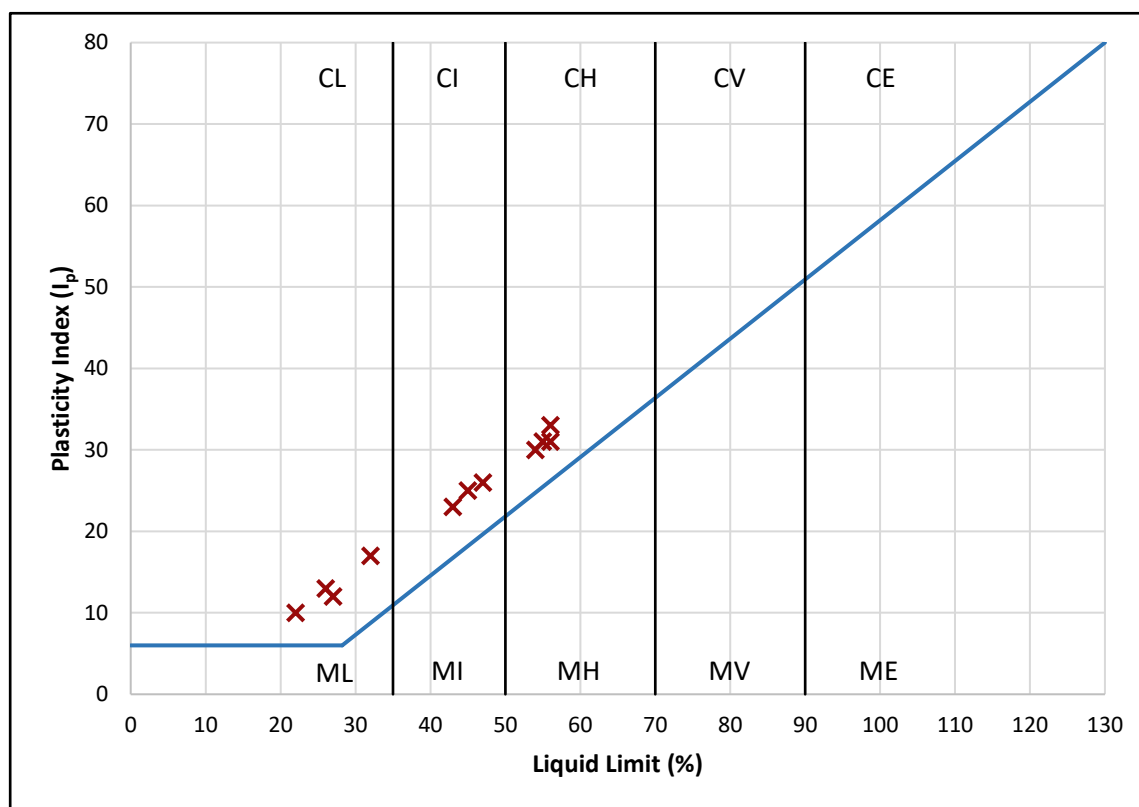


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PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



High
Medium
Low

NHBC Volume Change Potential

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



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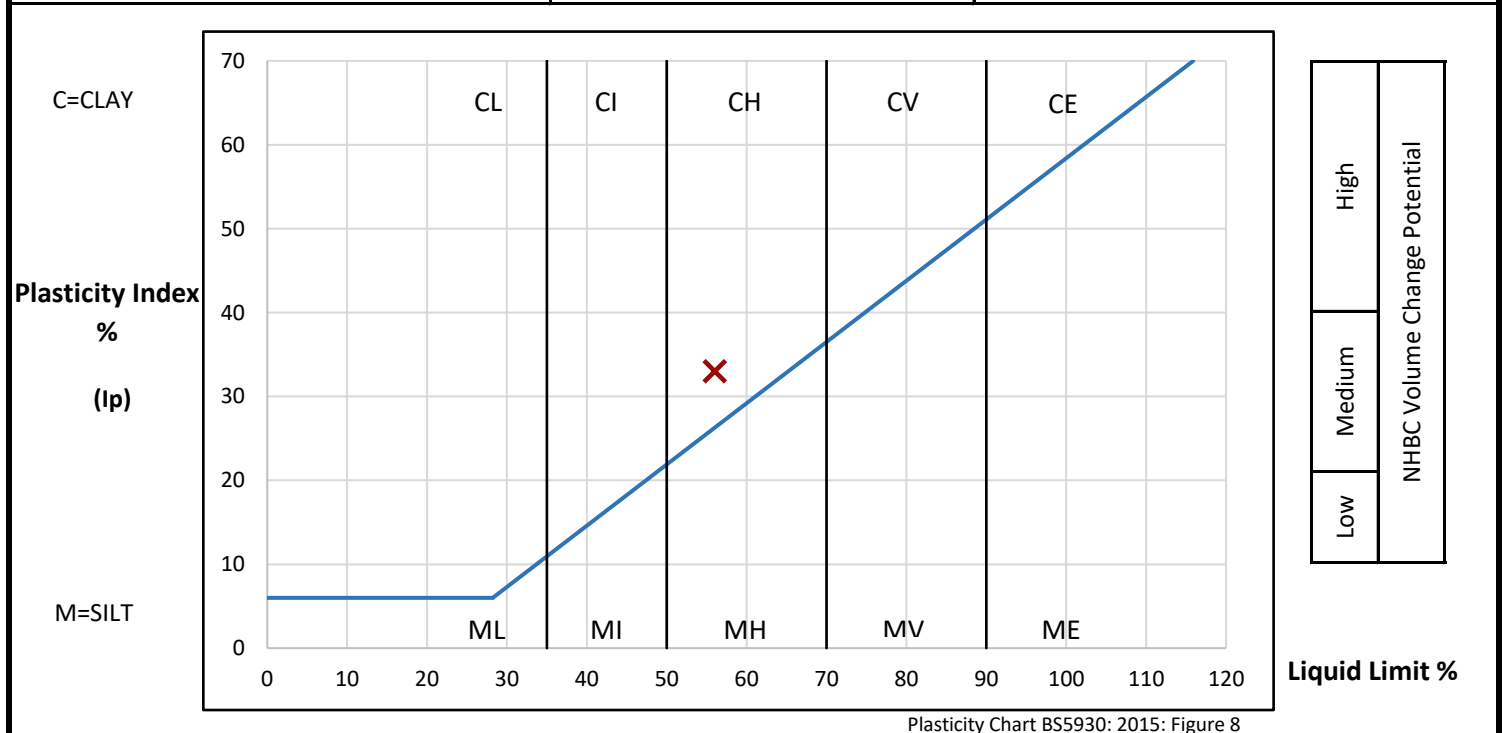
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BH01	5.00 - 5.45	D	-	28.6	Firm thinly laminated dark yellowish brown CLAY with rare bluish grey mottling	

PREPARATION			Liquid Limit	56 %	
Method of preparation		From natural	Plastic Limit	23 %	
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	33 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.17	
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time	69 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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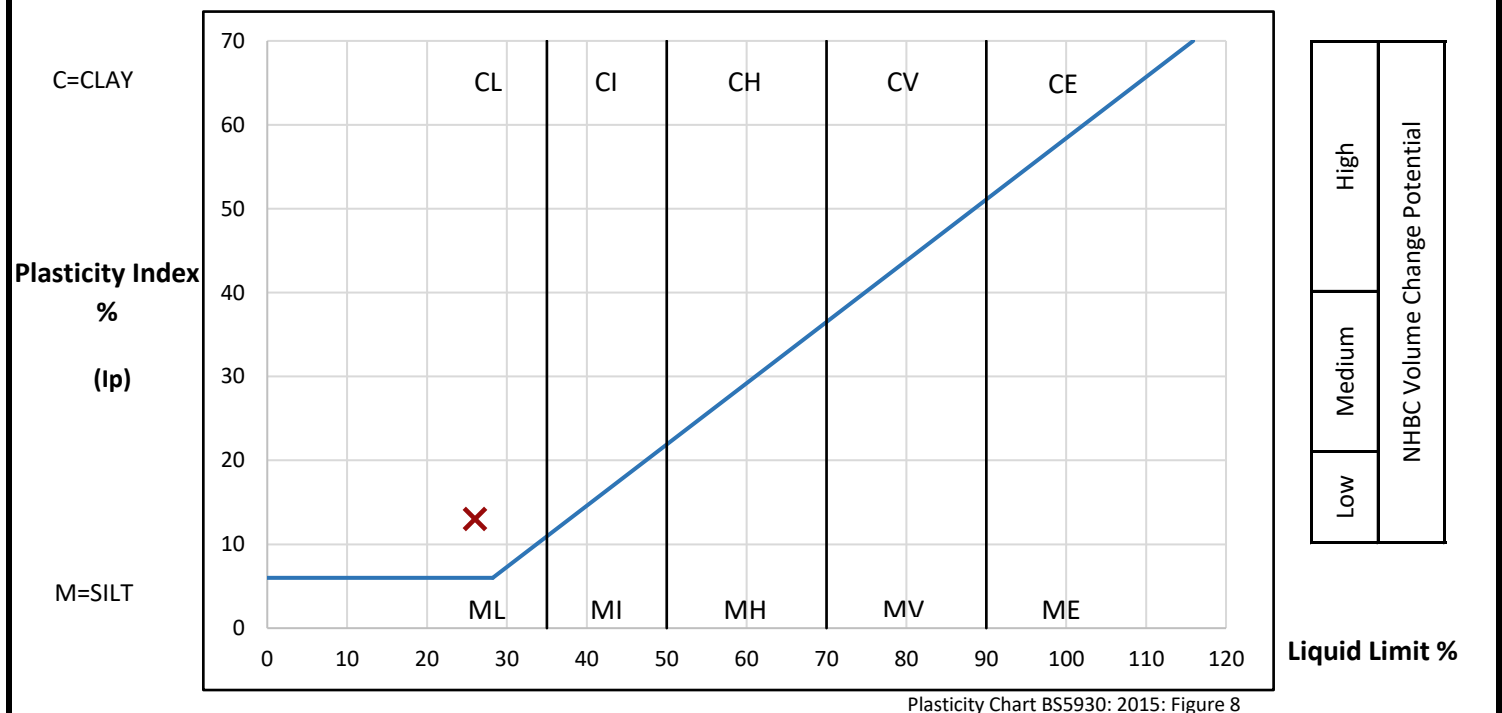
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH01	9.00 - 9.45	B	-	12.0	Very stiff brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse subangular and subrounded quartzite	

