MEDIEVAL QUARTER, MANCHESTER

GROUND INVESTIGATION FACTUAL REPORT

Job Number: LKC 18 1367
Date: February 2019
Client: Manchester City Council



INCREASING LAND VALUE

LK GROUP

LK Consult Document Verification			
Site Address	Manchester Cathedral, Victoria Street, Manchester, M3 1SX		
Report Title	Medieval Quarter Manchester, Ground Investigation Factual Report.		
Job Number	LKC 18 1367	**Document Ref.**	CL-602-LKC 18 1367-01
Date Issued	1st February 2019	**Report Version**	R0
Prepared By	C. Wardle	**Signature**	
	P. Patel		
Reviewed By	P. Quimby	**Signature**	

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**

DISCLAIMER

This report has been prepared by LK Consult (LKC) who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant, experienced in preparing reports of a similar scope.

However, to the extent that the report is based or relies upon information contained in records, reports or other materials provided to LKC, which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation. Opinions on such conditions, where given, are for general guidance only.

This report is prepared solely for the benefit of Manchester City Council. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Those using this information in subsequent assessments or evaluations do so at their own risk.

CONTENTS

1 INTRODUCTION 1
1.1 Background 1
1.2 Proposed Development 1
1.3 Scope and Purpose of the Investigation 1
1.4 Duration of Investigation 1

2 SITE SETTING 2
2.1 Site Details 2
2.2 Site Description and Topography 2
2.3 Geology and Regional Groundwater 2

3 GROUND INVESTIGATION 3
3.1 Site Investigation Design and Methodology 3
3.2 Exploratory Holes 3
3.3 Contamination Site Investigation 3
3.4 In Situ Infiltration Tests 4
3.5 In Situ CBR Testing 4
3.6 Sampling Protocol 5

4 ENCOUNTERED GROUND CONDITIONS 6
4.1 Geology – Exploratory Borehole Profiles 6
4.2 Made Ground 6
4.3 Drift Deposits 6
4.4 Solid Geology 6
4.5 Groundwater 6

5 WASTE DISPOSAL ASSESSMENT 7

6 GENERIC RISK ASSESSMENT - SOIL 9
6.1 Introduction 9
6.2 Soil Risk Assessment 9

7 CONCLUSION 12

FIGURES

Figure 1: Site Location Plan
Figure 2: Site Boundary Plan
Figure 3: Exploratory Positions Location Plan
Figure 4: Trench Section Location Plan
Figure 4a: TP1 Exploratory Hole Scaled Drawing
Figure 4b: TP2 Exploratory Hole Scaled Drawing
Figure 4c: TP3 Exploratory Hole Scaled Drawing
Figure 4d: TP4 Exploratory Hole Scaled Drawing
Figure 4e: TP5 Exploratory Hole Scaled Drawing

APPENDICES

Appendix A: Profile Logs
Appendix B: In-Situ Tests
Appendix C: Laboratory Results
Appendix D: Photographs
Appendix E: Generic Assessment Criteria
Appendix F: HazWaste Classification Report

1 INTRODUCTION

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Civic Engineers and Galliford Try on behalf of Manchester City Council (MCC) to carry out a ground investigation at this site in order to provide factual information on sub-surface ground conditions and samples for contamination and waste assessment criteria (WAC) testing additionally, LKC were asked to undertake some contamination testing and risk assessment on soil in the current landscaped areas. A site location plan is presented as Figure 1.

1.1.1 Scope of this Report

A ground investigation was required to inform the design of the proposed development. The scope of this report is to provide information pertaining to:

- Type, line, level and size of buried utilities apparatus;
- Top of catacomb structure (if encountered);
- Type depth and make up of existing pavement construction and shallow ground conditions;
- CBR testing at depths of 0.50m below ground level (bgl);
- Rate of infiltration at base of pit; and,
- WAC testing of pavement material and shallow ground to inform costs for disposal.
- Contamination testing and risk assessment.

Given the location of the site and its proximity to Manchester Cathedral, an archaeological watching brief was required to be maintained during the site works.

1.1.2 Previous Information

The following information was made available to LKC:

Utility survey drawing undertaken for Civic Engineers (Project No. 949-01, dwg nos. EN001 & EN002, dated 05/10/18);
Proposed trial pit locations against constraints drawings (Project No. 949-01, dwg nos. EN003, EN004, EN005 & EN006 dated 05/10/18).

1.2 Proposed Development

It is proposed to redesign the pavement area to the front of the Cathedral to create a level pedestrianised area. It is understood the current landscaped areas will be retained.

1.3 Scope and Purpose of the Investigation

The scope of the ground investigation comprised 5 trial trenches excavated by Vacuum Extraction techniques in order to assess the properties of the ground in accordance with the requirements stated in section 1.1.1 above. A factual report was specified. In addition to the original scope a contamination assessment was subsequently requested, and this is included within Section 5 of this report.

1.4 Duration of Investigation

Sitework was undertaken between the 7th and 11th January 2019.

2 SITE SETTING

2.1 Site Details

Location	Manchester Cathedral, Victoria Street, Manchester, M3 1SX
National Grid Reference	E383835, N398770
Topography	37 metres Above Ordnance Datum (AOD). Generally level with a slight incline rising to the east.
Proposed Development	Redevelopment for a pedestrianised area with removal of abrupt changes in elevation (kerb lines).

Table 1-1. Summary of site details.

A site location plan is presented as Figure 1.

2.2 Site Description and Topography

The site is situated to the front of Manchester Cathedral in the Medieval Quarter of Manchester. The site is mostly comprised of Footpaths paved in Yorkshire Flagstones and a bituminous roadway (Victoria Street) which is blocked to traffic in the north although it has a dropped kerb to the south to allow access for delivery and maintenance vehicles. An irregular shaped area of soft landscaping is present central to the site forming a grassed mound with three established trees.

The site is predominantly level along the length of Victoria Street but rises slightly to the east along the footpaths leading to the rear of the Cathedral.

The site is bound to the east by Manchester Cathedral, to the north by Chetham's School of Music, to the west by the River Irwell and to the south by Victoria Bridge Street and retail, business and public house premises

2.3 Geology and Regional Groundwater

A review of on-line sources provided the following information pertinent to the site.

Categories		Details
Geology	Artificial	- Made ground anticipated to be on site resulting from historical development of the site (former buildings etc.).
	Superficial	- None recorded.
	Bedrock	- Chester Formation - Sandstone. Triassic.
Aquifers	Aquifers and SPZ	- Superficial – N/A. - Bedrock – Principal Aquifer. - Site not in SPZ.
Hydrology	Nearest Surface Water	- River Irwell adjacent to the west of the site.
	Flooding	- No risk of flooding from rivers and sea recorded.
Mining	Coal Mining	- Within Coal Mining Reporting Area. Not within a Development High Risk Area.

Table 2-1: Summary of the relevant site information.

3 GROUND INVESTIGATION

3.1 Site Investigation Design and Methodology

An intrusive investigation was undertaken in line with the scope of works provided. In addition, MCC requested an additional human health risk assessment be undertaken for areas where potential exposure to contamination may be present (landscaping).

All exploratory hole work, associated sampling, in-situ testing and logging was carried out in accordance with techniques outlined in BS EN ISO 14688-1, Identification of soil, BS EN ISO 14688-2 classification of soil, BS EN ISO 22475, Sampling methods and groundwater measurements and BS EN ISO 22476 – Field Testing, as appropriate, at positions as near as practicable to those supplied by the client. These are shown on the exploratory hole location plan, Figure 2.

The depths of all exploratory holes, descriptions of the materials encountered, details of any groundwater taken, samples taken together with any other relevant information can be found in the exploratory hole logs, Appendix A.

3.2 Exploratory Holes

5no. slot trenches (TP1-TP5) were excavated across the roads and footpaths using vacuum extraction (VacEx) techniques. Within the footpaths, the Yorkshire flagstone paving slabs were carefully lifted to allow the VacEx trenches to be excavated. These trenches were then reinstated with compacted roadstone and the Yorkshire flagstones re-laid.

Within the highway the bituminous wearing course of the road was cut using a road saw and the material broken out using a mechanical excavator before VacEx could be used to advance the trenches. Upon completion the highways were reinstated using roadstone and Hot Rolled Asphalt (HRA).

A section of one of the trenches was advanced through the area of soft landscaping. This trench was reinstated using arisings compacted flush to the existing surface.

The location of the exploratory holes are shown on Figure 3, Exploratory Position Location Plan.

3.3 Contamination Site Investigation

6no. hand dug pits (HD1-HD6) were excavated (0.6m) in areas of existing soft landscaping using spades and hand augers. The hand dug pits were to obtain soil samples for contamination purpose. To allow a human health risk assessment to be undertaken for areas where potential exposure to contamination may be present.

Once the samples were collected and arisings logged the pits were reinstated using arisings compacted flush to the existing surface and turf replaced.

The location of the hand dug pits are shown on Figure 3, Exploratory Position Location Plan.

Table 3-1 shows the soil testing undertaken.

Suites and Contaminants	No. Samples	Location & Depth	Justification
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM and asbestos screen.	6	HD1 0.0-0.6m HD2 0.0-0.6m HD3 0.0-0.5m HD4 0.4-0.6m HD5 0.0-0.55m HD6 0.0-0.6m	Although no visual/olfactory evidence of contamination was identified (with the exception of some ash), detailed suite undertaken to confirm the absence of contamination.

Table 3-1: Summary of soil sample testing undertaken.

Notes:
If asbestos present during screen identification and quantification will be undertaken.
Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether, SOM=Soil Organic Matter.

3.4 In Situ Infiltration Tests

Soakaway testing was undertaken within each of the trenches to assess the permeability of the underlying material. Due to the size of the trenches, soakaways were undertaken using small test pits of approximately 300mm x 300mm x 300mm in accordance with test methods for extensions to dwellings which allow for a smaller test pit to be used.

Results of the soakaway testing are given in Table 3-2 overleaf and within the test certificates in Appendix B.

Location	Depth (mbgl)	Material	Soil Infiltration Rate (m/s)
TP1B	0.90	MADE GROUND: Dark brown gravelly very clayey sand.	1.92^{-5}
TP2	0.90	MADE GROUND: Dark grey gravelly clayey sand.	3.27^{-4}
TP3C	0.90	MADE GROUND: Brownish orange gravelly clayey sand.	7.78^{-4}
TP4	0.90	MADE GROUND: Brownish orange slightly gravelly clayey sand.	Test Failed
TP5B	0.90	MADE GROUND: Dark brown gravelly clayey sand.	3.53^{-5}

Table 3-2: Soil Infiltration Results.

3.5 In Situ CBR Testing

The in-situ California Bearing Ratio (CBR) of the strata at 0.50mbgl was obtained within each trench using a portable lightweight Clegg Impact Soil Tester. Results of the tests are shown in Table 3-3 below:

Location	TP1B	TP2	TP3C	TP4	TP5B
CBR (%)	21%	36%	35%	10%	56%

Table 3-3: In-situ CBR test results.

3.6 Sampling Protocol

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation[1].

Soil samples of approximately 1kg were recovered in amber jars, amber vials for volatile analysis and plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Chemtest laboratory in Newmarket for chemical testing. If collection was not possible the same day then samples were stored in the sample storage fridge at the LK Group offices below 4˚C. Samples were tracked using appropriate Chain of Custody forms provided by Chemtest.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix C.

[1] EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.

4 ENCOUNTERED GROUND CONDITIONS

The exploratory hole logs recording the soil profiles of the intrusive positions are presented in Appendix A and laboratory results are presented in Appendix C.

Vacuum excavated and hand dug machine assisted trial trenches were sunk to determine the presence, type, size and orientation of buried utilities within the footpath and highway of Victoria Street. The location of the trial trenches are shown in Figure 3, with the side elevations of the trenches shown in Figures 4a to 4e. Photographs of the excavations are presented in Appendix D.

4.1 Geology – Exploratory Borehole Profiles

The British Geological Survey (BGS) record superficial deposits to be absent from this site with solid geological deposits comprising Sandstone of the Chester Formation.

4.2 Made Ground

Made ground was recorded in all intrusive positions and comprised either pedestrian pavements with Yorkshire Flagstones or bituminous macadam and bituminous macadam forming the wearing course of Victoria Street.

Within the footpath the Yorkshire Flagstones were underlain with a fine grained granular horizon of bedding sand. Within the highway of Victoria Street the bituminous macadam surface course was underlain by a binder and base course forming the asphalt pavement. This was found to be seated on cobble setts with tram lines still in place.

Beneath the pedestrian footpaths and wearing courses of the highway, Made Ground was across the site predominantly comprised variably clayey gravelly sand.

4.3 Drift Deposits

Drift comprises orangish red fine to medium grained SAND (weathered Sandstone).

4.4 Solid Geology

Bedrock was not proven in any of the exploratory locations.

4.5 Groundwater

Groundwater was not encountered within any of the exploratory holes during the site-works.

5 WASTE DISPOSAL ASSESSMENT

The soil contamination results as presented in Appendix C have been used to help determine the disposal route should any material be earmarked for off-site disposal.

As an initial screen the soil results were inputted into '**HazWasteOnline'**. This is a web-based facility that allows an assessment of contaminant soils and classifies the soils as either hazardous or non-hazardous waste.

It is understood that **'HazWasteOnline'** has been designed to cover the European Waste Catalogue code number 17 05 03 "soil and stones containing dangerous substances" and follows current guidance[2,3,4,5,6].

Where less than limits of detection (LOD) were recorded, the value of the LOD was inputted.

Where applicable relevant metal species were used relating to an ash source, such as metal oxides. This will provide a more realistic classification assessment.

The output sheet is presented in Appendix F and summarised in Table 6-1.

Sampling Location	Hazardous Waste Y/N	Hazard (Risk Phrase)	Contaminants
TP1	Y	HP7, HP11	TPH (C6 to C40)
TP2	Y	HP7, HP11	TPH (C6 to C40)
TP3	Y	HP8	pH
TP4	Y	HP8	pH
TP5	N	N/A	N/A
HD1	N	N/A	N/A
HD2	N	N/A	N/A
HD3	N	N/A	N/A
HD4	N	N/A	N/A
HD5	N	N/A	N/A
HD6	N	N/A	N/A

Table 6-1: Summary CAT-WASTE findings.

Based on individual locations the material considered to be related to the trial trenches is considered to be **HAZARDOUS and NON-HAZARDOUS WASTE** based on carcinogenic (HP7), mutagenic (HP11) and corrosivity (HP8). The in TPH (C6 to C40) is likely due to small parts of bitumen from cobble sets or tarmacadam and not considered to be the main constituent of the trench material. High pH readings in TP3 and TP4 may relate to the concrete.

Based on individual locations the material considered to be related to the landscaped areas on site was assessed to be **NON-HAZARDOUS**.

[2] EA (2018). "Guidance on the Classification and Assessment of Waste (1st Edition v1.1)". Technical Guidance WM3.
[3] The Hazardous Waste Directive, (HWD, Council Directive 91/689/EC).
[4] European Waste Catalogue, 2002 (EWC 2002, Commission Decision 2000/532/EC) as amended by Commission Decision 2001/118/EC, 2001/119/EC and Council Decision 2001/573/E.
[5] List of Wastes (England) Regulations 2005.
[6] Approved Supply List (Eighth Edition), 2002. ISBN: 0 7176 2368 8.

Waste Acceptance Criteria (WAC) testing was also undertaken on the samples associated with the trial trenches. Landfills are classified according to whether they can accept hazardous, non-hazardous or inert wastes. Wastes can only be accepted at a landfill if they meet the waste acceptance criteria of landfill.

Currently there are only criteria for inert, stable-non-reactive hazardous (SNRH) and hazardous landfills. This means WAC testing is only required for wastes destined for inert, SNRH and hazardous landfills.

With regards to hazardous waste, material can only be designed as SNRH to a non-hazardous landfill cell or hazardous landfill cell from WAC testing.

With regards to non-hazardous waste material can only be assigned to an inert landfill cell.

The above potential designation if disposed to a licenced landfill are summarised in Table 6-2. It should be noted that the licenced landfill operator would determine the designation, which may differ to this assessment.

Sampling Location	Soil Designation		Potential Landfill Designation			Designation
	Non-haz.	Haz.	Inert	SNRH	Haz.	
TP1		X		X		SNRH landfill cell
TP2		X		X		SNRH landfill cell
TP3		X		X		SNRH landfill cell
TP4		X		X		SNRH landfill cell
TP5	X	-	-	-	-	Non-Hazardous

Table 6-2: Summary of waste classification.

6 GENERIC RISK ASSESSMENT - SOIL

6.1 Introduction

Current good practice requires that the findings from a site investigation should be evaluated on a site-specific basis, using a risk-based approach. Risk assessment involves identification and evaluation of the hazards presented by the concentrations of contaminants measured followed by an evaluation of the risks which are associated with these hazards (CLR11[7]).

LKC consider the existing landscaping would be a potential risk to receptors through direct contact of soils and inhalation of outdoor vapours.

6.2 Soil Risk Assessment

6.2.1 Methodology

With regards to the soil risk assessment LKC will use the following hierarchy:

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).

C4SLs were published in 2013[8,9]. The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))[10] used to generate Soil Guideline Values (SGVs) to 'low' (referred to as Lowest Level of Toxicological Concern (LLTCs)). The policy companion document and supporting letter by Defra, dated 3rd September 2014, states that C4SLs *'could be used under the planning regime, as well as within Part 2A'.* Based on these comments LKC considers the justifications and assumptions used to generate 'low' risk are suitable for the planning regime.

Where no C4SLs have been generated LKC will use the LQM S4ULs[11]. Similar assumptions and land uses to C4SLs have been used. However, toxicological information has been based on 'minimal risk' as per previous guidelines and assumptions[12,13,14,15].

LKC consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the PAHs[16,17] and naphthalene the most volatile and soluble[18]. The new C4SLs indicate

[7] EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.
[8] Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."
[9] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[10] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[11] LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."
[12] EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.
[13] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[14] EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.
[15] EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.
[16] EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.
[17] USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."
[18] EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.

B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible[19]. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)[20] and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

The proposed development has a small area of landscaping that maybe used as a Public Open Space (POS). Therefore, the assessment criteria for POS_resi will be used as a conservative screening value.

All criteria have been generated using the CLEA V1.06/07 model[21] based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

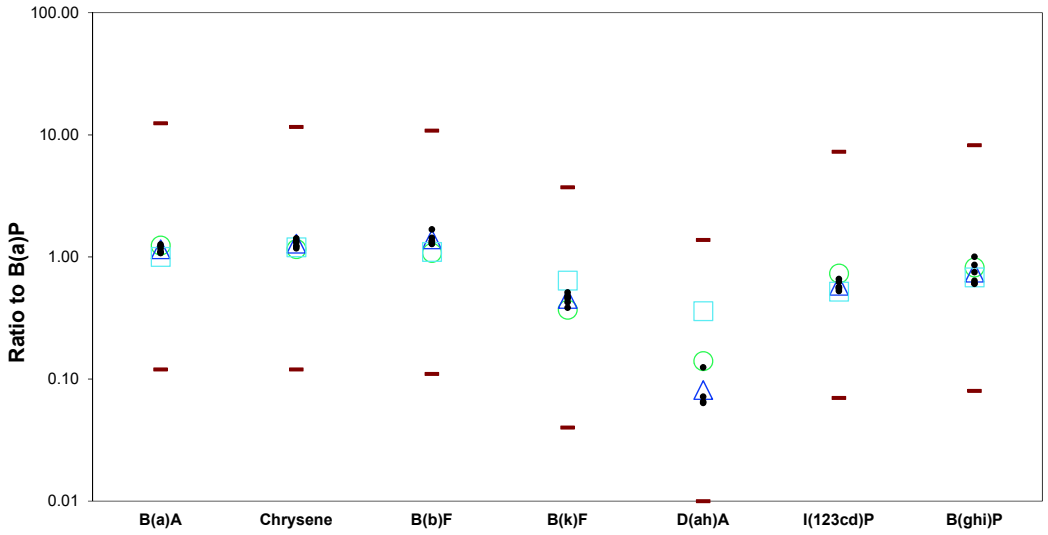
A summary of the generic assessment criteria is provided in Appendix E.

B(a)P as Surrogate Marker

Based on the above assumption for PAHs, LKC undertook an assessment of the data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et.al*[22], which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 5-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.

[19] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[20] HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.
[21] EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.
[22] Culp, S; Gaylor, D; Sheldon, W; Goldstein, L and Beland, F (1998). " A Comparison of Tumours Induced by Coal Tar and Benzo-a-pyrene in a 2-Year Bioassay." Carcinogenesis. **Vol 19**, no. 1, pp. 117-124.



Graph 5-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 6 samples (where values were >LOD to allow the calculation of a ratio).

Notes:
B(a)P = Benzo(a)pyrene; D(ah)A = Dibenzo(ah)anthracene; B(a)A = Benzo(a)anthracene; B(b)F = Benzo(b)fluoranthene;
B(k)F = benzo(k)fluoranthene; I(123cd)P = Indeno(123cd)pyrene; B(ghi)P = Benzo(ghi)perylene
● = Ratio to B(a)P for all data ○ = Mean ratio to B(a)P for Culp data △ = Mean ratio to B(a)P from all data at the site
□ = Mean ratio to B(a)P for UK data presented by HPA ▬ = Upper and Lower limits (order of magnitude from Culp data)

All the data points that could be used to calculate ratios fall inside the upper or lower limits.

Based on this distribution of data LKC considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for this dataset.

6.2.2 *Soil Results Comparison against Assessment Criteria*

All analysis sheets are presented in Appendix C. All the data has been compared to relevant assessment criteria and is presented in Appendix E.

Results have been compared to the relevant assessment criteria for 'POS_resi' land use and no elevated contaminants were identified, where criteria have been generated.

Additionally, asbestos was not identified in any soil samples analysed.

Based on the above LKC considers there is low risk from direct contact of soil.

6.2.3 *Risk from Inhalation of outdoor Vapours*

No visual / olfactory evidence of volatile contaminants was identified during the investigation. The PID did not detect any TVOCs. Confirmatory soil analysis did not detect any VOCs above detection limits.

Based on the above LKC consider there is a low risk from inhalation of outdoor vapours.

7 CONCLUSION

A factual report was undertaken based upon on the original site investigation scope. In addition, a risk assessment in regard to human health was undertaken.

If material was to be disposed offsite the soil from the trenches would be classified as hazardous and non-hazardous waste but can be placed in a stable non-reactive hazardous landfill cell. It should be noted that the in TPH (C6 to C40) is likely due to small parts of bitumen from cobble sets or tarmacadam. And not considered to be the main constituent of the trench material. High pH readings in TP3 and TP4 may relate to the concrete.

If material was to be disposed offsite the soil tested from the landscaped areas were classified as non-hazardous waste.

A low risk to human health was identified and no remediation is required in existing soft landscaped areas.

Figures

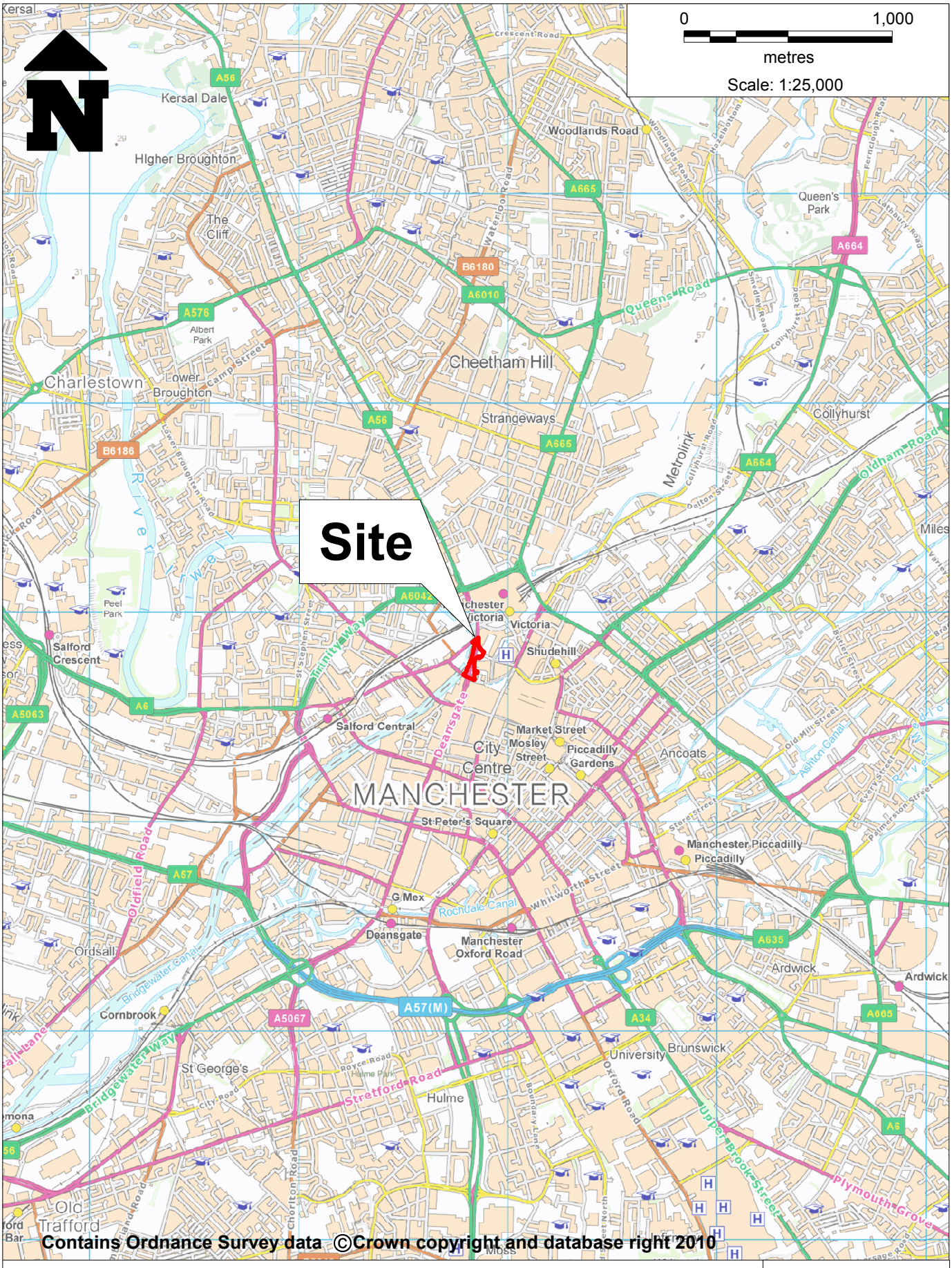
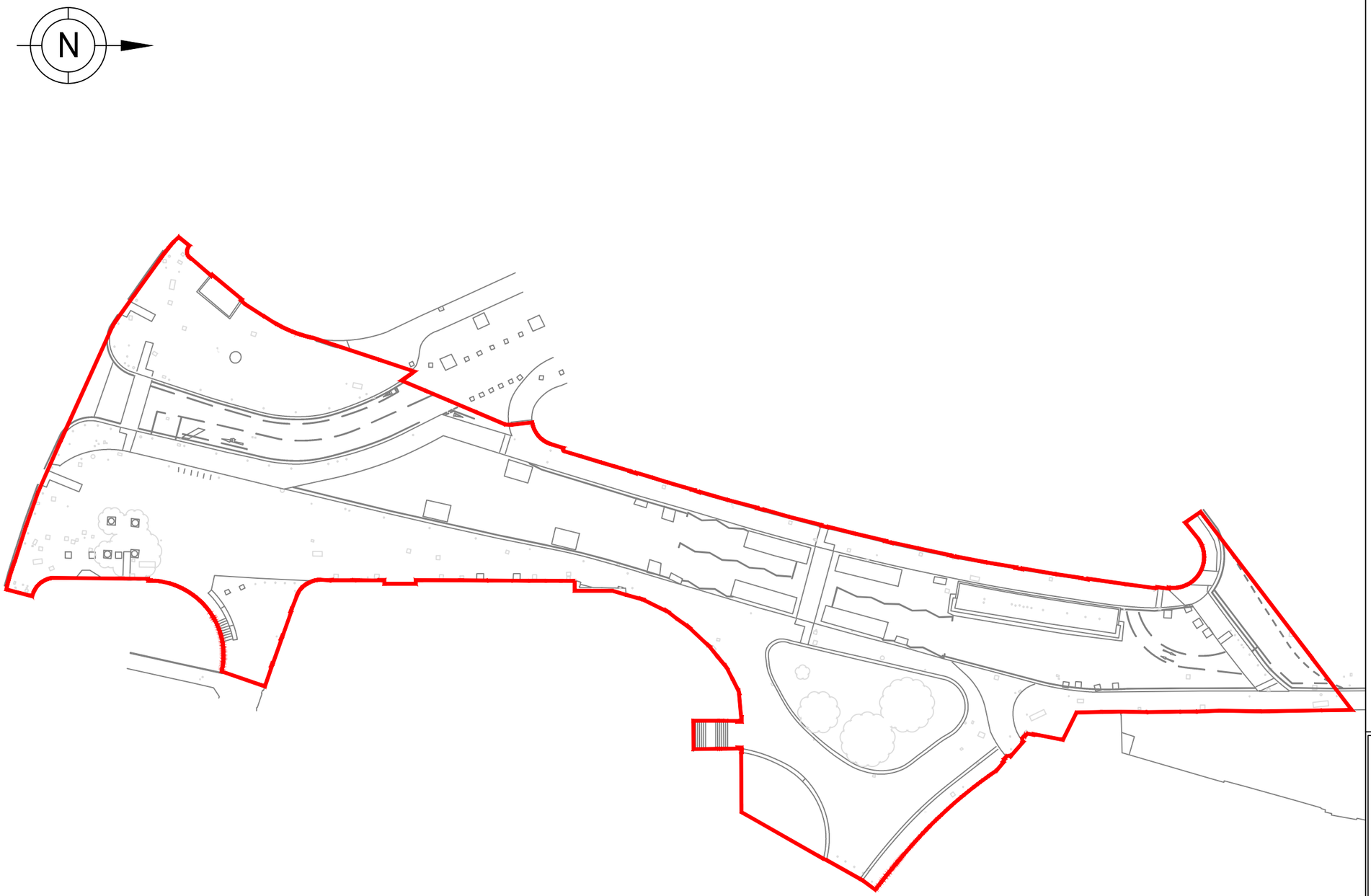