PREPARATION			Liquid Limit	26 %	
Method of preparation		Wet sieved over 0.425mm sieve	Plastic Limit	13 %	
Sample retained 0.425mm sieve	(Measured)	13 %	Plasticity Index	13 %	
Corrected water content for material passing 0.425mm			Liquidity Index	-0.08	
Sample retained 2mm sieve	(Measured)	6 %	NHBC Modified (I'p)	11 %	
Curing time	26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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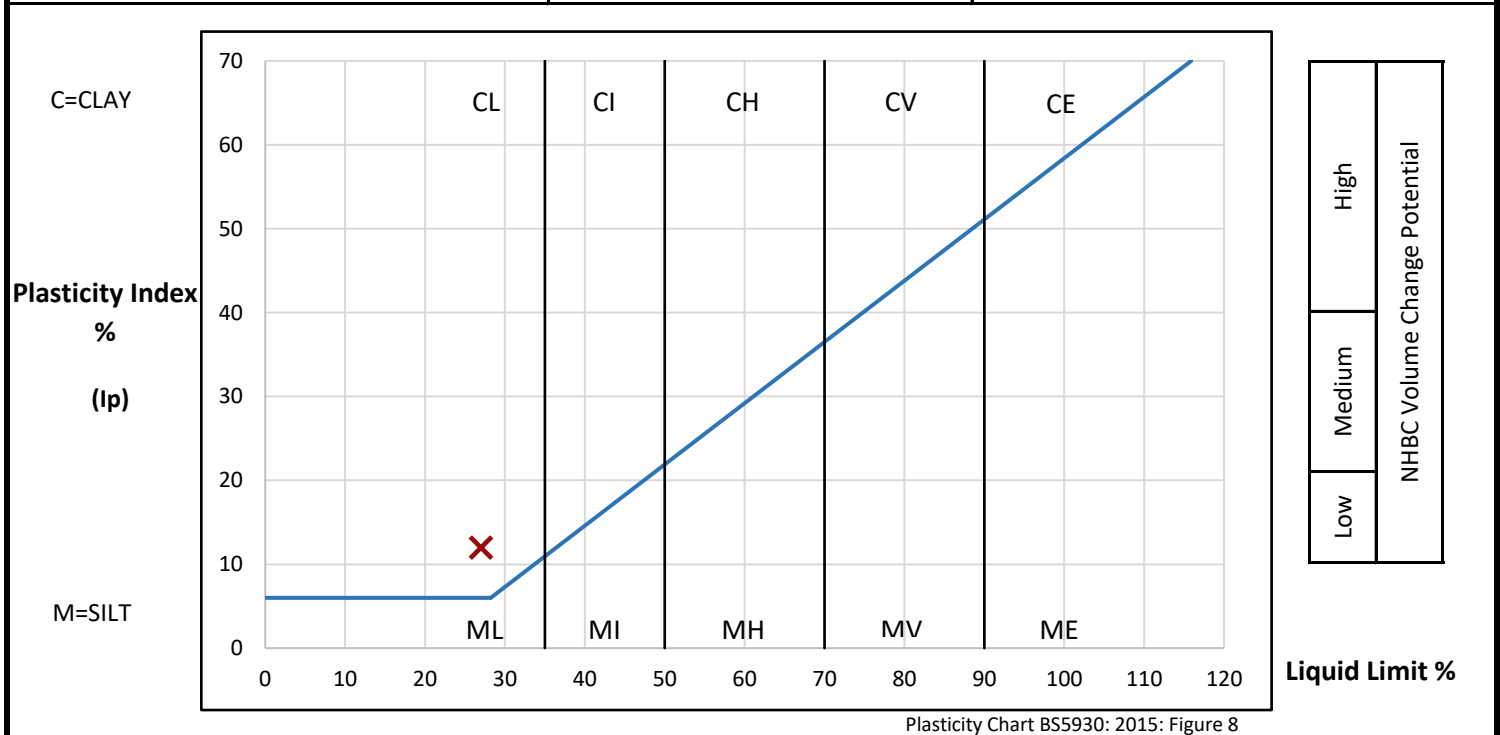
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BH02	13.50 13.95	B	-	23.2	Very soft brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium subangular and subrounded quartzite	

PREPARATION				Liquid Limit 27 %	
Method of preparation Wet sieved over 0.425mm sieve				Plastic Limit 15 %	
Sample retained 0.425mm sieve (Measured) 5 %				Plasticity Index 12 %	
Corrected water content for material passing 0.425mm 24.4 %				Liquidity Index 0.68	
Sample retained 2mm sieve (Measured) 2 %				NHBC Modified (I'p) 11 %	
Curing time 24 hrs		Clay Content Not analysed		Derived Activity Not analysed	



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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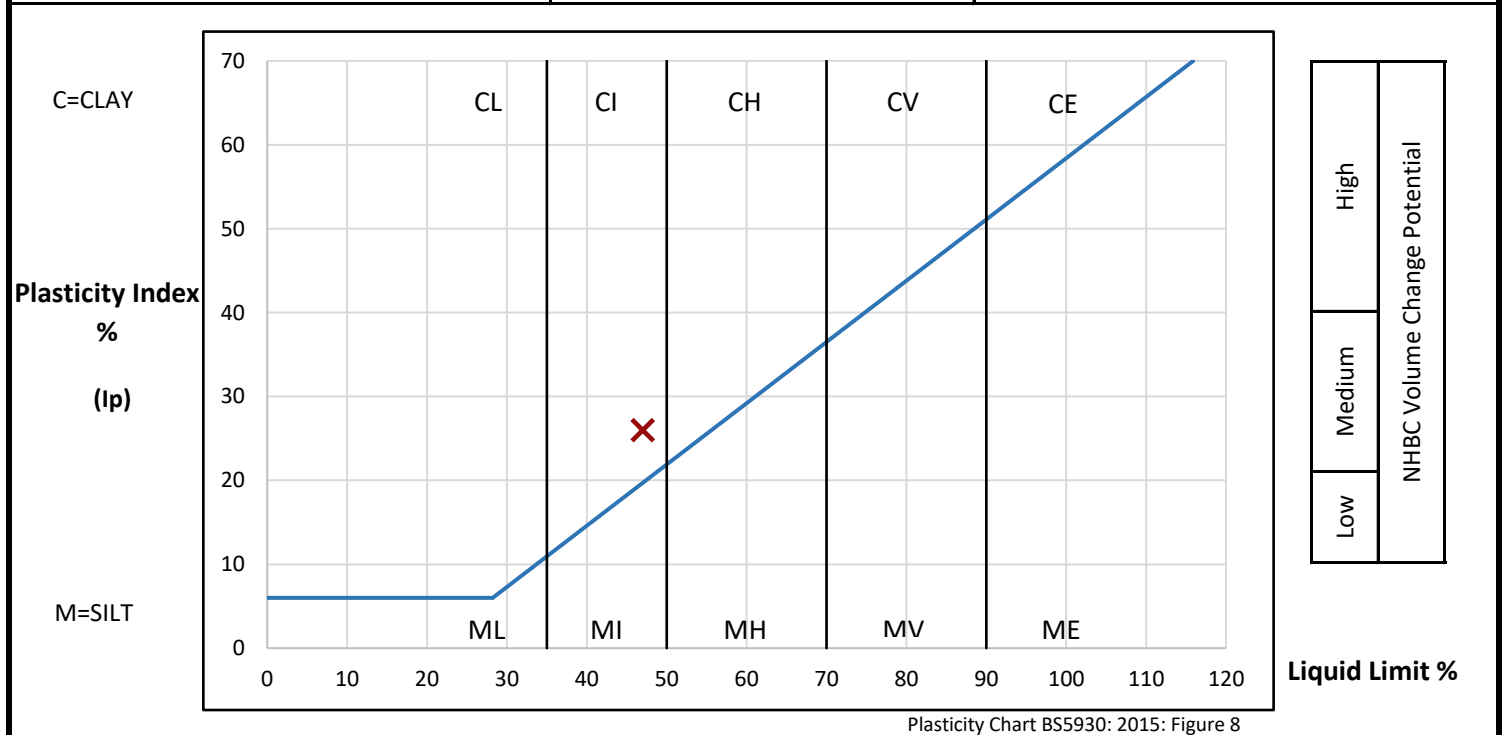
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BH03	3.00 - 3.44	D	-	16.8	Very stiff closely fissured dark yellowish brown CLAY with occasional bluish grey mottling, decayed roots and rare selenite crystals	Specimen dried at 80°C due to the presence of selenite.

PREPARATION				Liquid Limit 47 %	
Method of preparation				From natural	Plastic Limit 21 %
Sample retained 0.425mm sieve (Assumed)				0 %	Plasticity Index 26 %
Corrected water content for material passing 0.425mm					Liquidity Index -0.16
Sample retained 2mm sieve (Assumed)				0 %	NHBC Modified (I _p) n/a
Curing time		70 hrs		Clay Content	Not analysed
				Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
BH03	6.50	D	-	18.2	Firm brown slightly gravelly slightly sandy silty CLAY with rare fine and medium subangular and subrounded quartzite		
PREPARATION					Liquid Limit	32 %	
Method of preparation					From natural	Plastic Limit	15 %
Sample retained 0.425mm sieve (Assumed)					8 %	Plasticity Index	17 %
Corrected water content for material passing 0.425mm						Liquidity Index	0.19
Sample retained 2mm sieve (Assumed)					4 %	NHBC Modified (I'p)	n/a
Curing time		25 hrs		Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments:							



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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX										
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks				
		Type	Reference							
BH04	16.50 16.95	B	-	12.6	Firm brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse subangular and subrounded quartzite					
PREPARATION					Liquid Limit	22 %				
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	12 %			
Sample retained 0.425mm sieve (Measured)					10 %	Plasticity Index	10 %			
Corrected water content for material passing 0.425mm					14.0 %	Liquidity Index	0.06			
Sample retained 2mm sieve (Measured)					5 %	NHBC Modified (I'p)	9 %			
Curing time		22 hrs		Clay Content	Not analysed	Derived Activity	Not analysed			
C=CLAY Plasticity Index % (Ip) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit %							High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential									
Medium										
Low										
Plasticity Chart BS5930: 2015: Figure 8										
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)										



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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
BH04	22.50 22.95	D	-	18.0	Very stiff brown silty CLAY with frequent light grey silt partings		
PREPARATION					Liquid Limit	45 %	
Method of preparation					From natural	Plastic Limit	20 %
Sample retained 0.425mm sieve (Assumed)					0 %	Plasticity Index	25 %
Corrected water content for material passing 0.425mm						Liquidity Index	-0.08
Sample retained 2mm sieve (Assumed)					0 %	NHBC Modified (I'p)	n/a
Curing time		70 hrs		Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (I_p) M=SILT High Medium Low NHBC Volume Change Potential							
Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2							
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4							
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter							
Comments:							



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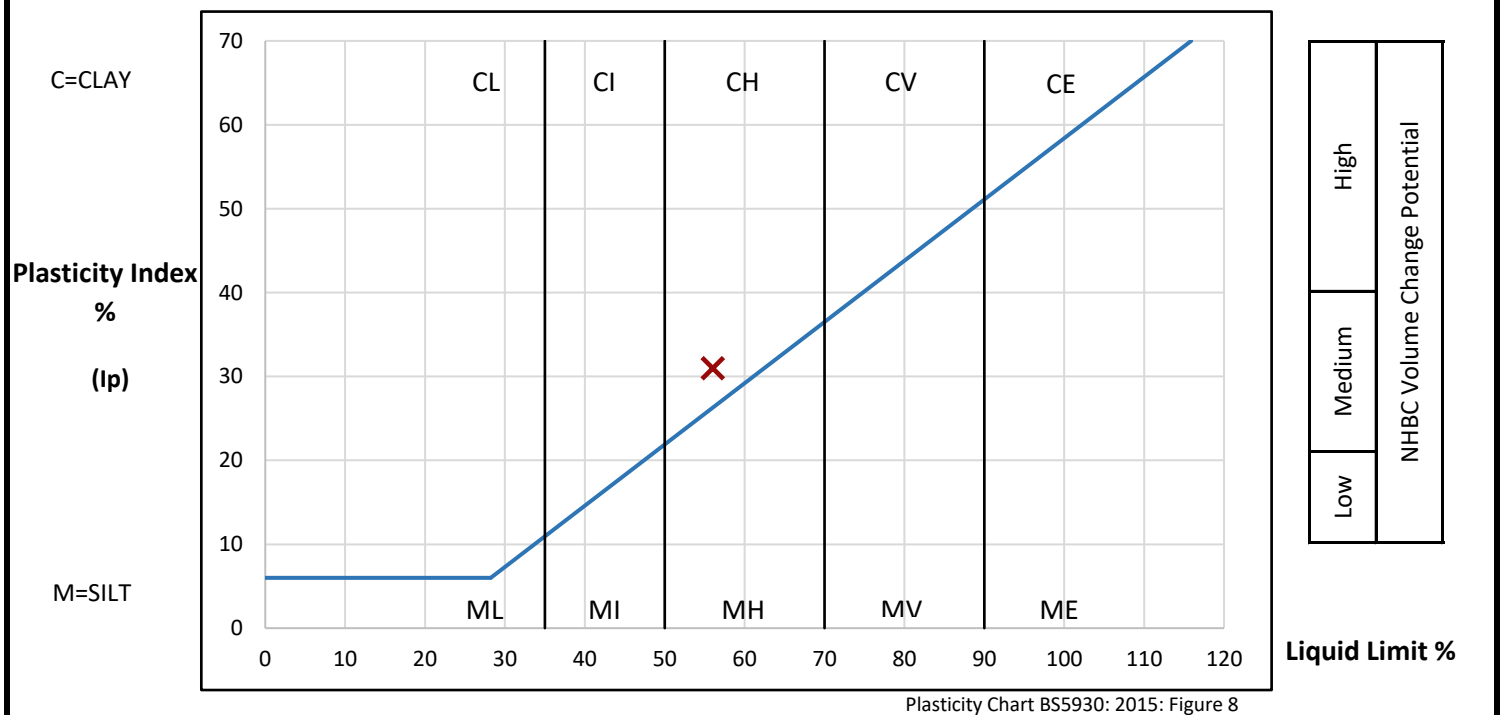
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP01	0.80 - 1.00	B	1	25.8	Firm locally stiff closely fissured mottled bluish grey and dark yellowish brown CLAY with occasional decayed roots	