Figure 1: Site Location Plan, Medieval Quarter, Manchester

Drawn: January 2019 Scale: 1:25,000 @ A4 (see scale bar)

LK CONSULT LIMITED



KEY

Site Boundary

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

0 30

SCALE (Metres)

Extract from: Survey Operations
Drawing Ref: Topographical Survey, No.A0 18B009/001 (June 2018)

LK CONSULT LIMITED

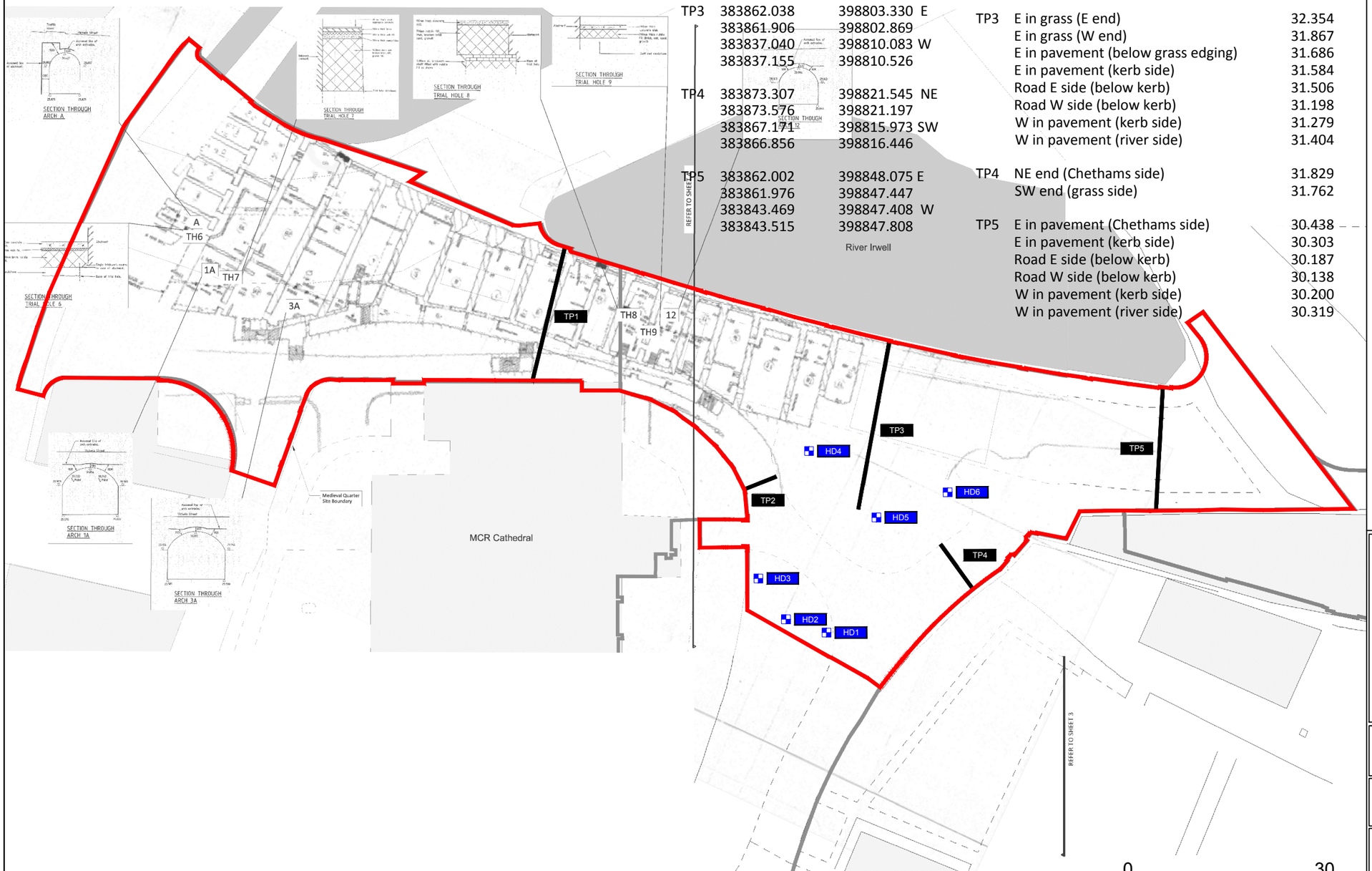
Client: Civic Engineers

Site: Medieval Quarter, Manchester

Title: Site Boundary Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	See Scale Bar	2	

Drawn By:	Checked By:	Drawn:
AC	PP	Jan 2019



Trial Trench Coordinates:

TP1	383842.401	398758.386	NE
	383842.261	398757.528	
	383823.854	398762.440	SW
	383823.978	398762.857	
TP2	383860.218	398786.806	SE
	383859.749	398786.224	
	383853.768	398789.961	NW
	383854.099	398790.593	
TP3	383862.038	398803.330	E
	383861.906	398802.869	
	383837.040	398810.083	W
	383837.155	398810.526	
TP4	383873.307	398821.545	NE
	383873.576	398821.197	
	383867.171	398815.973	SW
	383866.856	398816.446	
TP5	383862.002	398848.075	E
	383861.976	398847.447	
	383843.469	398847.408	W
	383843.515	398847.808	

Trial Trench Levels:

TP1	NE in pavement(next to cathedral)	32.307
	NE in pavement (next to kerb)	32.258
	Road NE end (below kerb)	32.157
	Road SW end (below kerb)	32.199
	SW in pavement (next to kerb)	32.308
	SW in pavement (river side)	32.410
TP2	SE end (cathedral side)	32.342
	NW end (grass side)	32.163
TP3	E in grass (E end)	32.354
	E in grass (W end)	31.867
	E in pavement (below grass edging)	31.686
	E in pavement (kerb side)	31.584
	Road E side (below kerb)	31.506
	Road W side (below kerb)	31.198
	W in pavement (kerb side)	31.279
	W in pavement (river side)	31.404
TP4	NE end (Chethams side)	31.829
	SW end (grass side)	31.762
TP5	E in pavement (Chethams side)	30.438
	E in pavement (kerb side)	30.303
	Road E side (below kerb)	30.187
	Road W side (below kerb)	30.138
	W in pavement (kerb side)	30.200
	W in pavement (river side)	30.319

KEY

- Site Boundary
- Machine Dug Trial Pit (TP)
- Hand Dug Trial Pit (HD)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Civic Engineers

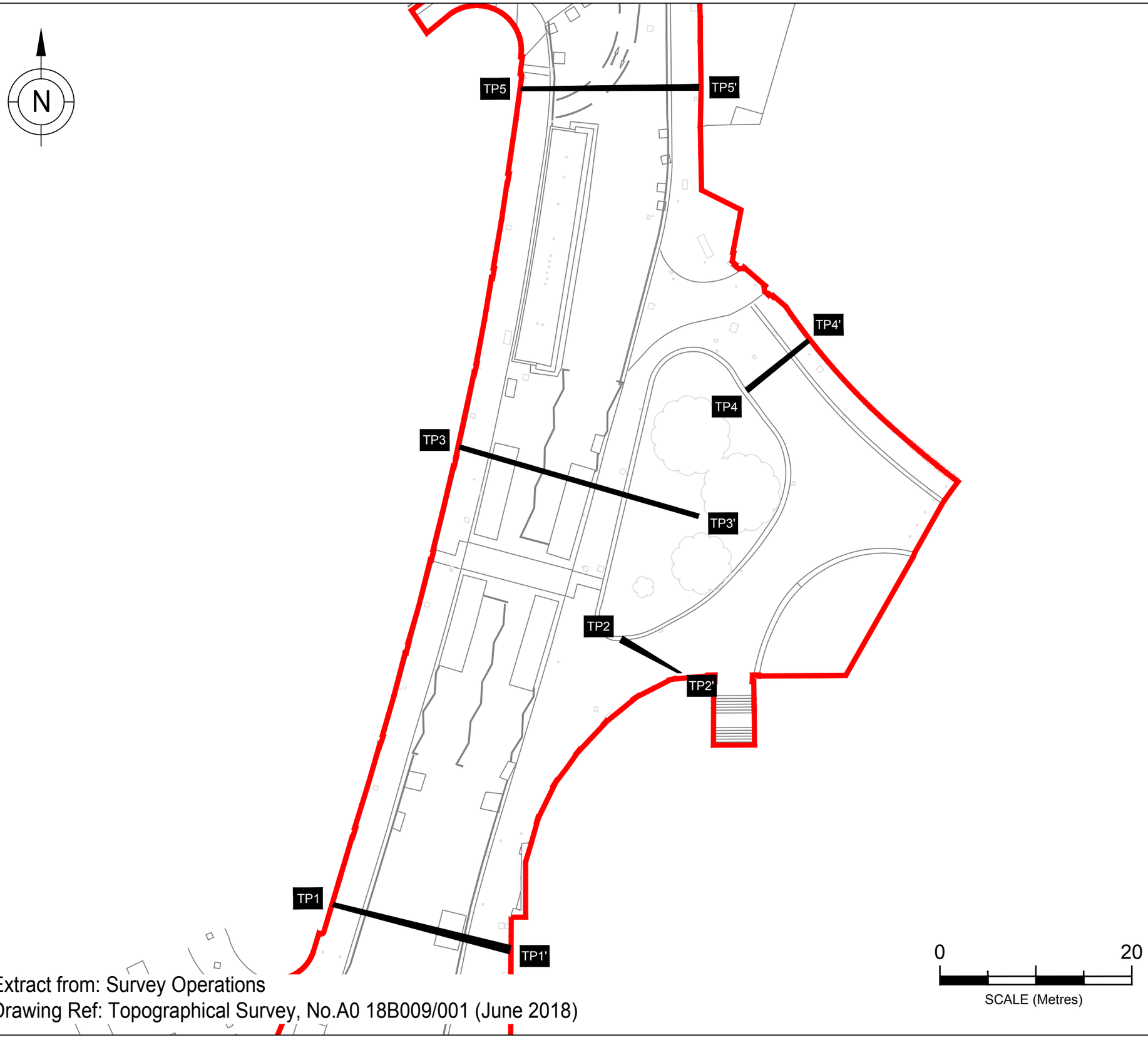
Site: Medieval Quarter, Manchester

Title: Site Investigation Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	See Scale Bar	3	

Drawn By:	Checked By:	Drawn:
AC	PP	Jan 2019

Extract from: Civic Engineers
Drawing Ref: Proposed Trial Pit Locations Against Constraints, No.EN005 & 006, Rev:P01 (05/10/2018)



KEY

Site Boundary

Machine Dug Trial Pit (TP)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Civic Engineers

Site: Medieval Quarter, Manchester

Title: Trench Section Location Plan

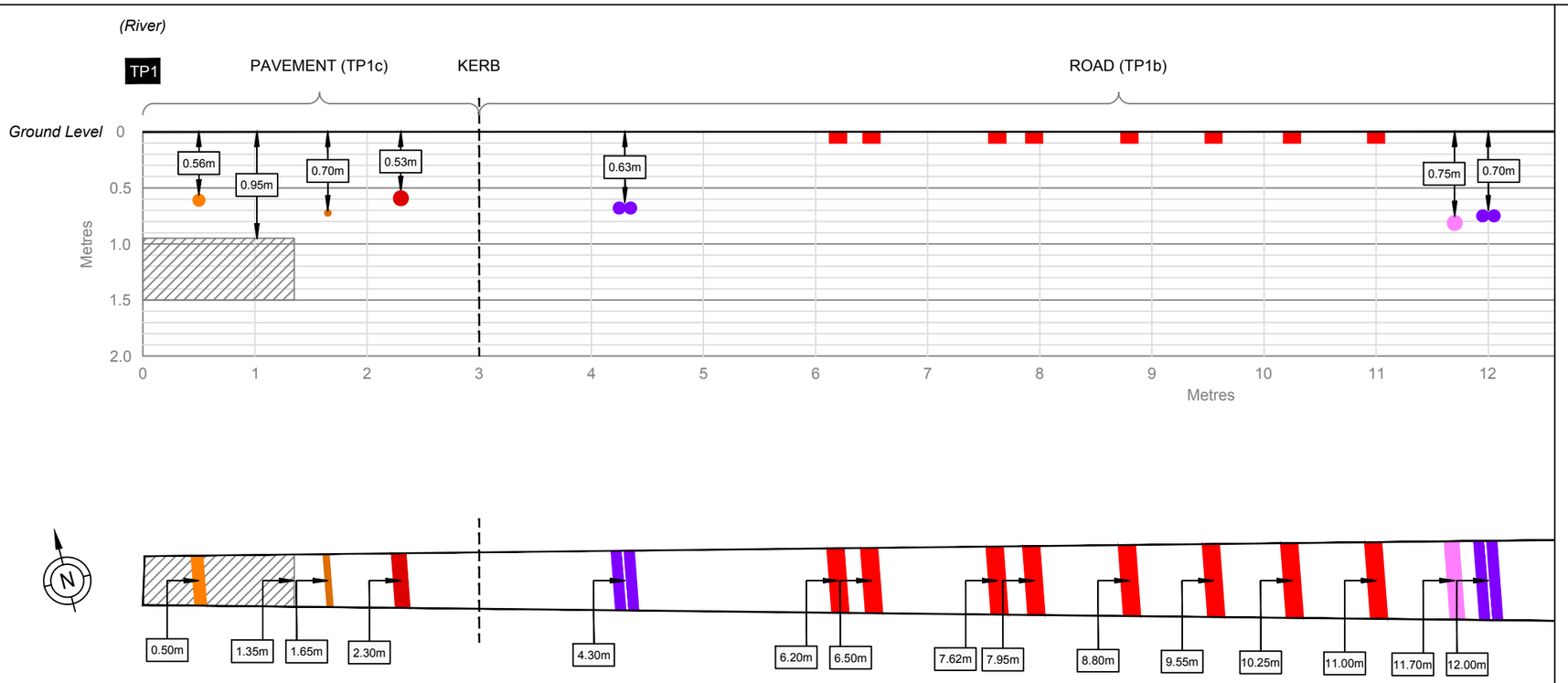
Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	See Scale Bar	4	