PREPARATION				Liquid Limit	56 %
Method of preparation				From natural	Plastic Limit 25 %
Sample retained 0.425mm sieve (Assumed)				0 %	Plasticity Index 31 %
Corrected water content for material passing 0.425mm					Liquidity Index 0.03
Sample retained 2mm sieve (Assumed)				0 %	NHBC Modified (I'p) n/a
Curing time		24 hrs		Clay Content	Not analysed
				Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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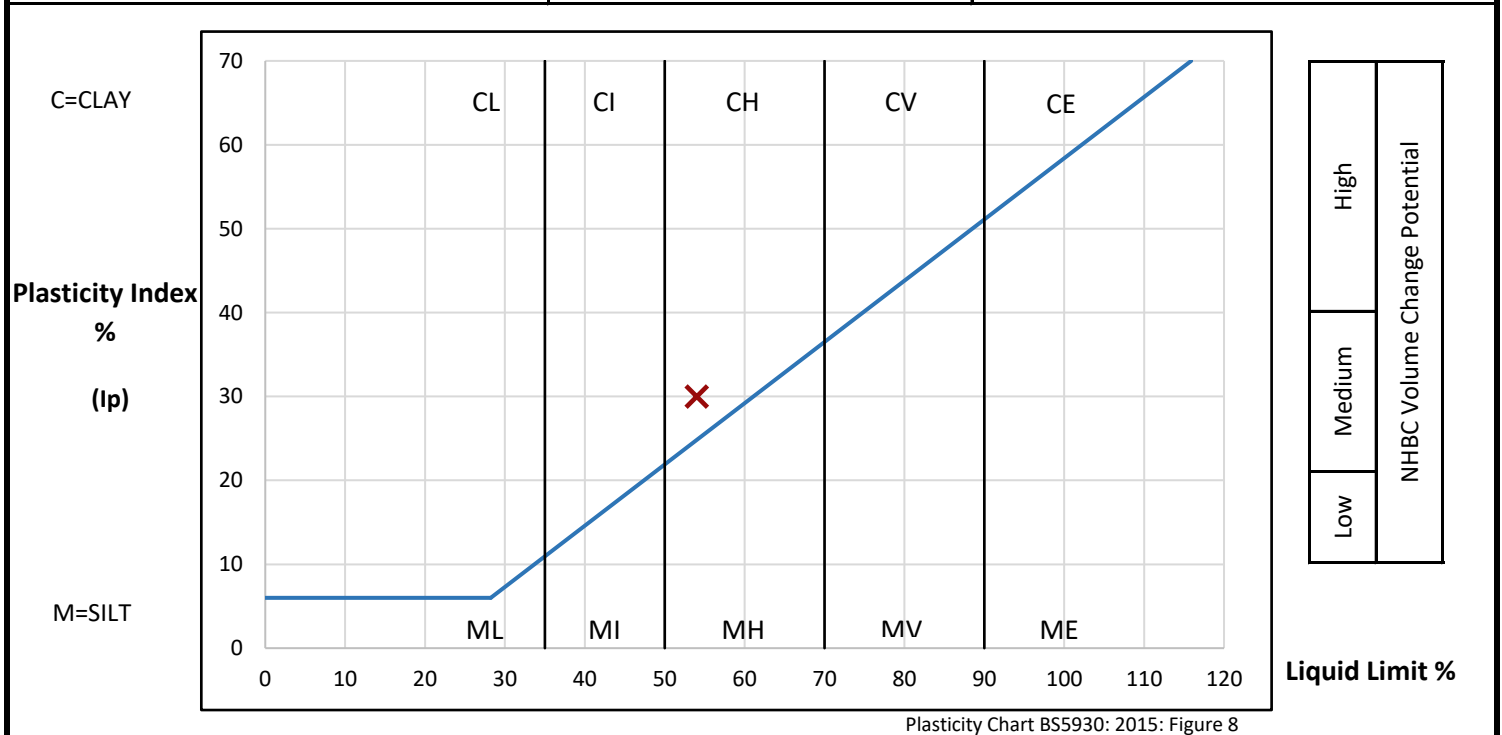
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
TP03	1.00 - 1.20	B	1	27.2	Stiff yellowish brown CLAY with occasional light grey mottling, recently active and decayed roots, rare calcareous aggregations, and slightly sandy pockets.	

PREPARATION			Liquid Limit	54 %	
Method of preparation		From natural	Plastic Limit	24 %	
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	30 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.11	
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks				
		Type	Reference							
TP10	0.90 - 0.90	B	1	26.3	Stiff yellowish brown CLAY with occasional light bluish grey mottling, and recently active and decayed roots.					
PREPARATION					Liquid Limit	55 %				
Method of preparation					From natural	Plastic Limit 24 %				
Sample retained 0.425mm sieve (Assumed)					0 %	Plasticity Index 31 %				
Corrected water content for material passing 0.425mm						Liquidity Index 0.07				
Sample retained 2mm sieve (Assumed)					0 %	NHBC Modified (I'p) n/a				
Curing time			24 hrs	Clay Content	Not analysed	Derived Activity Not analysed				
C=CLAY Plasticity Index % (I_p) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential									
Medium										
Low										
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments:										



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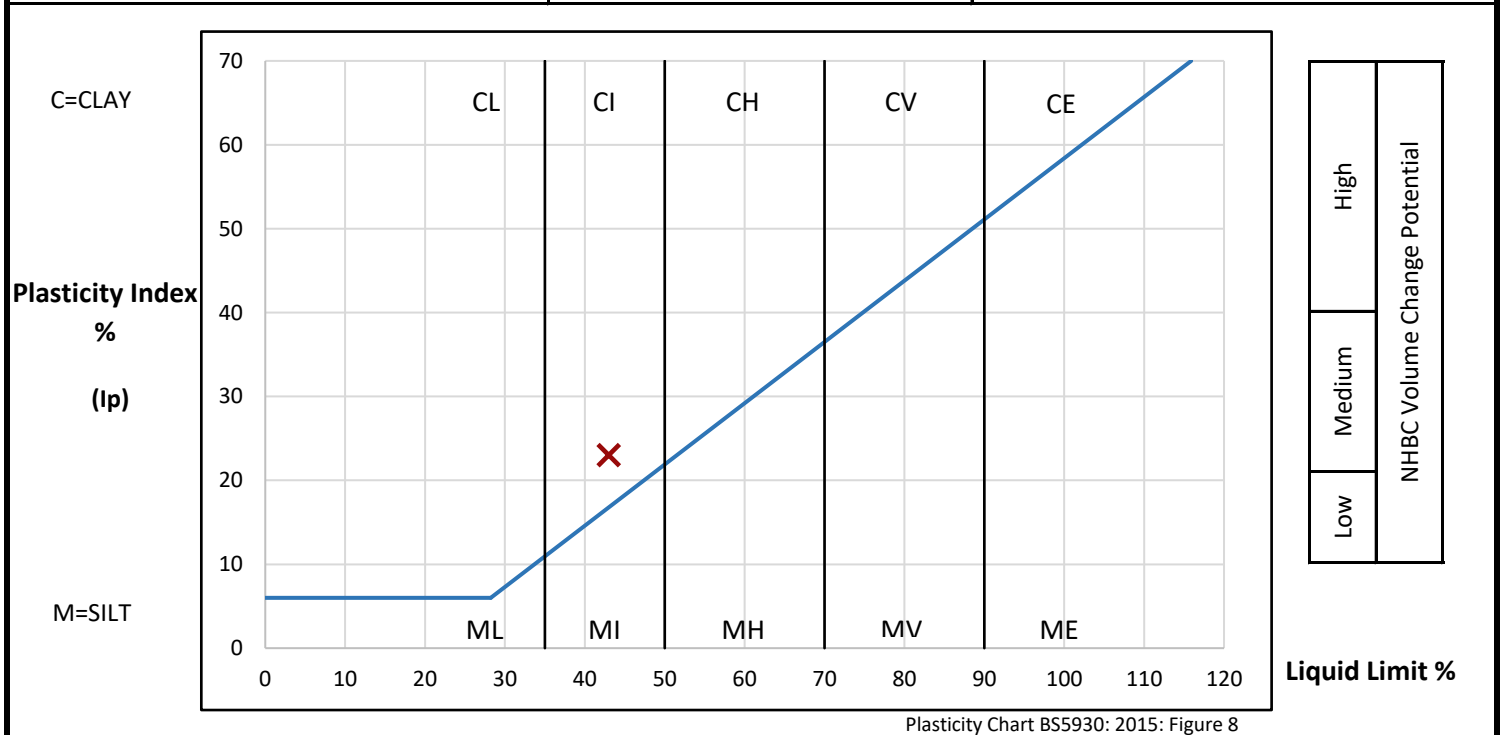
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS01C	3.80 - 4.00	D	4	20.3	Stiff thinly laminated dark yellowish brown silty CLAY with rare bluish grey mottling, fine quartzite gravel and decayed roots	

PREPARATION			Liquid Limit	43 %	
Method of preparation		From natural/gravel picked out by hand	Plastic Limit	20 %	
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	23 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.01	
Sample retained 2mm sieve	(Assumed)	<1 %	NHBC Modified (I'p)	n/a	
Curing time	70 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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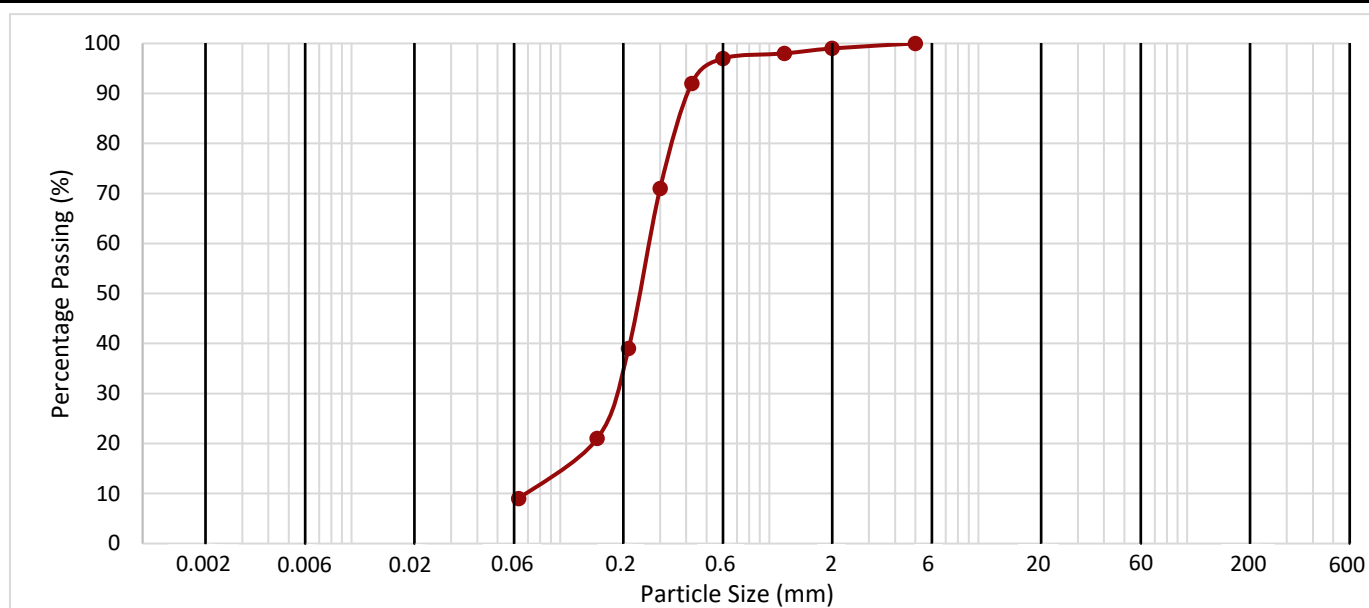
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
BH01	13.00 - 13.50	B	-	Dark reddish brown silty SAND with rare gravel	

Method of Test: **Wet Sieve**

Method of Pretreatment:

Not required

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

H y d r o m e t e r	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	2.00		
	1.18		
	0.600		
	0.425		
	0.300		
	0.212		
	0.150		
	Particle Size (mm)	Passing (%)	Clay by Dry Mass (%)
	2.00		
	1.18		
	0.600		
	0.425		
	0.300		
	0.212		
	0.150		

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	99	90
1.18	98	
0.600	97	
0.425	92	
0.300	71	
0.212	39	
0.150	21	
0.063	9	

Fines By Dry Mass (%)	
<0.063mm	9

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		1
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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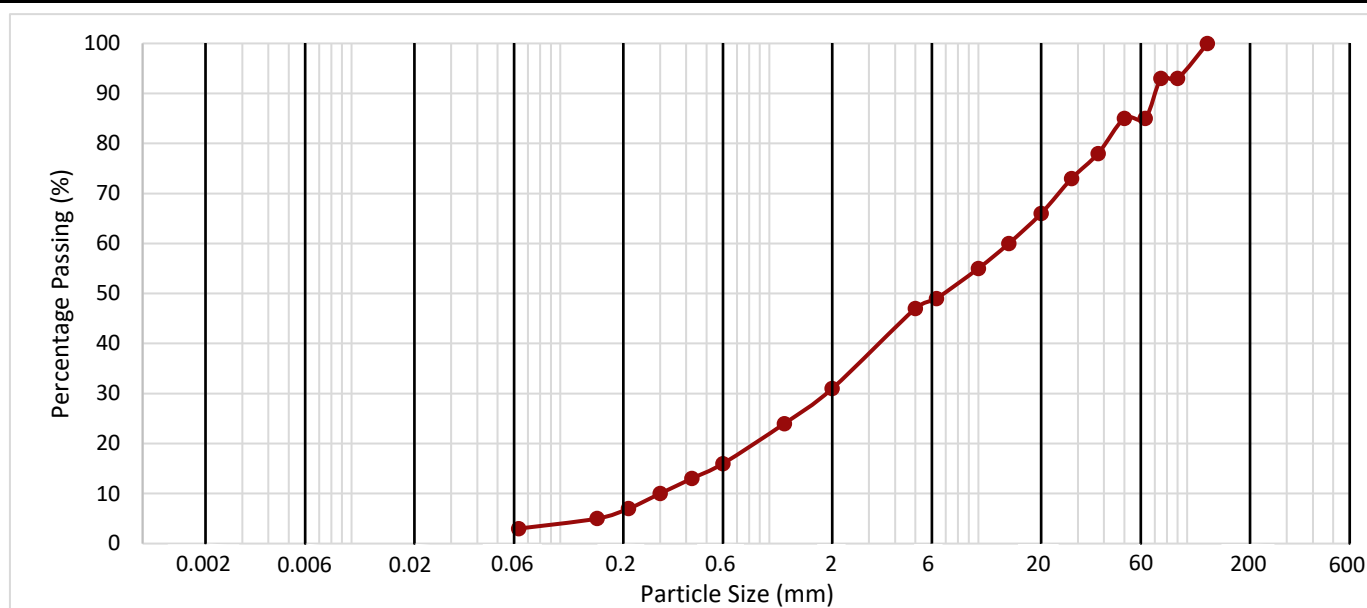
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
BH02	22.50 - 22.95	B	-	Green, black, reddish brown, brown and white angular to rounded quartzite and occasional grey, brown and light brown angular to rounded slightly silty very sandy GRAVEL. Sand is greyish brown	Dry mass of sample required 50kg. Mass of sample submitted 15.344kg. Sample Unrepresentative BS1377:Part 2:1990 Table 3.

Method of Test: **Wet Sieve**

Method of Pretreatment:

Not required

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

H y d r o m e t e r	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	2.0		
	0.85		
	0.425		
	0.25		
	0.15		
	0.075		
	0.063		
			Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	31	28
1.18	24	
0.600	16	
0.425	13	
0.300	10	
0.212	7	
0.150	5	
0.063	3	

Fines By Dry Mass (%)	
<0.063mm	3

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		69
125	100	
90	93	
63	85	
50	85	
37.5	78	
28	73	
20	66	
14	60	
10	55	
6.3	49	
5	47	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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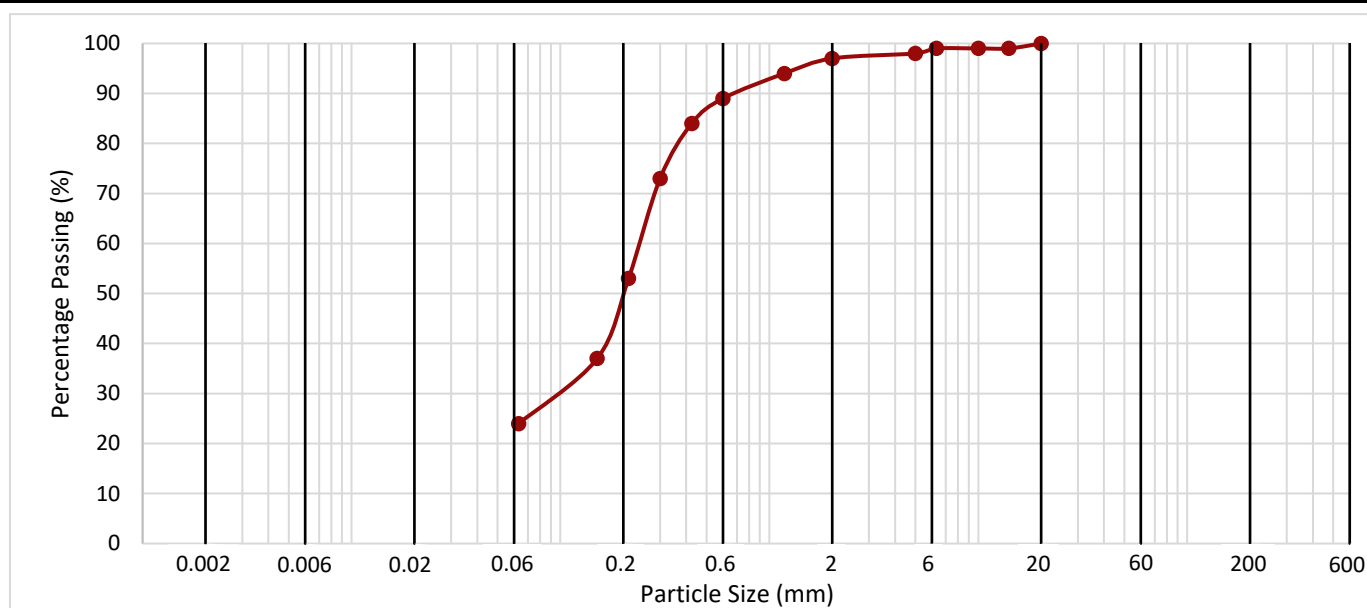
Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
BH04	19.50 - 19.95	B	-	Dark brown slightly gravelly slightly silty very clayey SAND. Gravel is brown and green subangular and subrounded quartzite and sandstone and occasional coal fragments	

Method of Test: **Wet Sieve**

Method of Pretreatment:

Not required

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	Particle Size (mm)	Passing (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	97	73
1.18	94	
0.600	89	
0.425	84	
0.300	73	
0.212	53	
0.150	37	
0.063	24	

Fines By Dry Mass (%)	
<0.063mm	24

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		3
125		
90		
63		
50		
37.5		
28		
20	100	
14	99	
10	99	
6.3	99	
5	98	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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Contract		UK21.5551 - Rodney Street, Manchester										
Serial No.		39619_1										
DETERMINATION OF DENSITY, WATER CONTENT AND UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE												
Borehole /Pit No.	Depth (m)	Type	Reference	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Lateral Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	Mohrs Circle Analysis		Description
										Cu (kPa)	Ø degrees	
BH01	3.05	UT	1	29.0	2.13	1.65	58	244	122	111	3.6	Stiff (high strength) fissured dark brown CLAY with occasional dark grey mottling and rare mudstone.
							121	251	126			
							179	260	130			
BH01	12.05	UT	2	21.1	2.09	1.73	240	297	149			Stiff (high strength) fissured dark reddish brown CLAY
							478	284	142			
							727	281	141			
BH02	7.56	UT	1	17.8	2.20	1.87	154	168	84	80	1.1	Stiff (high strength) dark reddish brown slightly gravelly CLAY. Gravel is medium and coarse quartzite and fine and medium mudstone.
							301	175	88			
							452	180	90			
BH02	12.03	UT	2	18.4	2.15	1.82	241	82	41	37	0.9	Firm (medium strength) fissured dark brown CLAY with rare fine to coarse mudstone and sandstone
							482	94	47			
							722	98	49			
BH02	21.03	UT	3	22.1	2.04	1.67	420	259	130	110	2.3	Stiff (high strength) fissured laminated dark brown CLAY with occasional brown silt partings
							598	282	141			
							807	291	146			
BH03	6.12	UT	1	16.5	2.19	1.88	120	202	101	97	0.9	Stiff (high strength) dark brown slightly gravelly CLAY. Gravel is fine to coarse quartzite, mudstone and rare fine coal fragments
							239	203	102			
							364	210	105			
BH03	10.53	UT	2	21.6	2.08	1.71	210	240	120	111	1.8	Stiff (high strength) fissured dark brown CLAY
							422	262	131			
							635	267	134			
Method of Preparation:			BS 1377: Part 1: 1990: 7.4.2 & 8, Part 2: 1990: 7.2, Part 7: 1990: 8.3									
Method of Test:			BS 1377: Part 2: 1990:3 Determination of Moisture Content, Part2: 1990:7 Determination of Density, Part 7: 1990: 8 Undrained Shear Strenth, 9 Multistage Loading									
Type of Sample Key:			U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter									
Comments:												
Remarks to Include:			Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C									



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DETERMINATION OF DENSITY, WATER CONTENT AND UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Water Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Lateral Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	Mohr's Circle Analysis		Description
										Cu (kPa)	Ø degrees	
BH04	6.04	UT	1	21.8	2.10	1.72	124 239 360	232 241 244	116 121 122	111	1.4	Stiff (high strength) dark brown CLAY with occasional grey mottling and rare sandstone and coal fragments