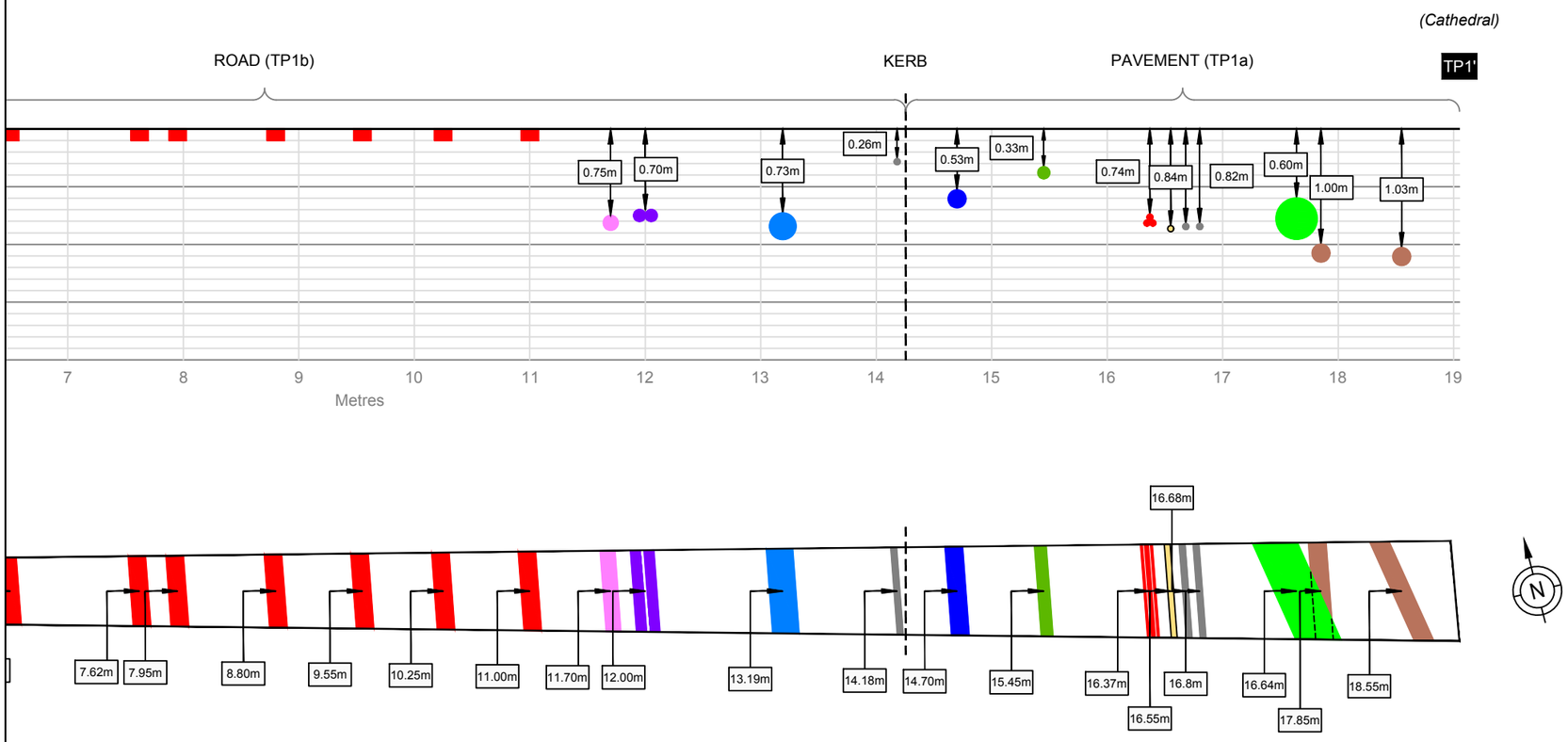
Drawn By:	Checked By:	Drawn:
AC	PP	Jan 2019

0 20

SCALE (Metres)

Extract from: Survey Operations
Drawing Ref: Topographical Survey, No.A0 18B009/001 (June 2018)





KEY

- Old Gas (14" Cast Iron)
- Drain (6" Clay)
- HV Electric (2" Cable)
- Electric (2" Cable)
- Old Electric (Ceramic Joint)
- Unknown Service (4" Plastic Flexipipe Duct)
- Old Water (6" Cast Iron)
- Water Pipe (9" PE)
- Fibre Optic (4" PE)
- Unknown Service
- Street Light (4" Flexipipe)
- Old Tram Track
- Concrete
- Unknown Service (2" Cast Iron)
- Foul Water (5" Clay)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

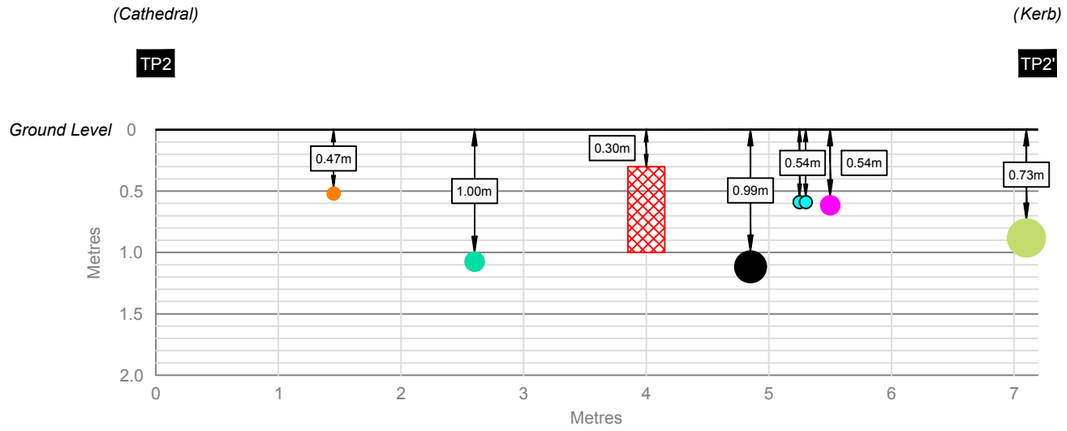
Client: Civic Engineers

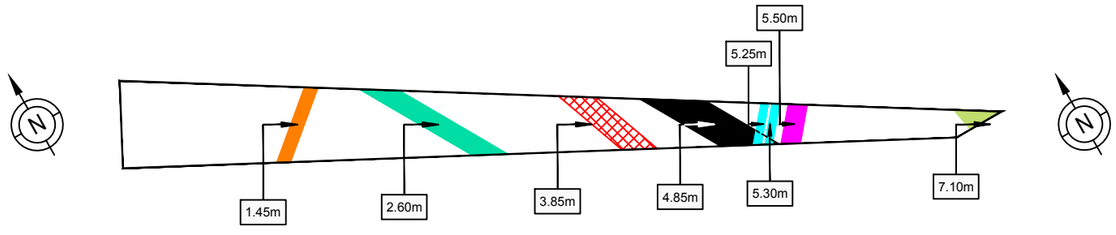
Site: Medieval Quarter, Manchester

Title: Trench 1 (Section TP1 - TP1')

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	1:50 @ A3	4a	

Drawn By:	Checked By:	Drawn:
AC	PP	Feb 2019





KEY

- Street Light (4" Flexipipe)
- Unknown Service (6" Metal Pipe)
- Brick Wall
- Electric (10" Cable)
- Electric (4" Cable)
- Unknown Service (6" Plastic Flexipipe Duct)
- Possible Gas Main (12" Cast Iron)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

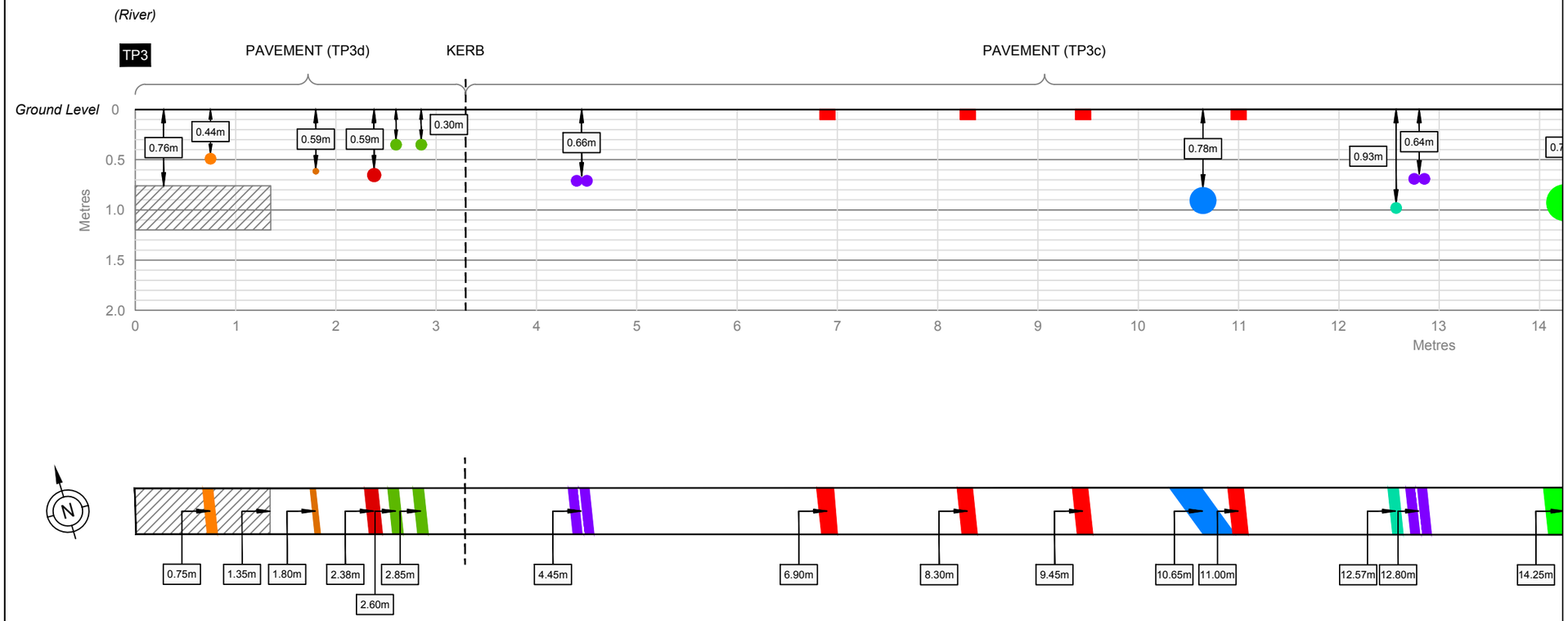
Client: Civic Engineers

Site: Medieval Quarter, Manchester

Title: Trench 2 (Section TP2 - TP2')

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	1:50 @ A3	4b	

Drawn By:	Checked By:	Drawn:
AC	PP	Feb 2019



KEY

- Old Gas (14" Cast Iron)
- Unknown Service (4" Plastic Flexipipe Duct)
- Unknown Service (8" Cast Iron)
- Fibre Optic (4" PE)
- Street Light (4" Flexipipe)
- Old Tram Track
- Concrete
- Unknown Service (2" Cast Iron)
- Foul Water (5" Clay)
- Water (10" Cast Iron)
- Unknown Service (4" Cast Iron)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Civic Engineers

Site: Medieval Quarter, Manchester

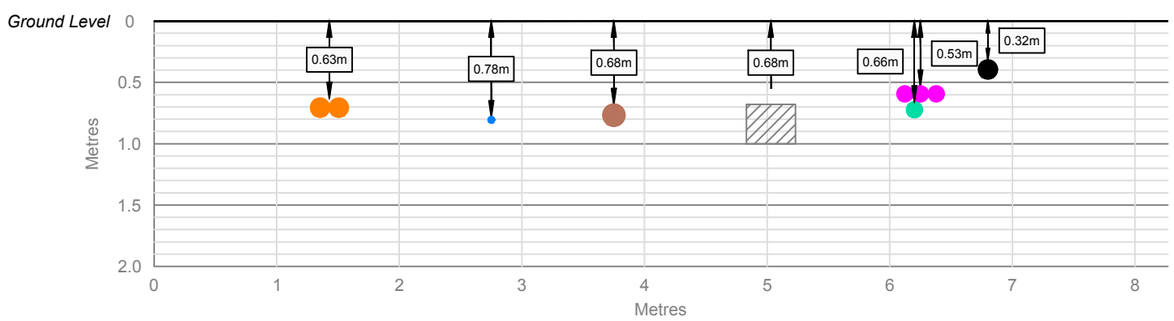
Title: Trench 3 (Section TP3 - TP3')

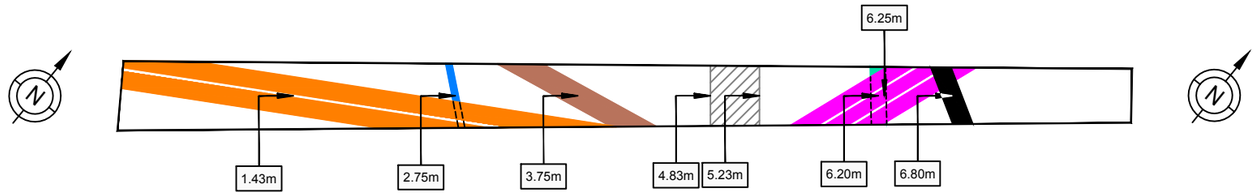
Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	1:50 @ A3	4c	

Drawn By:	Checked By:	Drawn:
AC	PP	Feb 2019

(Kerb) *(Chetham's School of Music)*

TP4 TP4'





KEY

- Drain (7" Clay)
- Water (2" PE)
- Street Light (6" Flexipipe)
- Concrete
- Unknown Service (5" Metal Pipe)
- Unknown Service (5" Black Plastic Flexipipe Duct)
- BT (6" PE Pipe)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

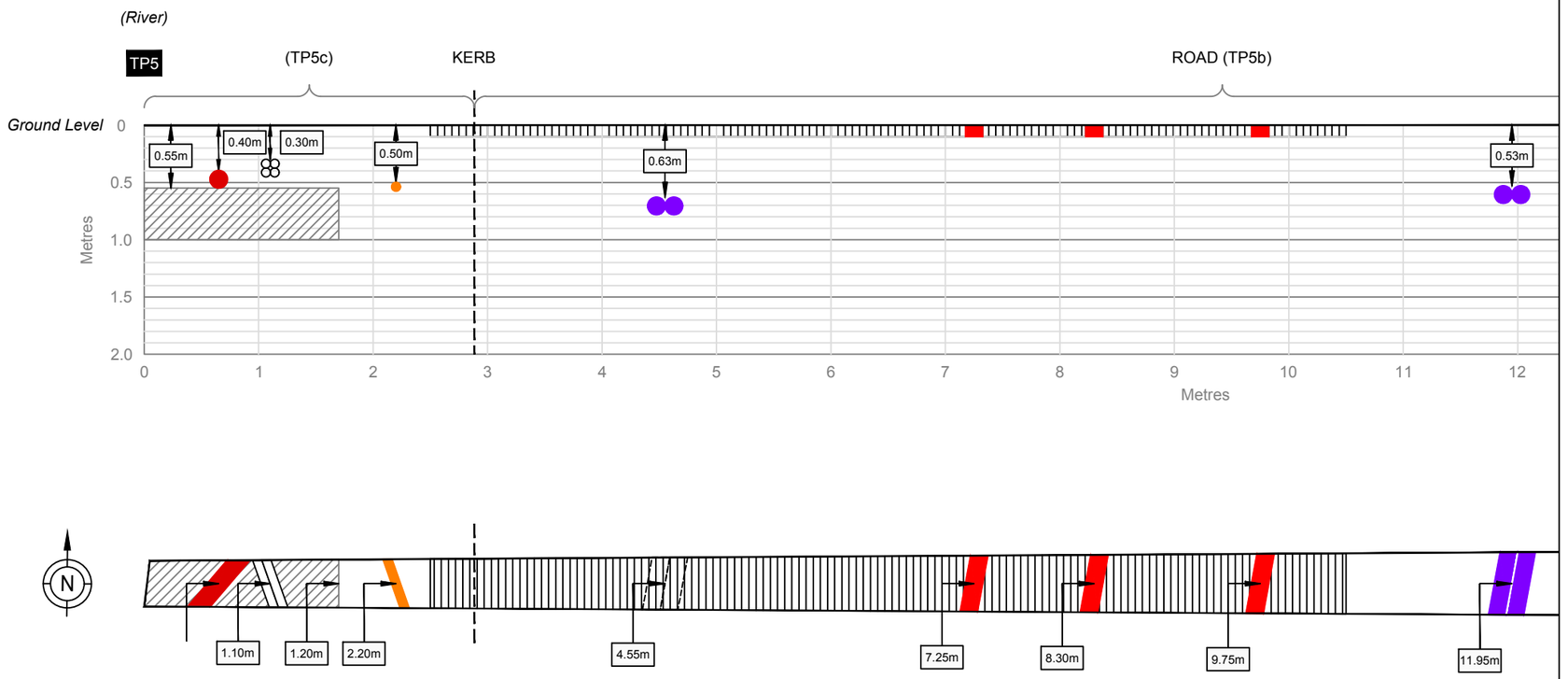
Client: Civic Engineers

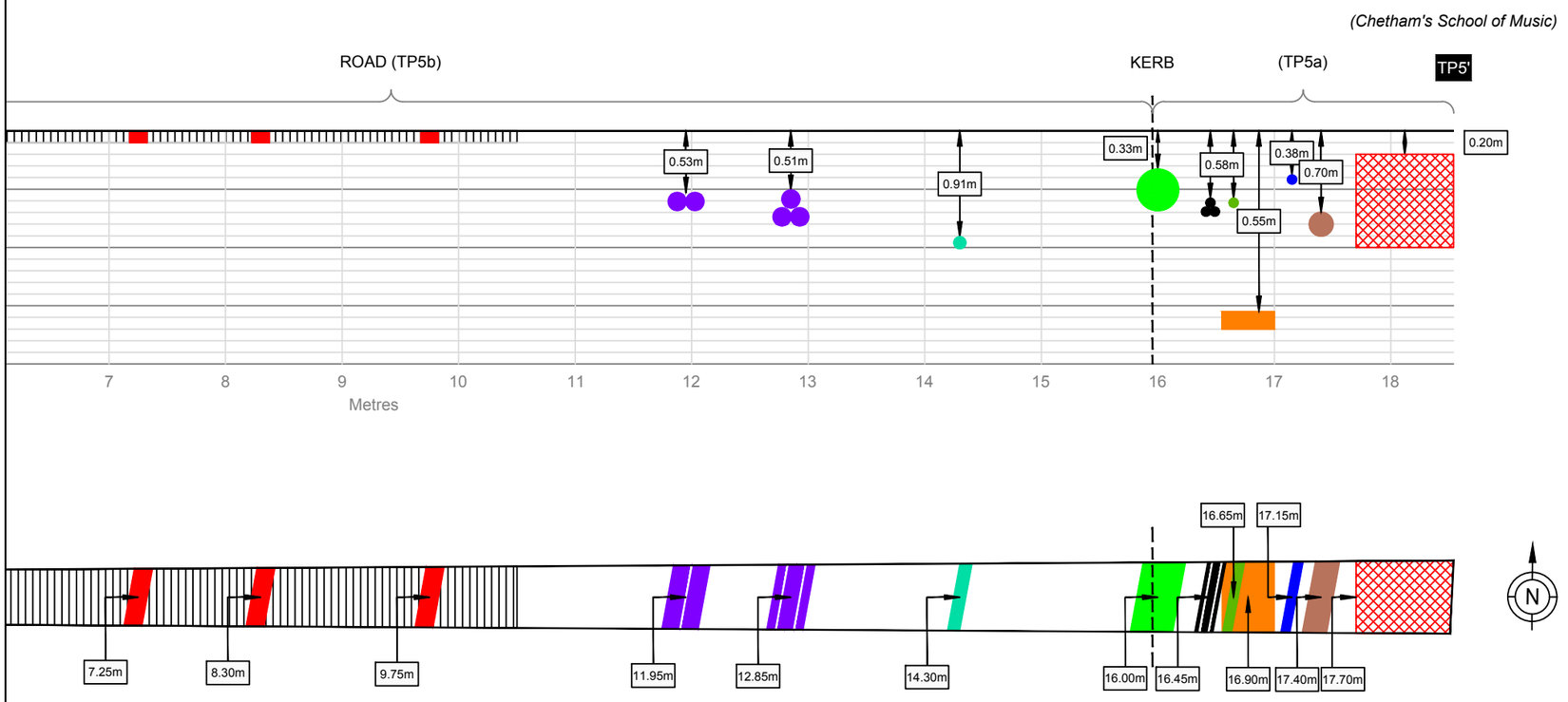
Site: Medieval Quarter, Manchester

Title: Trench 4 (Section TP4 - TP4')

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	1:50 @ A3	4d	

Drawn By:	Checked By:	Drawn:
AC	PP	Feb 2019





KEY

- Possible Old Gas (14" Cast Iron)
- Drain (8" Clay)
- Fibre Optic (6" PE)
- Street Light (3" PE)
- Old Tram Track
- Concrete
- Foul Water (6" Clay)
- Old Cobble Road
- Unknown Service (4" Cast Iron)
- Comms (3" PE Duct)
- BT (3" Cast Iron)
- Unknown Service (3" Cast Iron)
- Electric Tiles
- Brick Structure

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Civic Engineers

Site: Medieval Quarter, Manchester

Title: Trench 5 (Section TP5 - TP5')

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1367	1:50 @ A3	4e	

Drawn By:	Checked By:	Drawn:
AC	PP	Feb 2019

Appendix A

Profile Logs

Trial Pit Logs

LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP1A

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 1.10mbgl.	0.5x4.6x1.1m	32.20	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 10-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: York flagstone.		
				32.10	0.10	MADE GROUND: Concrete.		
					(0.30)			
				31.80	0.40	MADE GROUND: Dark brown gravelly clayey SAND with rare brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.50)			
				31.30	0.90	Complete at 1.00m		



Remarks

Located in the eastern footpath (cathedral side) of TP1.

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP1A

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP1B**
Excavation Method Vacuum excavation to 1.25mbgl.	**Dimensions** 0.5x11.44x1.25m	**Ground Level (mOD)** 32.00	**Client** Civic Engineers	**Job Number** LKC 18 1367
	Location (dGPS)	**Dates** 10-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: Tarmacadam.		
				31.90	0.10	MADE GROUND: Cobble road.		
					(0.10)			
				31.80	0.20	MADE GROUND: Dark brown gravelly very clayey SAND with rare brick fragments. Sand is fine to medium. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(1.05)			
				30.75	1.25	Complete at 1.25m		



Remarks

Located in the road of TP1.
387842.401 398758.386 NE
387842.261 398757.528
387823.854 398762.440 SW
387823.978 398762.857
CBR at 0.50mbgl = 21%

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP1B

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP1C

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 1.0mbgl.	0.5x3.0x1.0m	32.40	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 10-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: Tarmacadam.		
				32.30	0.10			
					(0.15)	MADE GROUND: Whitish grey SAND and GRAVEL (MOT). Sand is fine to coarse. Gravel is fine to medium, angular to subangular comprising limestone.		
				32.15	0.25			
					(0.75)	MADE GROUND: Greyish white gravelly SAND with rare ash. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising limestone and mudstone.		
				31.40	1.00			
						Complete at 1.00m		



Remarks

Located in the eastern footpath (river side) of TP1.

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP1C

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP2**
Excavation Method Vacuum Excavation to 1.10mbgl.	**Dimensions** 0.45x7.3x1.1m	**Ground Level (mOD)** 32.00	**Client** Civic Engineers	**Job Number** LKC 18 1367
	Location (dGPS)	**Dates** 08-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: York flagstone.		
				31.90	0.10	MADE GROUND: Concrete.		
					(0.30)			
				31.60	0.40	MADE GROUND: Dark grey gravelly clayey SAND with rare brick fragments and metal. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.70)			
				30.90	1.10	Complete at 1.10m		



Remarks

387860.218 398786.806 SE
387859.749 398786.224
387853.768 398789.961 NW
387854.099 398790.593
CBR at 0.50mbgl = 36%.

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP2

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP3A**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Vacuum excavation to 1.00mbgl.	0.5x7.6x1.0m	31.50	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 07-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL: Grass over dark brown slightly gravelly silty SAND with frequent rootlets. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
				31.20	0.30	MADE GROUND: Red fine to coarse SAND.		
					(0.70)			
				30.50	1.00	Complete at 1.00m		



Remarks

Located within the grassed verge.

Scale (approx)	**Logged By**	**Figure No.**
1:10	PP	LKC 18 1367.TP3A

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP3B

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 0.90mbgl	0.5x2.95x0.9m		Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 09-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: York flagstone.		
					0.10	MADE GROUND: Concrete.		
					(0.30)			
					0.40	MADE GROUND: Orangish brown slightly gravelly SAND with rare plastic. Sand is fine to coarse. Gravel is fine to medium, angular to subangular comprising sandstone.		
					(0.50)			
					0.90	Complete at 0.90m		



Remarks

Located within eastern footpath (cathedral side) of TP3.

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP3B

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP3C

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 1.00mbgl.	0.5x11.65x0.9m	31.10	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 09-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: Tarmacadam.		
				31.00	0.10	MADE GROUND: Cobble road.		
					(0.10)			
				30.90	0.20	MADE GROUND: Brownish orange gravelly clayey SAND with rare brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.70)			
				30.20	0.90	Complete at 1.00m		



Remarks

Located on road TP3.
387862.038 398803.330 E
387861.906 398802.869
387837.040 398810.083 W
387837.155 398810.526
CBR at 0.5mbgl = 35%

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP3C

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP3D**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Vacuum excavation to 0.90mbgl.	0.5x3.2x0.9m	31.10	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 10-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: Tarmacadam.		
				31.00	0.10			
					(0.10)	MADE GROUND: Whitish grey SAND and GRAVEL (MOT). Sand is fine to coarse. Gravel is fine to medium, angular to subangular comprising limestone.		
				30.90	0.20			
						MADE GROUND: Greyish white gravelly SAND with rare ash. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising limestone and mudstone.		
					(0.70)			
				30.20	0.90			
						Complete at 0.90m		



Remarks

Located on western footpath (river side) of TP3.

Scale (approx)	**Logged By**	**Figure No.**
1:10	PP	LKC 18 1367.TP3D

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP4**
Excavation Method Vacuum excavation to 1.10mbgl.	**Dimensions** 0.4x8.1x1.1m	**Ground Level (mOD)** 32.00	**Client** Civic Engineers	**Job Number** LKC 18 1367
	Location (dGPS)	**Dates** 07-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: York flagstone.		
				31.90	0.10	MADE GROUND: Concrete.		
					(0.30)			
				31.60	0.40	MADE GROUND: Brownish orange slightly gravelly clayey SAND with rare brick fragments and concrete. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.70)			
				30.90	1.10	Complete at 1.10m		



Remarks

387873.307 398821.545 NE
387873.576 398821.197
387867.171 398815.973 SW
387866.856 398816.446
CBR at 0.50mbgl = 10%.

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP4

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Medieval Quarter, Manchester	**Trial Pit Number** **TP5A**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Vacuum Excavation to 1.55mbgl.	0.5x2.95x1.55m	30.40	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 08-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: York flagstones.		
				30.30	0.10	MADE GROUND: Concrete.		
					(0.10)			
				30.20	0.20	MADE GROUND: Brown gravelly clayey SAND with occasional ash, brick fragments, rare ash and pottery. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(1.35)			
				28.85	1.55	Complete at 1.55m		



Remarks

Located in the Eastern pavement (Chethams side).

Scale (approx)	**Logged By**	**Figure No.**
1:10	PP	LKC 18 1367.TP5A

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP5B

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 1.00mbgl.	0.5x13.0x1.0m	30.10	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 08-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: Tarmacadam.		
				30.00	0.10	MADE GROUND: Cobble road.		
					(0.10)			
				29.90	0.20	MADE GROUND: Dark brown gravelly clayey SAND with occasional brick, rare ash and concrete. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.80)			
				29.10	1.00	Complete at 1.00m		



Remarks

Located in the road, for TP5.
387862.002 398848.075 E
387861.976 398847.447
387843.469 398847.408 W
387843.515 398847.808
CBR at 0.50m = 56%

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP5B

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	TP5C

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Vacuum excavation to 0.9mbgl.	0.5x2.85x0.9m	30.20	Civic Engineers	LKC 18 1367
	Location (dGPS)	**Dates** 09-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	MADE GROUND: TARMACADAM.		
				30.10	0.10	MADE GROUND: Grey sandy GRAVEL with rare brick and plastic. Sand is fine to coarse. Gravel is fine to medium, angular to subangular comprising limestone and sandstone.		
					(0.80)			
				29.30	0.90	Complete at 1.00m		



Remarks

Located on the western pavement (river side).

Scale (approx)	Logged By	Figure No.
1:10	PP	LKC 18 1367.TP5C

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Medieval Quarter, Manchester	**Trial Pit Number** **HD1**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Hand excavation to 0.60mbgl.	0.3x0.3x0.6m		Civic Engineers	LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.50	D1PID <0.1ppm				(0.50)	MADE GROUND: Grass over dark brown gravelly silty SAND with occasional rootlets, rare brick and clinker. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone.		
					0.50			
					(0.10)	Orangish red fine to medium SAND.		
					0.60			
						Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD1

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	HD2

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Hand excavation to 0.60mbgl.	0.3x0.3x0.6m		Civic Engineers	LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.55	D1PID <0.1ppm				(0.60)	MADE GROUND: Grass over dark brown slightly gravelly silty SAND with occasional rootlets, rare coal fragments, brick and ash. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					0.60	Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD2

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	HD3

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Hand excavation to 0.60mbgl.	0.3x0.3x0.6m		Civic Engineers	LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						MADE GROUND: Grass over dark brown slightly gravelly silty SAND with occasional rootlets, rare coal fragments and ash. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.40)			
0.40-0.60	D1PID				0.40	MADE GROUND: Dark brown gravelly silty SAND with occasional rootlets, ash, clinker, rare coal fragments and pottery. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					(0.20)			
					0.60	Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD3

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	HD4

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Hand excavation to 0.60mbgl.	0.3x0.3x0.6m		Civic Engineers	LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.60	D1PID <0.1ppm				(0.60)	MADE GROUND: Grass over dark brown slightly gravelly silty SAND with occasional rootlets, rare brick fragments, glass and slate. Sand is fine to medium. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					0.60	Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD4

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Medieval Quarter, Manchester	**Trial Pit Number** **HD5**
Excavation Method Hand excavation to 0.60mbgl.	**Dimensions** 0.3x0.3x0.6m	**Ground Level (mOD)**	**Client** Civic Engineers	**Job Number** LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.60	D1PID <0.1ppm				(0.60)	MADE GROUND: Grass over dark brown slightly gravelly silty SAND with occasional rootlets, rare coal and brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					0.60	Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD5

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Medieval Quarter, Manchester	HD6

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Hand excavation to 0.60mbgl.	0.3x0.3x0.6m		Civic Engineers	LKC 18 1367
	Location (Observed measurements)	**Dates** 11-01-2019	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.60	D1PID <0.1ppm				(0.60)	MADE GROUND: Grass over dark brown slightly gravelly silty SAND with occasional rootlets. rare coal, ash and brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising mudstone and sandstone.		
					0.60	Complete at 0.60m		



Remarks

Hand dug pit dry.