Method of Preparation: BS 1377: Part 1: 1990: 7.4.2 & 8, Part 2: 1990: 7.2, Part 7: 1990: 8.3
Method of Test: BS 1377: Part 2: 1990:3 Determination of Moisture Content, Part2: 1990:7 Determination of Density, Part 7: 1990: 8 Undrained Shear Strength, 9 Multistage Loading
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:
Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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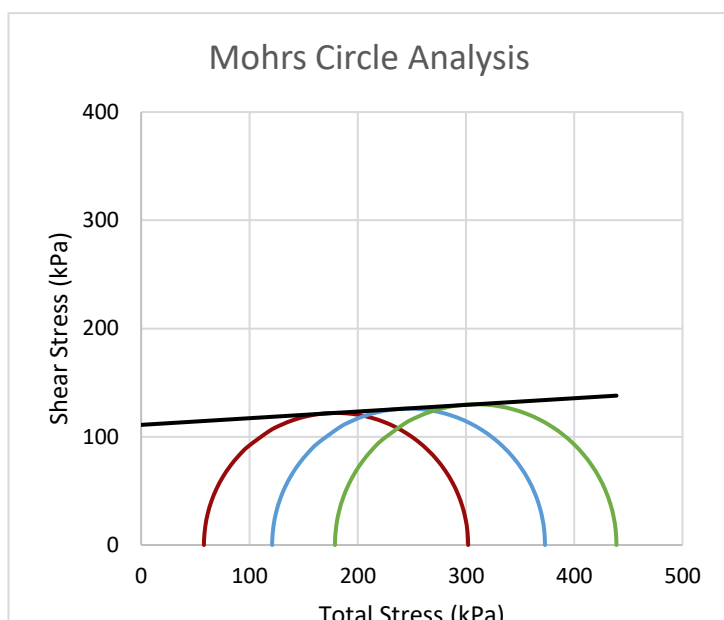
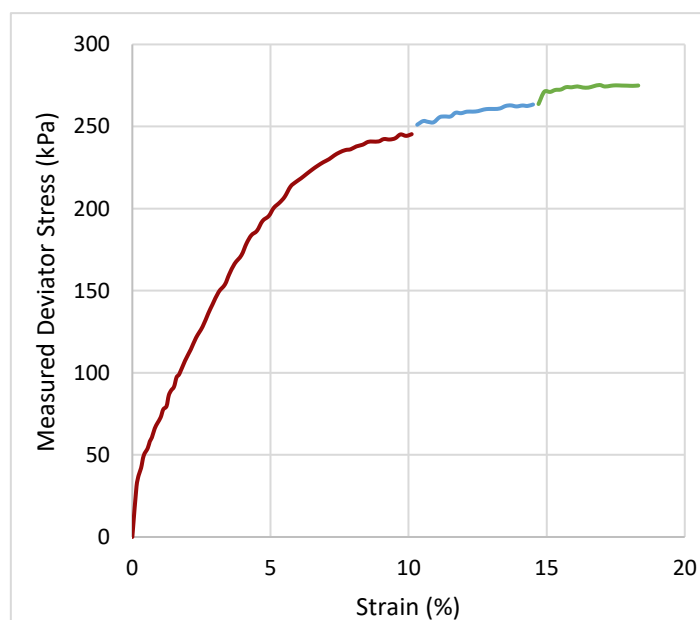
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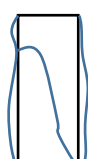
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH01	3.00 - 3.45	UT	1	Stiff (high strength) fissured dark brown CLAY with occasional dark grey mottling and rare mudstone.	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
 Depth of Top of Specimen (m) 3.05	199.2	101.7	3443	29.0	2.13	1.65

TEST INFORMATION	Rate of Strain	1.0 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	58	10.1	1.3	/	244	122	111	3.6
	121	14.5	1.7	10.2	251	126		
	179	16.9	2.0	13.1	260	130		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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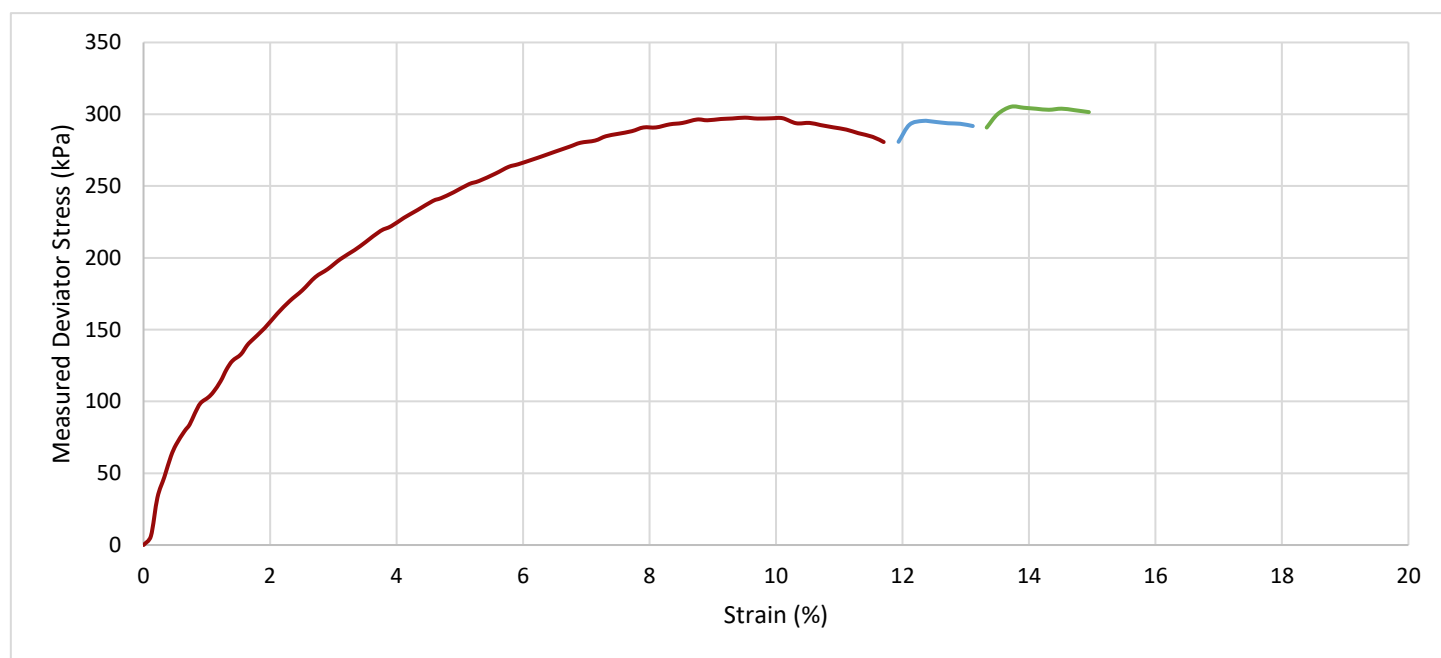
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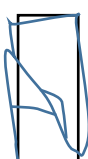
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH01	12.00 - 12.45	UT	2	Stiff (high strength) fissured dark reddish brown CLAY	

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)
	Depth of Top of Specimen (m) 12.05	199.3	102.6	3446	21.1	2.09	1.73

TEST INFORMATION	Rate of Strain	2.0	% per Min	Rubber Membrane Thickness	0.6	mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	240	9.5	1.3	/	297	149		
	478	12.3	1.5	9.7	284	142		
	727	13.7	1.7	22.3	281	141		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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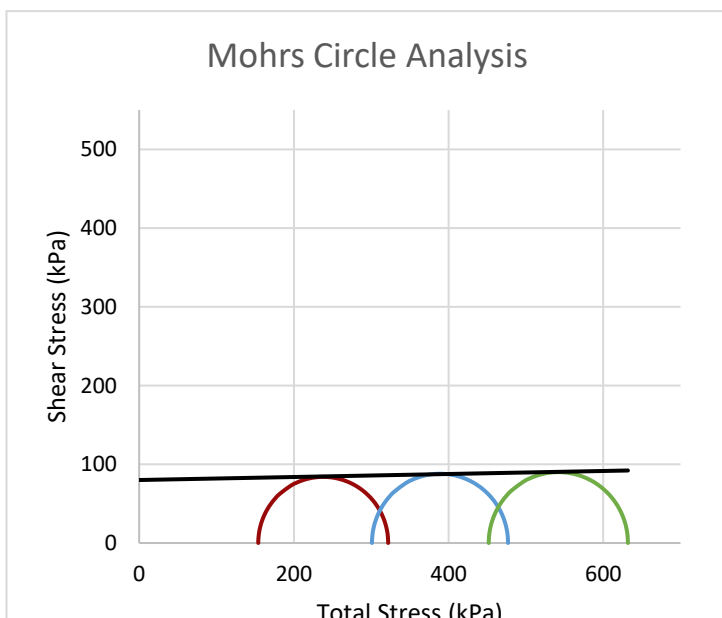
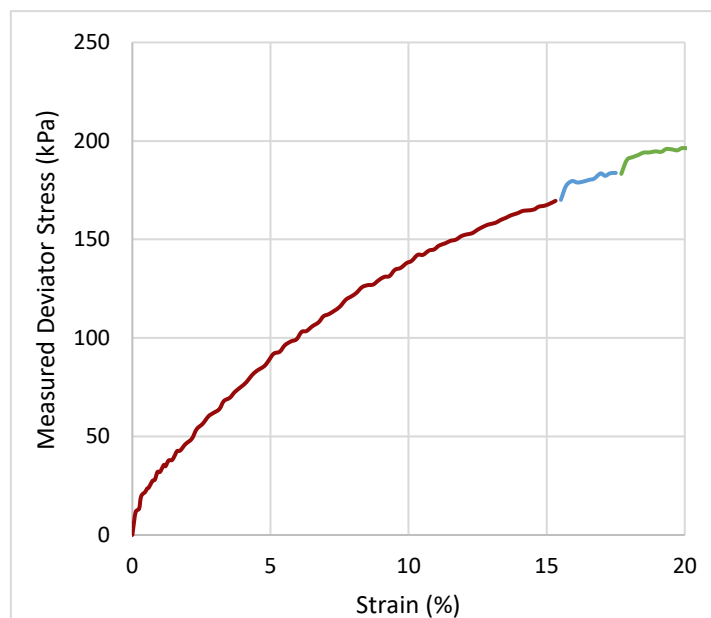
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DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH02	7.50 - 7.95	UT	1	Stiff (high strength) dark reddish brown slightly gravelly CLAY. Gravel is medium and coarse quartzite and fine and medium mudstone.	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	184.8	104.4	3479	17.8	2.20	1.87

TEST INFORMATION	Rate of Strain	2.0 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	154	15.3	1.8	/	168	84	80	1.1
	301	17.5	2.0	6.6	175	88		
	452	19.9	2.2	14.1	180	90		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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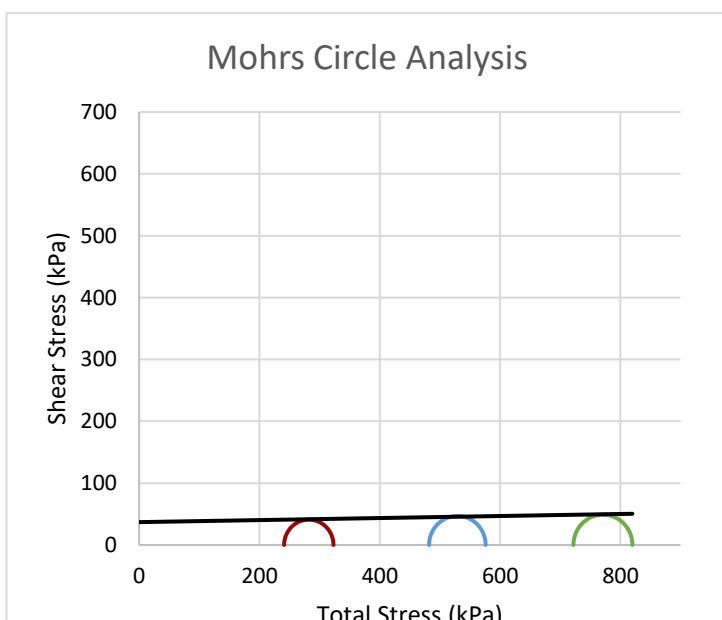
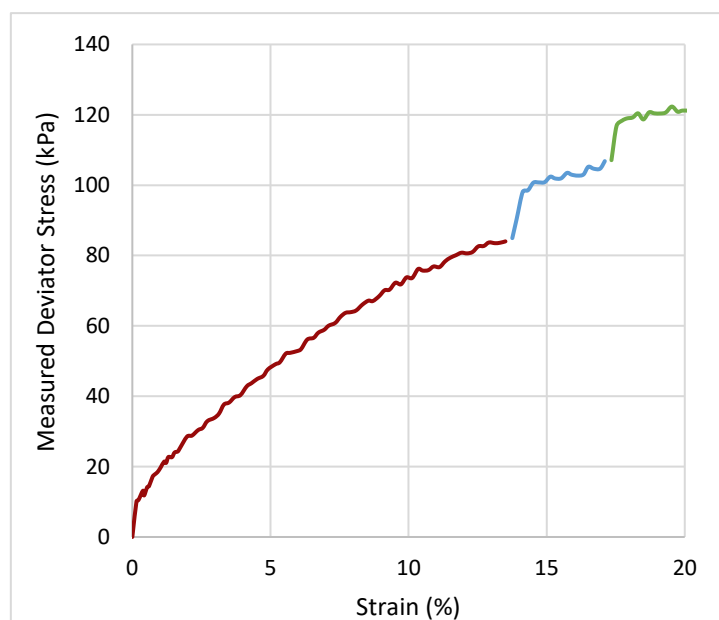
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DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH02	12.00 - 12.45	UT	2	Firm (medium strength) fissured dark brown CLAY with rare fine to coarse mudstone and sandstone	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
 Depth of Top of Specimen (m) 12.03	199.2	103.5	3610	18.4	2.15	1.82