Scale (approx)	Logged By	Figure No.
1:5	EM	LKC 18 1367.HD6

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Appendix B

In-Situ Test Certificates

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Medieval Quarter, Manchester

Client : Civic Engineers

Engineer : LKC

Job Number LKC 18 1367

Sheet 1 / 5

Location	Date	Level	Location
TP1B	10-01-2019		

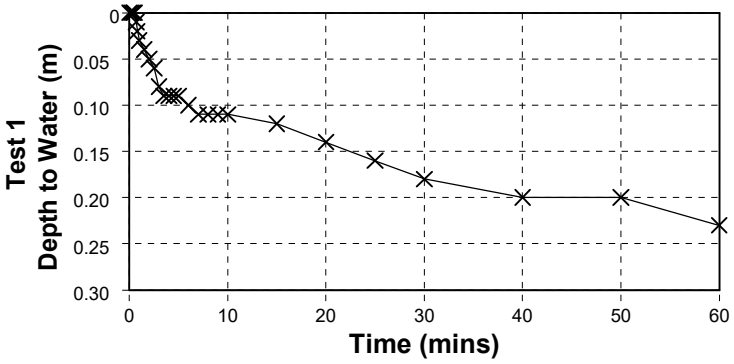
Pit Width (m)	0.40
Pit Depth (m)	0.30
Pit Length (m)	0.50

Soil type at test level	Made ground
Groundwater	
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Open Pit

	1
Effective depth (m)	0.30
Volume outflowing between 75% & 25% (m3)	0.03
Mean surface area through which outflow occurs (m2)	0.47
Time for outflow between 75% & 25% (min)	55.45
SOIL INFILTRATION RATE (ms-1), f	1.92E-5

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	0.00
0.2	0.00
0.4	0.00
0.5	0.00
0.7	0.01
0.8	0.02
1	0.03
1.5	0.04
2	0.05
2.5	0.06
3	0.08
3.5	0.09
4	0.09
4.5	0.09
5	0.09
6	0.10
7	0.11
8	0.11
9	0.11
10	0.11
15	0.12
20	0.14
25	0.16
30	0.18
40	0.20
50	0.20
60	0.23



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Medieval Quarter, Manchester

Client : Civic Engineers

Engineer : LKC

Job Number LKC 18 1367

Sheet 2 / 5

Location	Date	Level	Location
TP2	08-01-2019		

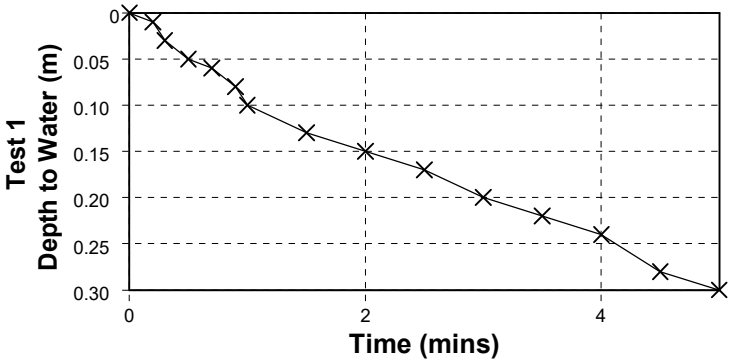
Pit Width (m)	0.30
Pit Depth (m)	0.30
Pit Length (m)	0.40

Soil type at test level	Made Ground
Groundwater	
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Open Pit

	1
Effective depth (m)	0.30
Volume outflowing between 75% & 25% (m3)	0.02
Mean surface area through which outflow occurs (m2)	0.33
Time for outflow between 75% & 25% (min)	2.78
SOIL INFILTRATION RATE (ms-1), f	3.27E-4

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	0.00
0.2	0.01
0.3	0.03
0.5	0.05
0.7	0.06
0.9	0.08
1	0.10
1.5	0.13
2	0.15
2.5	0.17
3	0.20
3.5	0.22
4	0.24
4.5	0.28
5	0.30



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Medieval Quarter, Manchester

Client : Civic Engineers

Engineer : LKC

Job Number LKC 18 1367

Sheet 3 / 5

Location	Date	Level	Location
TP3C	10-01-2019		

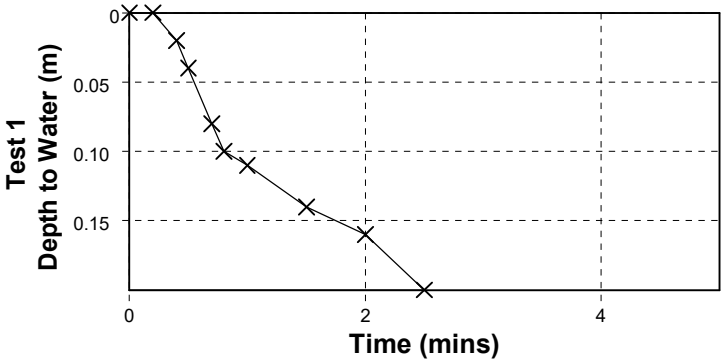
Pit Width (m)	0.40
Pit Depth (m)	0.20
Pit Length (m)	0.70

Soil type at test level	Made ground.
Groundwater	
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Open Pit

	1
Effective depth (m)	0.20
Volume outflowing between 75% & 25% (m3)	0.03
Mean surface area through which outflow occurs (m2)	0.50
Time for outflow between 75% & 25% (min)	1.20
SOIL INFILTRATION RATE (ms-1), f	7.78E-4

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	0.00
0.2	0.00
0.4	0.02
0.5	0.04
0.7	0.08
0.8	0.10
1	0.11
1.5	0.14
2	0.16
2.5	0.20



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Medieval Quarter, Manchester

Client : Civic Engineers

Engineer : LKC

Job Number LKC 18 1367

Sheet 4 / 5

Location	Date	Level	Location
TP4	07-01-2019		

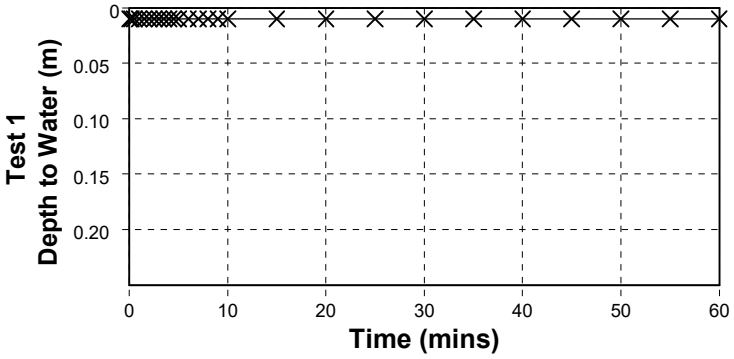
Pit Width (m)	0.25
Pit Depth (m)	0.25
Pit Length (m)	0.50

Soil type at test level	Made ground
Groundwater	
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Open Pit

	1
Effective depth (m)	0.24
Volume outflowing between 75% & 25% (m3)	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	0.01
0.2	0.01
0.5	0.01
1	0.01
1.5	0.01
2	0.01
2.5	0.01
3	0.01
3.5	0.01
4	0.01
4.5	0.01
5	0.01
6	0.01
7	0.01
8	0.01
9	0.01
10	0.01
15	0.01
20	0.01
25	0.01
30	0.01
35	0.01
40	0.01
45	0.01
50	0.01
55	0.01
60	0.01



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Medieval Quarter, Manchester

Client : Civic Engineers

Engineer : LKC

Job Number LKC 18 1367

Sheet 5 / 5

Location	Date	Level	Location
TP5B	09-01-2019		

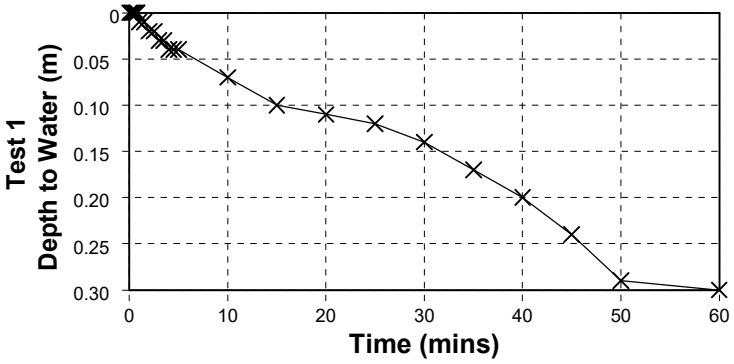
Pit Width (m)	0.35
Pit Depth (m)	0.30
Pit Length (m)	0.90

Soil type at test level	Sand
Groundwater	
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Open Pit

	1
Effective depth (m)	0.30
Volume outflowing between 75% & 25% (m3)	0.05
Mean surface area through which outflow occurs (m2)	0.69
Time for outflow between 75% & 25% (min)	32.30
SOIL INFILTRATION RATE (ms-1), f	3.53E-5

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	0.00
0.2	0.00
0.3	0.00
0.5	0.00
0.7	0.00
0.8	0.00
1	0.01
1.5	0.01
2	0.02
2.5	0.02
3	0.03
3.5	0.03
4	0.04
4.5	0.04
5	0.04
10	0.07
15	0.10
20	0.11
25	0.12
30	0.14
35	0.17
40	0.20
45	0.24
50	0.29
60	0.30



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Appendix C

Certificates of Analysis – Soil

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	19-01354-1
Initial Date of Issue:	22-Jan-2019
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Wardle Contaminated Land
Project	LKC 18 1369 Medieval Quarter, Manchester

Quotation No.:		**Date Received:**	15-Jan-2019
Order No.:	736645	**Date Instructed:**	15-Jan-2019
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	21-Jan-2019
Date Approved:	22-Jan-2019		

Approved By:



Details: Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: LKC 18 1369 Medieval Quarter, Manchester

Client: LK Consult		**Chemtest Job No.:**			19-01354	19-01354	19-01354	19-01354	19-01354
Quotation No.:		**Chemtest Sample ID.:**			754324	754325	754326	754327	754328
		Client Sample ID.:			TP3	TP4	TP5	TP2	TP1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			07-Jan-2019	07-Jan-2019	08-Jan-2019	08-Jan-2019	09-Jan-2019
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	9.6	7.9	9.3	8.4	5.8
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached	See Attached	See Attached
pH	M	2010		N/A	11.9	12.0	11.4	10.9	10.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40	0.53	0.41	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.16	0.16	0.20	0.19	0.11
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	9.2	11	9.5	10	6.8
Cadmium	M	2450	mg/kg	0.10	0.38	0.50	2.4	1.4	1.4
Chromium	M	2450	mg/kg	1.0	12	11	13	9.6	8.4
Copper	M	2450	mg/kg	0.50	16	15	45	56	12
Mercury	M	2450	mg/kg	0.10	0.16	0.15	0.70	0.43	0.13
Nickel	M	2450	mg/kg	0.50	11	11	16	11	8.0
Lead	M	2450	mg/kg	0.50	62	40	150	140	75
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	0.22	0.21	< 0.20
Vanadium	U	2450	mg/kg	5.0	18	18	21	19	17
Zinc	M	2450	mg/kg	0.50	40	36	170	130	100
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	4.5	4.7	8.3	4.5	3.6
Fuel Type	N	2670		N/A	PAH	PAH	PAH	PAH/H.OIL	PAH/LUBE
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	1.8	2.1
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	2.7	< 1.0	9.3	13	17
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	2.3	2.4	7.5	25	23
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	17	22	2.3	81	600
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	13	18	130
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	22	24	32	140	770
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	5.3	7.8
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	1.5	< 1.0	9.4	24	37
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	2.3	< 1.0	12	86	94

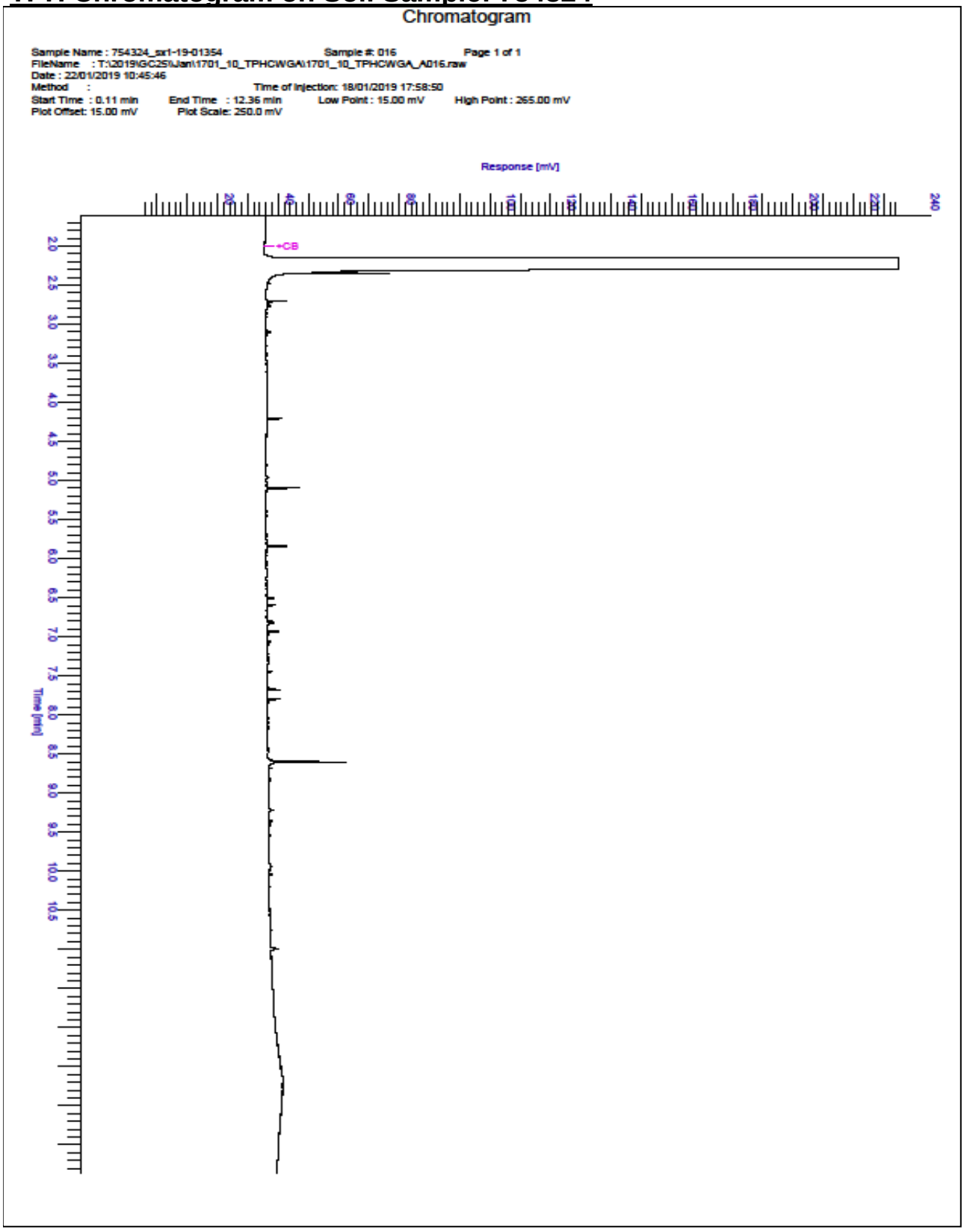
Chemtest
The right chemistry to deliver results