TEST INFORMATION	Rate of Strain	2.0	% per Min	Rubber Membrane Thickness	0.6	mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	241	13.5	1.6	/	82	41	37	0.9
	482	17.1	2.0	10.9	94	47		
	722	19.5	2.2	22.3	98	49		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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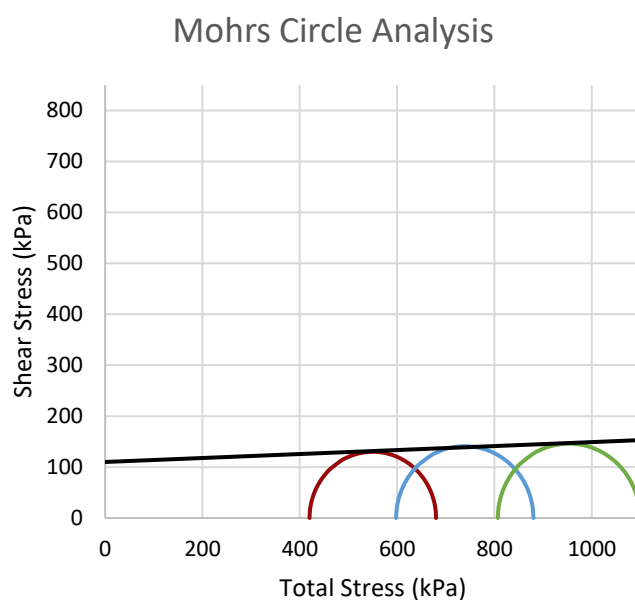
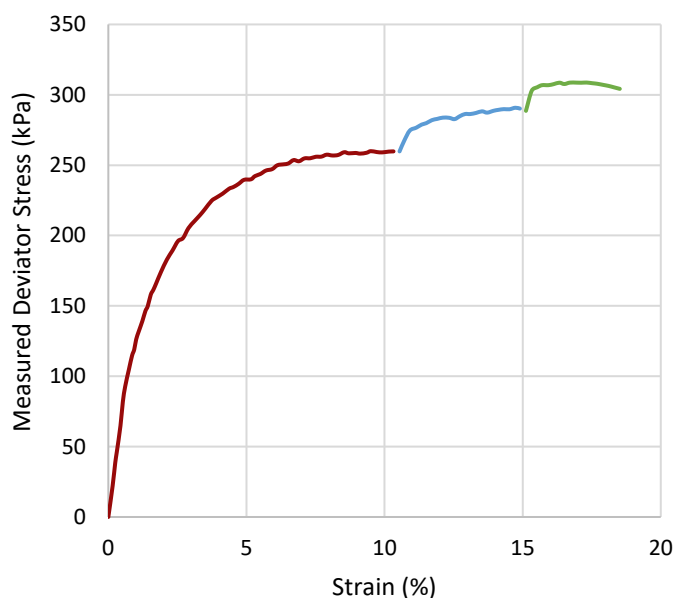
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DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description				Remarks	
BH02	21.00 - 21.45	UT	3	Stiff (high strength) fissured laminated dark brown CLAY with occasional brown silt partings					
Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)		
	Depth of Top of Specimen (m) 21.03	169.7	102.1	2838	22.1	2.04	1.67		

TEST INFORMATION	Rate of Strain	2.0	% per Min	Rubber Membrane Thickness	0.3	mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	420	9.5	0.6	/	259	130	110	2.3
	598	14.7	0.9	8.0	282	141		
	807	17.3	1.0	17.3	291	146		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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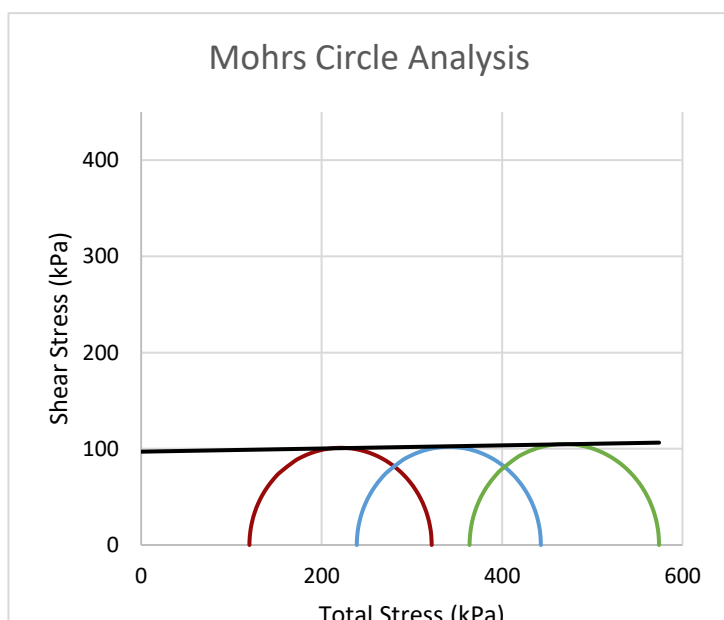
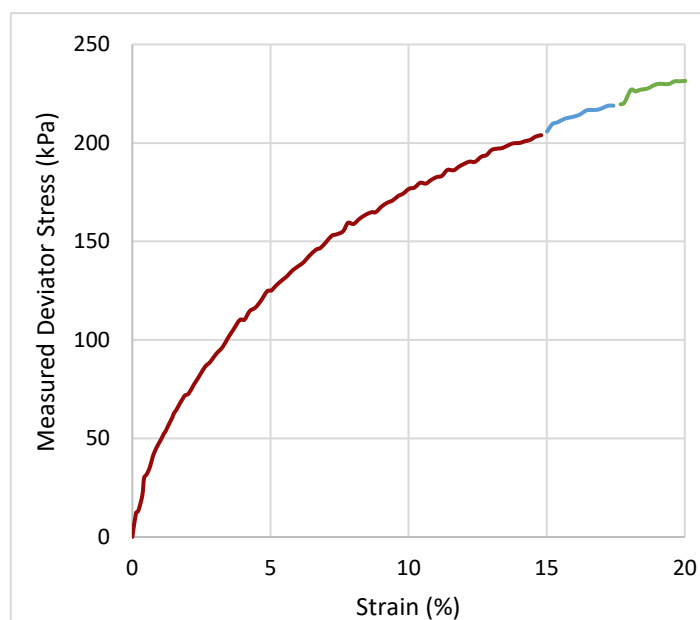
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DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH03	6.00 - 6.45	UT	1	Stiff (high strength) dark brown slightly gravelly CLAY. Gravel is fine to coarse quartzite, mudstone and rare fine coal fragments	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
 Depth of Top of Specimen (m) 6.12	154.8	103.8	2871	16.5	2.19	1.88

TEST INFORMATION	Rate of Strain	2.0 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	120	14.8	1.7	/	202	101	97	0.9
	239	17.4	2.0	13.7	203	102		
	364	20.0	2.2	19.2	210	105		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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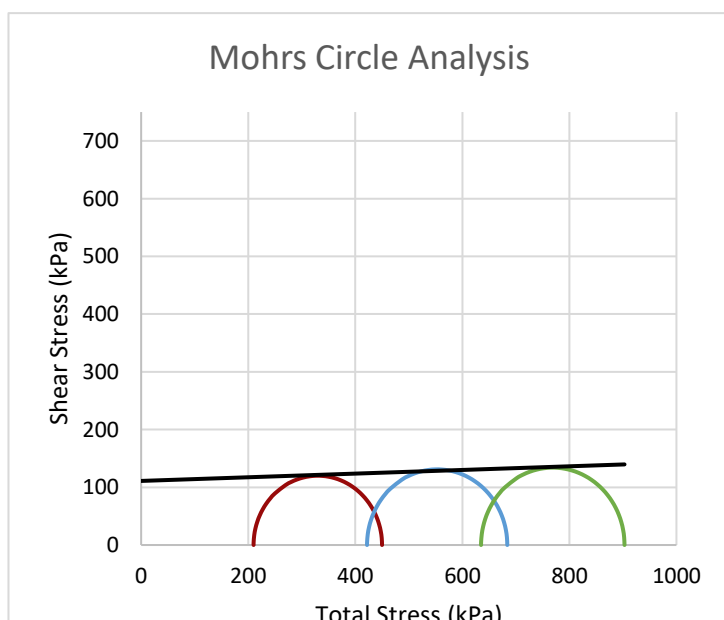
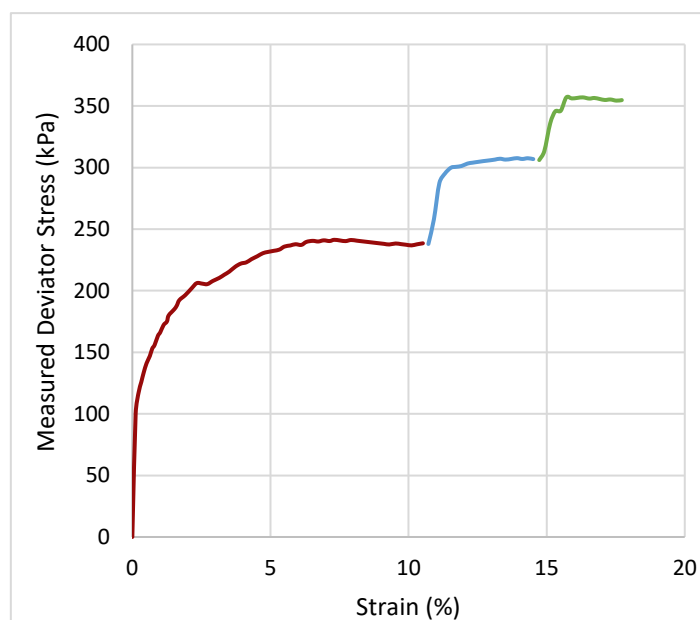
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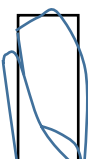
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH03	10.50 - 10.95	UT	2	Stiff (high strength) fissured dark brown CLAY	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
 Depth of Top of Specimen (m) 10.53	76.4	37.7	177	21.6	2.08	1.71