Results - Soil

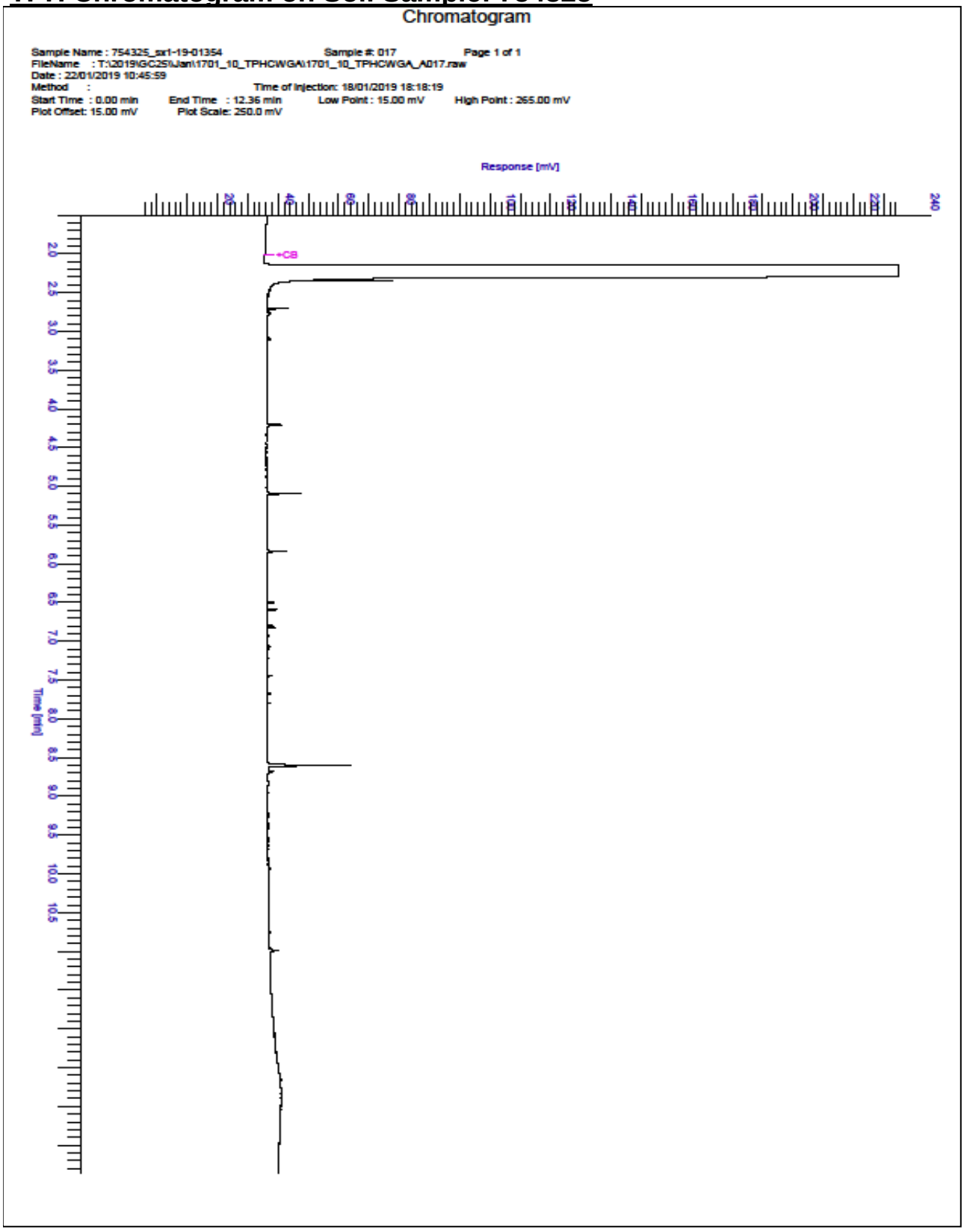
Project: LKC 18 1369 Medieval Quarter, Manchester

Client: LK Consult		**Chemtest Job No.:**			19-01354	19-01354	19-01354	19-01354	19-01354
Quotation No.:		**Chemtest Sample ID.:**			754324	754325	754326	754327	754328
		Client Sample ID.:			TP3	TP4	TP5	TP2	TP1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			07-Jan-2019	07-Jan-2019	08-Jan-2019	08-Jan-2019	09-Jan-2019
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	7.9	1.7	16	200	200
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	52	44	180	750	1300
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	130	58	260
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	64	46	350	1100	1900
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	86	70	380	1300	2700
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	1.4	10
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	1.2	2.9
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.9
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.8
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	1.5	4.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	0.93	0.41	27	16	25
Acenaphthylene	N	2800	mg/kg	0.10	0.57	0.42	6.3	2.3	5.3
Acenaphthene	M	2800	mg/kg	0.10	1.3	0.52	27	16	16
Fluorene	M	2800	mg/kg	0.10	1.4	0.53	26	14	18
Phenanthrene	M	2800	mg/kg	0.10	13	5.9	160	100	98
Anthracene	M	2800	mg/kg	0.10	3.2	1.6	45	26	26
Fluoranthene	M	2800	mg/kg	0.10	16	9.3	160	110	100
Pyrene	M	2800	mg/kg	0.10	16	9.6	140	110	94
Benzo[a]anthracene	M	2800	mg/kg	0.10	6.4	4.0	74	51	48
Chrysene	M	2800	mg/kg	0.10	7.5	5.4	76	53	49
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	6.9	5.2	84	55	54
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	3.4	2.2	34	23	21
Benzo[a]pyrene	M	2800	mg/kg	0.10	5.8	3.8	73	49	48
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	3.1	2.2	45	30	30
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.63	0.37	11	7.5	7.6
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	3.6	2.5	44	28	27
Total Of 16 PAH's	N	2800	mg/kg	2.0	90	54	1000	690	670
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	0.86	1.5

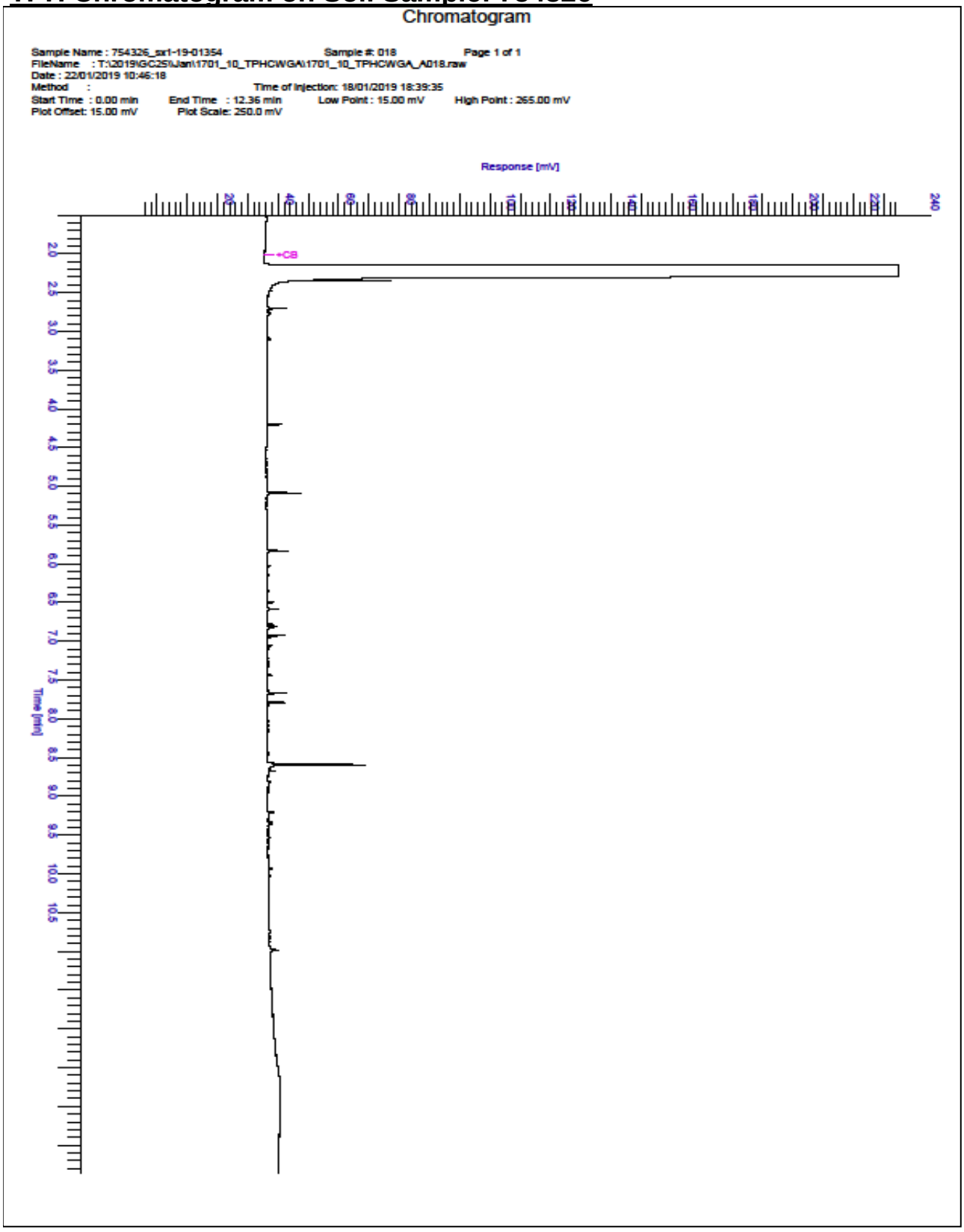
TPH Chromatogram on Soil Sample: 754324



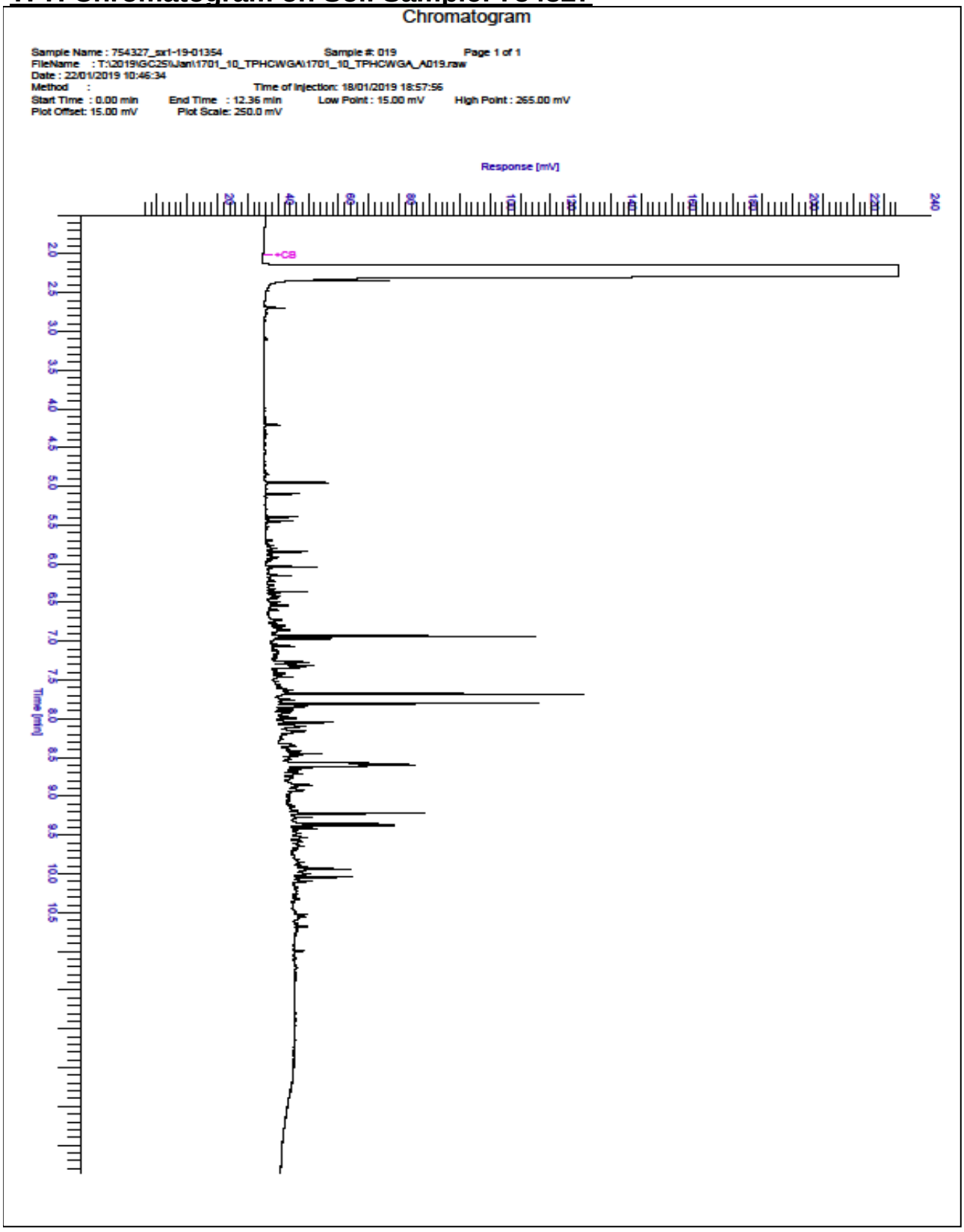
TPH Chromatogram on Soil Sample: 754325



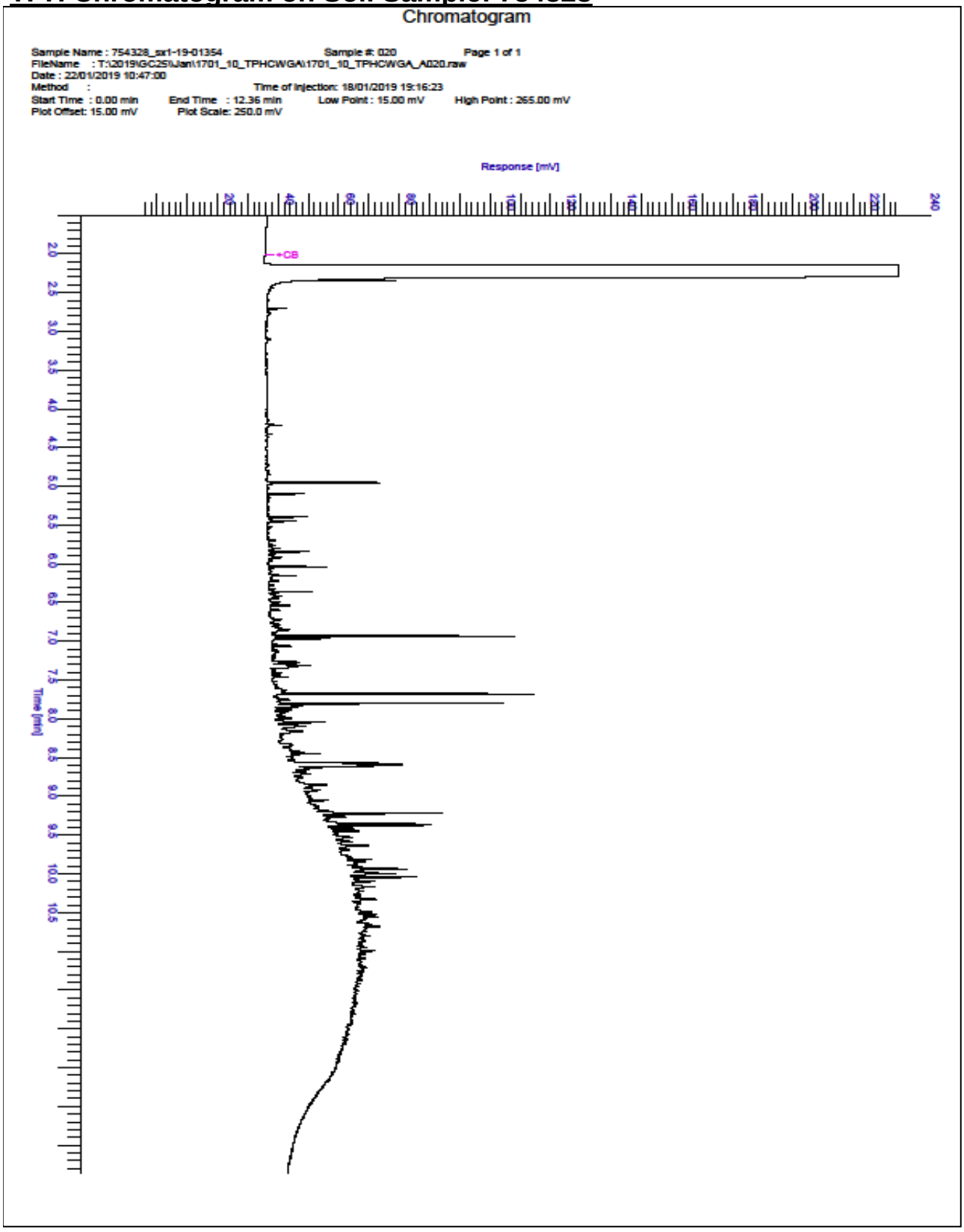
TPH Chromatogram on Soil Sample: 754326



TPH Chromatogram on Soil Sample: 754327



TPH Chromatogram on Soil Sample: 754328



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
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