TEST INFORMATION	Rate of Strain	2.0 % per Min	Rubber Membrane Thickness	0.3 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	210	7.3	1.4	/	240	120	111	1.8
	422	13.9	2.3	43.8	262	131		
	635	16.3	2.6	87.7	267	134		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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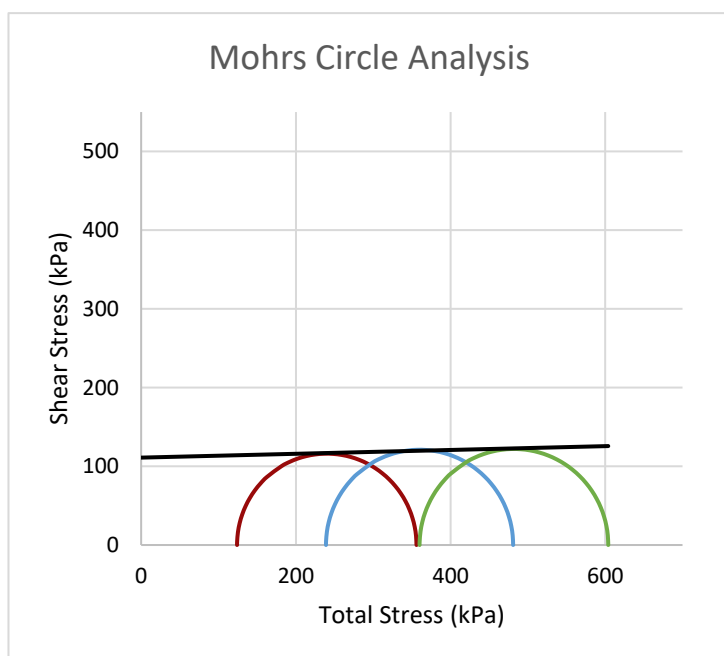
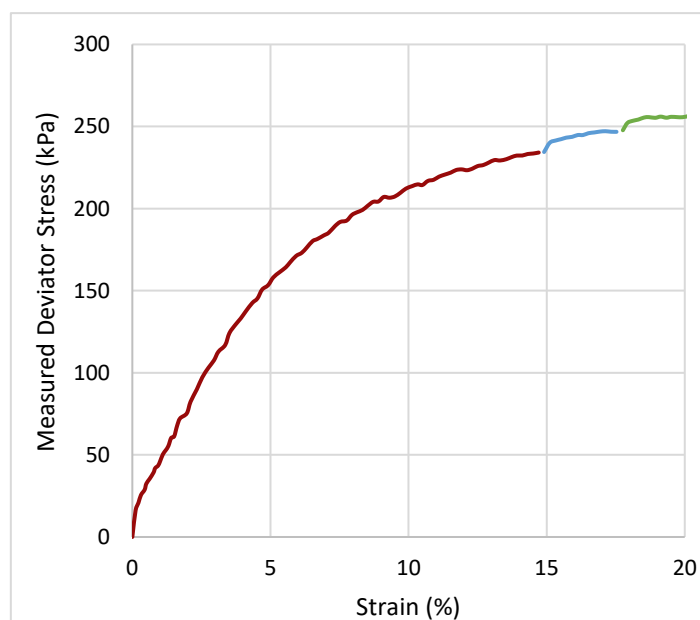
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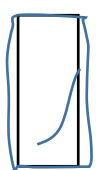
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH04	6.00 - 6.45	UT	1	Stiff (high strength) dark brown CLAY with occasional grey mottling and rare sandstone and coal fragments	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
 Depth of Top of Specimen (m) 6.04	184.4	104.5	3310	21.8	2.10	1.72

TEST INFORMATION	Rate of Strain	2.0 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	124	14.7	1.7	/	232	116	111	1.4
	239	17.1	1.9	4.4	241	121		
	360	20.1	2.2	9.8	244	122		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



0998

Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP01	0.80 - 1.00	B	1	Firm locally stiff closely fissured mottled bluish grey and dark yellowish brown CLAY with occasional decayed roots	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.96 Mg/m ³
	Dry Density	1.54 Mg/m ³

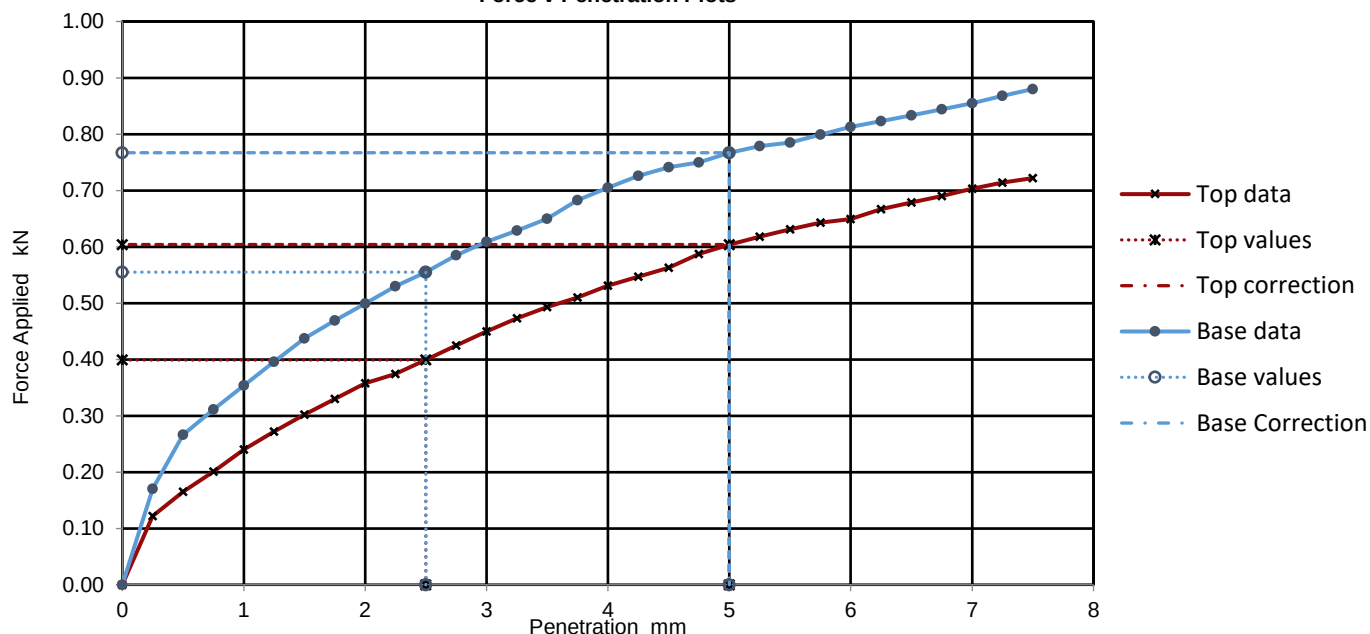
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.0	3.0	3.0	
BASE	No	4.2	3.8	4.2	

Water Content (%)
27.1
26.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



0998

Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP03	1.00 - 1.20	B	1	Stiff yellowish brown CLAY with occasional light grey mottling, recently active and decayed roots, rare calcareous aggregations, and slightly sandy pockets.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.97 Mg/m ³
	Dry Density	1.58 Mg/m ³

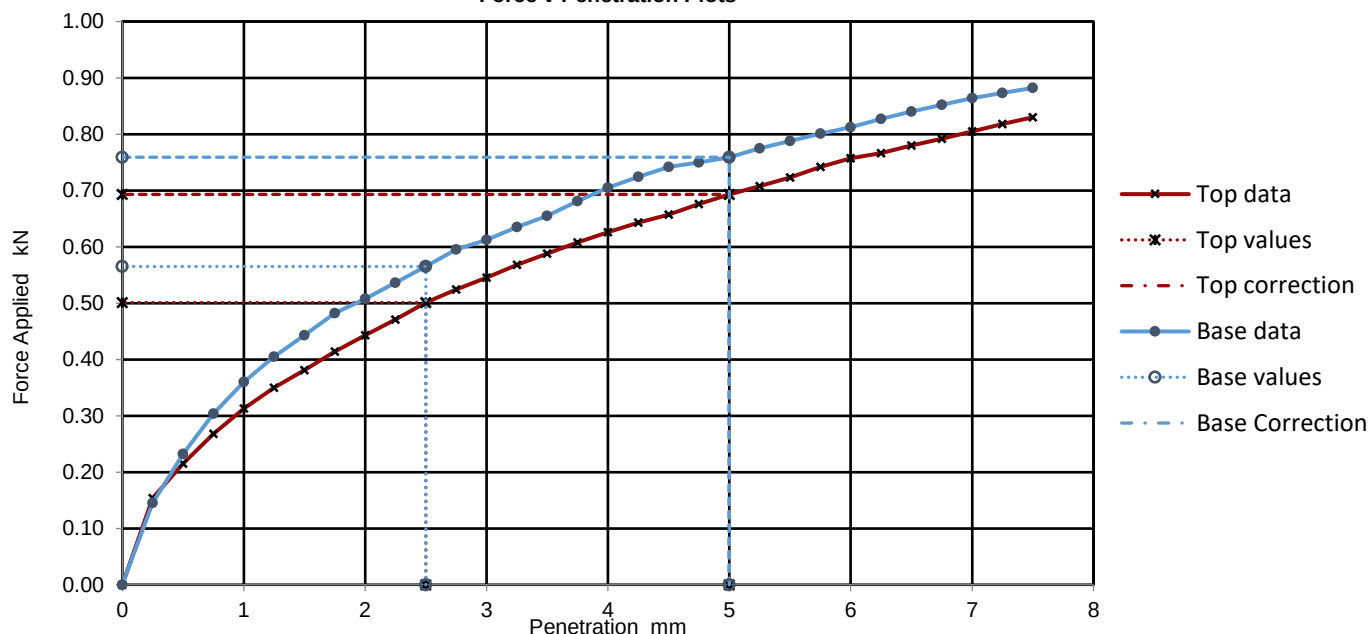
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.8	3.5	3.8	4.1
BASE	No	4.3	3.8	4.3	

Water Content (%)
24.7
24.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/11/2021



0998

Contract	UK21.5551 - Rodney Street, Manchester
Serial No.	39619_1

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP10	0.90 - 0.90	B	1	Stiff yellowish brown CLAY with occasional light bluish grey mottling, and recently active and decayed roots.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.91 Mg/m ³
	Dry Density	1.52 Mg/m ³

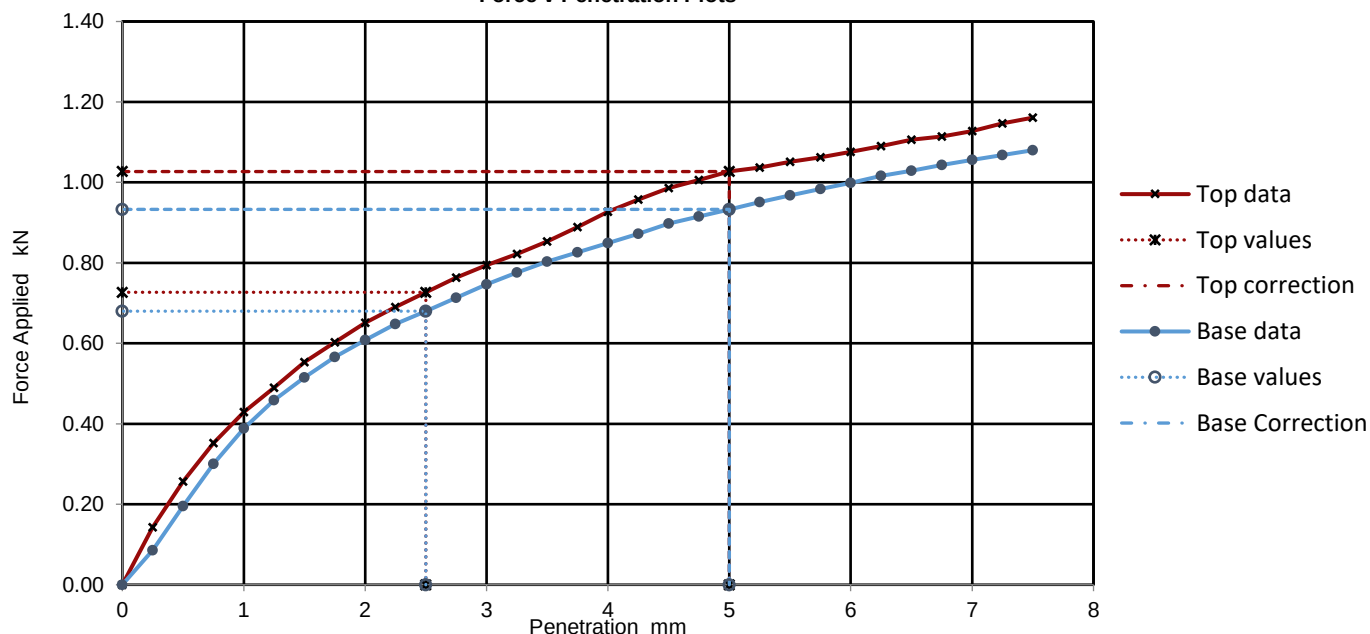
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	5.5	5.1	5.5	5.4
BASE	No	5.2	4.7	5.2	

Water Content (%)
25.8
25.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



2183



Chemtest

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 21-38657-1

Initial Date of Issue: 11-Nov-2021

Client Soil Property Testing

Client Address: 18 Halycon Court
St Margarets Way
Stukeley Meadows
Huntingdon
Cambridgeshire
PE29 6DG

Contact(s): Jon Garner

Project 39619_1 Rodney Street, Manchester

Quotation No.: **Date Received:** 04-Nov-2021

Order No.: 39619_1 **Date Instructed:** 04-Nov-2021

No. of Samples: 1

Turnaround (Wkdays): 5 **Results Due:** 10-Nov-2021

Date Approved: 10-Nov-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 39619 1 Rodney Street, Manchester

Client: Soil Property Testing	Chemtest Job No.:		21-38657		
Quotation No.:	Chemtest Sample ID.:		1313011		
	Client Sample ID.:		B		
	Sample Location:		BH02		
	Sample Type:		SOIL		
	Top Depth (m):		19.5		
Determinand	Accred.	SOP	Units	LOD	
Moisture	N	2030	%	0.020	21
pH (2.5:1)	N	2010		4.0	[A] 8.6
Magnesium (Water Soluble)	U	2120	mg/kg	20	[A] 28
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[A] 0.11
Total Sulphur	U	2175	%	0.010	[A] 0.057
Chloride (Water Soluble)	U	2220	g/l	0.010	[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010
Ammonium (Extractable)	U	2425	mg/kg	0.50	[A] 6.6
Sulphate (Total)	U	2430	%	0.010	[A] 0.13

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1313011		B	BH02		A	Plastic Bag

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

APPENDIX G

Generic Screening Criteria



EPS Generic Quantitative Risk Assessment

Generic Screening Criteria (C4SLs) - All Land Uses

	Soil Targets					
Contaminant	Residential		Allotments	Commercial	Public Open Spaces	
	With Home Grown Produce	Without Home Grown Produce			Residential	Parks
Unit	mg/kg					
Arsenic	37	40	49	640	79	168
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)pyrene	5	5.3	5.7	76	10	21
Cadmium	26	149	4.9	410	220	880
Chromium (VI)	21	21	170	49	23	250
Lead	200	310	80	2330	630	1300

Notes:

Targets for Human Health have been taken from the publicly available Category 4 Screening Levels (C4SLs) for assessment of land affected by contamination issued by DEFRA in December 2013.

Within the modelling for C4SLs, a Soil Organic Matter content of 6% has been used. Reference to site-specific data should be made where possible. EPS have carried out a sensitivity analysis in-house and the contaminant benzene is the current C4SL most susceptible to changes in SOM and therefore any risk assessment for this compound must account for this aspect.

EPS Generic Quantitative Risk Assessment - Residential Land Use

Contaminant	Soil Targets			Groundwater Targets	
	Human Health	Controlled Waters		Controlled Waters	
		LGwRP	HGwRP	LGwRP	HGwRP
Unit		mg/kg		ug/l	
Arsenic	See C4SL	n/c	n/c	50	10
Cadmium	See C4SL	n/c	n/c	5	5
Chromium III	910	n/c	n/c	250	50
Chromium VI	See C4SL	n/c	n/c	n/c	n/c
Copper	2400	n/c	n/c	28	28
Mercury (elemental)	1.2	n/c	n/c	1	1
Nickel	180	n/c	n/c	200	50
Lead	See C4SL	n/c	n/c	250	10
Selenium	250	n/c	n/c	10	10
Zinc	3700	n/c	n/c	500	500
Benzene	See C4SL	0.252	0.008	30	1
Toluene	130	1.17	1.17	50	50
Ethylbenzene	47	15.0	10.0	300	200
Xylene (para)	56	0.885	0.885	30	30
MTBE#	49	0.138	0.0276	75	15
Benzo(a)Pyrene	See C4SL	10	1.44	0.7	0.1
Naphthalene	2.3	0.934	0.02	10	0.1
Dibenz(ah)anthracene	0.24	n/c	n/c	n/c	n/c
Aliphatic C5-C6	42	5.27	1.05	50	10
Aliphatic C6-C8	100	23.2	4.64	50	10
Aliphatic C8-C10	27	175	35.1	50	10
Aliphatic C10-C12	130(48)*	1380	276	50	10
Aliphatic C12-C16	1100(8.48)**	27500	5490	50	10
Aliphatic C16-C35	65000 (8.48)**	3.46E+06	6.91E+05	50	10
Aromatic C8-C10	34	8.74	1.75	50	10
Aromatic C10-C12	74	13.8	2.76	50	10
Aromatic C12-C16	140	27.5	5.5	50	10
Aromatic C16-C21	260	86.9	17.4	50	10
Aromatic C21-C35	1100	690	138	50	10

Notes:

LGwRP - Low Groundwater Resource Potential

HGwRP - High Groundwater Resource Potential

f = Oral, dermal and inhalation exposure compared with oral HCV N/C = Not Calculated

* = S4UL exceeds vapour saturation limit (in brackets)

** = S4UL exceeds solubility saturation limit (in brackets)

Soil Targets

Targets for Human Health have been taken from S4ULs 'Suitable For Use Levels for Human Health Risk Assessment' – LQM and CIEH (2014) derived using standard sandy loam soil with 1% SOM, except (#) = EIC/AGS/CL:AIRE GAC 'Soil Generic Assessment Criteria' (2010). For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, assuming no degradation for a 10m compliance distance with criteria of EQS or UKDWS for LGwRP and HGwRP respectively (see notes for GW targets).

Groundwater Targets

For LGwRP, targets have been taken as Freshwater EQS where available. For Ethylbenzene and BaP the WHO Health limit has been used and for MTBE and individual TPH fractions a 5 times multiplier of taste threshold and UKDWS has been taken respectively.

For HGwRP, targets have been taken as UKDWS where available, with the exception of Copper and Zinc where the EQS is lower than the DWS and therefore the EQS has been used as the groundwater target. For Ethylbenzene the upper WHO ATO limit has been used. For Toluene and Xylene, the WHO ATO limit is higher than the EQS and so the lower value has been taken. For MTBE the taste threshold has been taken.

Work carried out to calculate generic screening criteria for concentrations of contaminant in groundwater with respect of risks to Human Health has generally found that criteria far exceed (by at least 2 orders of magnitude) those listed for the protection of either LGwRP and HGwRP receptors. On this basis, the above Groundwater criteria are also considered protective of human health and further evaluation of these risks should be considered alongside any detailed quantitative risk assessments carried out for groundwater on a site specific basis.

APPENDIX H

Cover Soils Checklist



ADVISORY NOTE

SOILS FOR USE IN COVER SYSTEMS

This assessment has recommended a control measure in the form of a defined thickness of clean soil to be used in gardens and soft landscaped areas in order to reduce risks from underlying contamination (a 'cover system'). The thickness presented is what EPS consider sufficient provided the soil forming the cover system is good quality, as it is assumed that over time this soil will become intermixed with the underlying soils and therefore needs to have the necessary 'diluting' effect. The aim being that an acceptable reduction in exposure to contamination is achieved, rather than absolute prevention.

These simple cover systems are designed in general accordance with the BRE 2004 guidance '*Cover Systems for Land Regeneration, Thickness of Cover Systems for Contaminated Land*'. In many cases guidance from the relevant Local Planning Authority or NHBC/Approved Inspector may also apply and need to be taken into account. In most cases, to design the cover system EPS have to assume a certain quality of cover soils in advance. In these circumstances, we utilise what we consider to represent 'good quality soil' in that the soil could never be considered 'contaminated' but is also pragmatic and does not represent an unrealistic or unsustainable objective for much of the soils in the UK. In numerical terms, this standard typically equates to around 25% of the adopted screening value in the risk assessment.

For the cover system itself, EPS would usually carry out a verification process of your site to demonstrate the control measure has been implemented as intended to satisfy all interested parties such as planning authorities, the NHBC and the future property owner. To document this process, EPS will prepare a Verification Report. If you wish for EPS to do this, we will need the following points confirmed relating to the soils preferably before they are installed in gardens.

If there are any queries, please contact EPS before purchasing any soil.

EPS Contact Details:

Tel: 01954 710666

Email: info@epstrategies.co.uk



Pre-Verification Cover System Checklist		Yes?
Soil Source	The soil must not be a waste. Please confirm that the soil is not a waste and has never been deemed as such in the past.	
	Has the source of the soil been provided?	
	Have all the delivery notes confirming the source, volume and type of soil been provided for all that is to be used?	
Soil Quality	The soils are free of invasive plant species such as Japanese Knotweed, and have not been sourced from an affected area?	
	Do the soils look clean and of a high quality? I.e. the soil must not have an odour or contain any visual evidence of contamination, including oils, asbestos, glass, plastic, rubble, metal, ash, tarmac/bitumen?	
	Testing to 'BS 3882:2015 <i>Specification for topsoil and requirements for use</i> ' is preferable but generally not essential for public health regulation, provided you can confirm the soils comply with the above points, are suitable for their intended purpose and will provide an adequate growing medium?	
	Has the soil been chemically tested prior to it arriving at site? Any soil test results presented to EPS by a third party must be current and clearly relate to the soil used, i.e. the testing must generally be dated within 6 weeks of delivery. The quantity of testing will be dependent on how much confidence is generated in the quality of the material, as well any specific local regulatory requirements. If the soil is clean soil from an established source such as British Sugar, the testing they provide at source may be sufficient alone. For other soils, EPS can advise on the likely testing frequencies but as a rule of thumb, anticipate at least one sample per plot. The testing would usually comprise the following: Heavy Metals, Poly Aromatic Hydrocarbons, Asbestos and Total Petroleum Hydrocarbons at an accredited lab. If adequate testing has not been completed, then EPS will need to test it from stockpiles prior to installation.	
Cover Thickness	Are all excavations ready which will allow the necessary thickness of cover soils to be installed?	
	If yes, can you provide waste transfer documentation for any excavated soils?	

APPENDIX I

Method Statement for Encountering Unexpected Contamination



METHOD STATEMENT

ACTIONS TO BE TAKEN IN THE EVENT OF DISCOVERING UNEXPECTED CONTAMINATION DURING INTRUSIVE GROUNDWORKS

If at any point during intrusive groundworks at a site, evidence of unforeseen contamination is encountered in the form of significant noxious odours, discolouration, or instability within soils or sheen/ discolouration in groundwater, the following actions will be taken:

- Intrusive works in the immediate area of the impacted ground will be suspended and the continuation of work in other areas of the site will be considered within the context of the site specific health & safety plan.
- Environmental Protection Strategies Ltd (EPS) will be contacted and appraised of the situation so that arrangements can be made to characterise the impact and determine what action may be necessary in addition to the scheduled site works. Where possible / health & safety plan permits, digital photographs of the impacted ground will be taken and emailed to EPS at the address below to assist in the initial assessment
- It may well be necessary for EPS to attend site to undertake visual inspection and obtain samples for field and/or laboratory analysis, although the actions taken will be dependent on the nature of what is encountered
- In cases where EPS consider the unforeseen contamination likely to pose a significant risk of significant harm to adjacent site users or local environmental receptors, the local authority and the Environment Agency will be informed of the situation and the actions being taken
- Once appropriate action has been agreed and undertaken, a written summary will be produced by EPS for submission to the Local Authority, (and where relevant, the Environment Agency) in accordance with planning requirements. The submission will include details of work undertaken, analytical results of investigative and validation samples obtained and conclusions and recommendations for any further actions considered necessary
- Where regulatory bodies have been involved, site works should only recommence following their agreement and in all cases should only recommence when the site manager considers it safe to do so within the context of the site specific health & safety plan.

EPS Contact Details:

Marcus Bell	Associate Director	Tel: 0787 206 9979
Will Evans	Director	Tel: 0781 253 9655
Steve Bullock	Director	Tel: 0786 694 9221

Email: info@epstrategies.co.uk (Automatically forwarded to the above and office-based personnel)



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