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"

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 45 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

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	19-01357-1
Initial Date of Issue:	28-Jan-2019
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Wardle Contaminated Land
Project	LKC 18 1369 Medieval Quarter, Manchester

Quotation No.:		**Date Received:**	15-Jan-2019
Order No.:	736645	**Date Instructed:**	15-Jan-2019
No. of Samples:	5		
Turnaround (Wkdays):	7	**Results Due:**	23-Jan-2019
Date Approved:	28-Jan-2019		

Approved By:



Details: Robert Monk, Technical Manager

Results - 2 Stage WAC

Project: LKC 18 1369 Medieval Quarter, Manchester

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-01357								
Chemtest Sample ID:	754339								
Sample Ref:									
Sample ID:	TP3						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date:	07-Jan-2019								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	U	%			2.1	3	5	6
Loss On Ignition	2610	U	%			3.9	--	--	10
Total BTEX	2760	U	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			220	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			250	100	--	--
pH	2010	U				10.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.046	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0027	0.0029	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.031	0.051	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.032	0.0080	0.064	0.12	0.5	10	70
Copper	1450	U	0.14	0.026	0.27	0.24	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.013	0.0035	< 0.050	0.052	0.5	10	30
Nickel	1450	U	0.010	0.0015	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.0012	< 0.010	0.012	0.06	0.7	5
Selenium	1450	U	0.0040	0.0027	< 0.010	0.029	0.1	0.5	7
Zinc	1450	U	0.0012	0.0052	< 0.50	< 0.50	4	50	200
Chloride	1220	U	13	1.5	26	36	800	15000	25000
Fluoride	1220	U	0.50	0.31	< 1.0	3.4	10	150	500
Sulphate	1220	U	24	18	48	190	1000	20000	50000
Total Dissolved Solids	1020	N	530	200	1100	2600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	25	13	< 50	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	9.2

Leachate Test Information	
Leachant volume 1st extract/l	0.332
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.313

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 18 1369 Medieval Quarter, Manchester

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-01357								
Chemtest Sample ID:	754340								
Sample Ref:									
Sample ID:	TP4						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date:	07-Jan-2019								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	U	%			0.73	3	5	6
Loss On Ignition	2610	U	%			1.2	--	--	10
Total BTEX	2760	U	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			2200	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			17	100	--	--
pH	2010	U				12.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.32	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.15	0.054	< 0.50	0.77	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.022	0.014	< 0.050	0.16	0.5	10	70
Copper	1450	U	0.040	0.014	0.080	0.097	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0062	0.0027	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	0.0047	0.0014	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0014	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	12	3.3	24	54	800	15000	25000
Fluoride	1220	U	0.27	0.30	< 1.0	2.9	10	150	500
Sulphate	1220	U	< 1.0	11	< 10	83	1000	20000	50000
Total Dissolved Solids	1020	N	1700	570	3400	8400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	15	11	< 50	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	7.8

Leachate Test Information	
Leachant volume 1st extract/l	0.335
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.424

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 18 1369 Medieval Quarter, Manchester

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-01357								
Chemtest Sample ID:	754341								
Sample Ref:									
Sample ID:	TP5						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date:	08-Jan-2019								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	U	%			5.5	3	5	6
Loss On Ignition	2610	U	%			7.7	--	--	10
Total BTEX	2760	U	mg/kg			0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			1500	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			750	100	--	--
pH	2010	U				11.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.14	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0011	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.15	0.078	< 0.50	1.0	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.019	0.012	< 0.050	0.14	0.5	10	70
Copper	1450	U	0.024	0.013	< 0.050	0.074	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0099	0.0052	< 0.050	0.066	0.5	10	30
Nickel	1450	U	0.0026	0.0013	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	0.0060	0.0021	0.012	0.033	0.5	10	50
Antimony	1450	U	0.0011	0.0018	< 0.010	0.016	0.06	0.7	5
Selenium	1450	U	0.0017	0.0012	< 0.010	0.014	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	9.4	4.5	19	60	800	15000	25000
Fluoride	1220	U	0.26	0.28	< 1.0	2.7	10	150	500
Sulphate	1220	U	4.1	8.1	< 10	69	1000	20000	50000
Total Dissolved Solids	1020	N	1200	640	2300	8100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	8.5	7.6	< 50	78	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	9.6

Leachate Test Information	
Leachant volume 1st extract/l	0.331
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.541

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 18 1369 Medieval Quarter, Manchester

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-01357								
Chemtest Sample ID:	754342								
Sample Ref:									
Sample ID:	TP2						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date:	08-Jan-2019								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	U	%			3.4	3	5	6
Loss On Ignition	2610	U	%			5.6	--	--	10
Total BTEX	2760	U	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			4300	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			830	100	--	--
pH	2010	U				11.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.043	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0032	0.0034	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.018	0.050	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.028	0.0043	0.056	0.086	0.5	10	70
Copper	1450	U	0.097	0.016	0.19	0.18	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.022	0.0043	< 0.050	0.075	0.5	10	30
Nickel	1450	U	0.0028	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0029	0.0030	< 0.010	0.030	0.06	0.7	5
Selenium	1450	U	0.0031	0.0010	< 0.010	0.014	0.1	0.5	7
Zinc	1450	U	< 0.0010	0.0024	< 0.50	< 0.50	4	50	200
Chloride	1220	U	31	3.8	62	88	800	15000	25000
Fluoride	1220	U	0.48	0.30	< 1.0	3.3	10	150	500
Sulphate	1220	U	28	17	56	190	1000	20000	50000
Total Dissolved Solids	1020	N	590	200	1200	2700	4000	60000	100000
Phenol Index	1920	U	0.12	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	17	12	< 50	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	8.1

Leachate Test Information	
Leachant volume 1st extract/l	0.335
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.320

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 18 1369 Medieval Quarter, Manchester

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-01357								
Chemtest Sample ID:	754343								
Sample Ref:									
Sample ID:	TP1						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date:	09-Jan-2019								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	U	%			2.7	3	5	6
Loss On Ignition	2610	U	%			3.1	--	--	10
Total BTEX	2760	U	mg/kg			0.041	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			6600	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			780	100	--	--
pH	2010	U				11.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.086	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0022	0.0026	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.013	0.0096	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.0035	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.025	0.0061	< 0.050	0.060	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.0023	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	0.0014	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0037	0.0025	< 0.010	0.028	0.06	0.7	5
Selenium	1450	U	0.0029	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	0.0025	< 0.50	< 0.50	4	50	200
Chloride	1220	U	20	2.4	40	66	800	15000	25000
Fluoride	1220	U	0.54	0.25	1.1	3.2	10	150	500
Sulphate	1220	U	41	11	82	180	1000	20000	50000
Total Dissolved Solids	1020	N	280	100	560	1500	4000	60000	100000
Phenol Index	1920	U	0.44	< 0.030	0.88	1.1	1	-	-
Dissolved Organic Carbon	1610	U	15	12	< 50	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	5.6

Leachate Test Information	
Leachant volume 1st extract/l	0.340
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.417

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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"

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 45 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

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	19-01361-1
Initial Date of Issue:	22-Jan-2019
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Wardle Contaminated Land
Project	LKC 18 1367 Medieval Quarter, Manchester

Quotation No.:		**Date Received:**	15-Jan-2019
Order No.:	736645	**Date Instructed:**	15-Jan-2019
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	21-Jan-2019
Date Approved:	22-Jan-2019		

Approved By:



Details: Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: LKC 18 1367 Medieval Quarter, Manchester

Client: LK Consult		**Chemtest Job No.:**			19-01361	19-01361	19-01361	19-01361	19-01361	19-01361
Quotation No.:		**Chemtest Sample ID.:**			754355	754356	754357	754358	754359	754360
		Client Sample ID.:			HD1	HD2	HD3	HD4	HD5	HD6
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.00	0.00	0.40	0.00	0.00
		Bottom Depth (m):			0.60	0.60	0.50	060	0.55	0.60
		Date Sampled:			11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	12	13	9.7	12	11	11
Soil Colour	N	2040		N/A	Brown	Brown	Brown,	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones,
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand,	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached
pH	M	2010		N/A	8.4	8.6	8.4	8.2	8.1	8.0
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.65	0.67	0.48	< 0.40	0.45	0.43
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.10	0.012	< 0.010	0.023	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	14	13	12	8.3	10	8.3
Cadmium	M	2450	mg/kg	0.10	0.36	0.33	0.34	0.34	0.28	0.23
Chromium	M	2450	mg/kg	1.0	25	21	19	11	15	9.9
Copper	M	2450	mg/kg	0.50	33	34	32	29	31	30
Mercury	M	2450	mg/kg	0.10	0.46	0.37	1.1	0.24	0.27	0.22
Nickel	M	2450	mg/kg	0.50	11	11	17	8.7	9.6	11
Lead	M	2450	mg/kg	0.50	94	88	94	62	66	68
Selenium	M	2450	mg/kg	0.20	0.39	0.38	0.27	0.34	0.34	< 0.20
Vanadium	U	2450	mg/kg	5.0	19	19	21	18	18	13
Zinc	M	2450	mg/kg	0.50	72	60	69	57	50	52
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	4.3	2.9	6.6	2.8	4.1	< 0.40
Fuel Type	N	2670		N/A	PAH	PAH	PAH	N/A	PAH	PAH
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	11	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	12	< 1.0	1.3	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	12	2.0	31	< 1.0	19	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	12	< 5.0	54	< 5.0	20	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

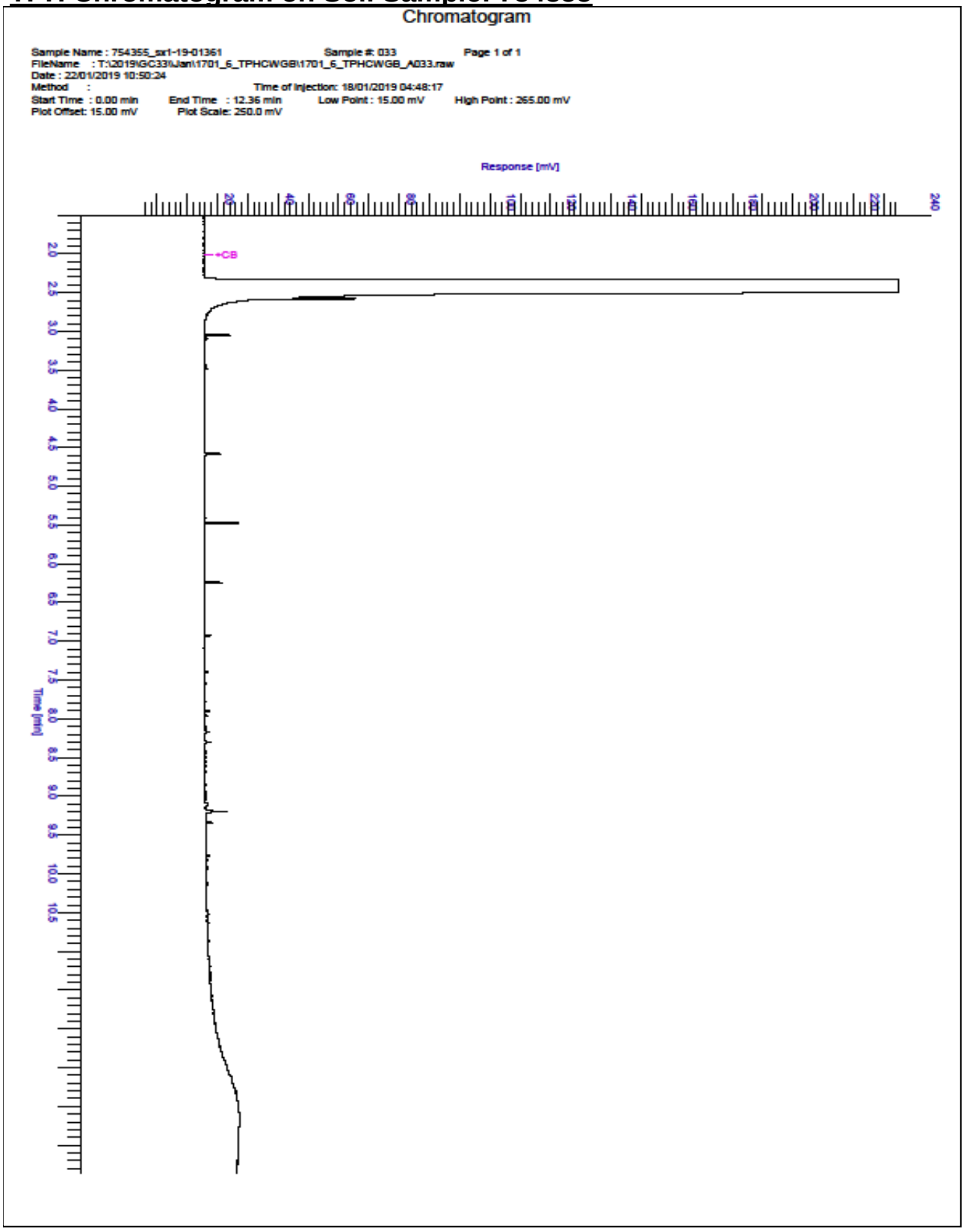
Chemtest
The right chemistry to deliver results

Results - Soil

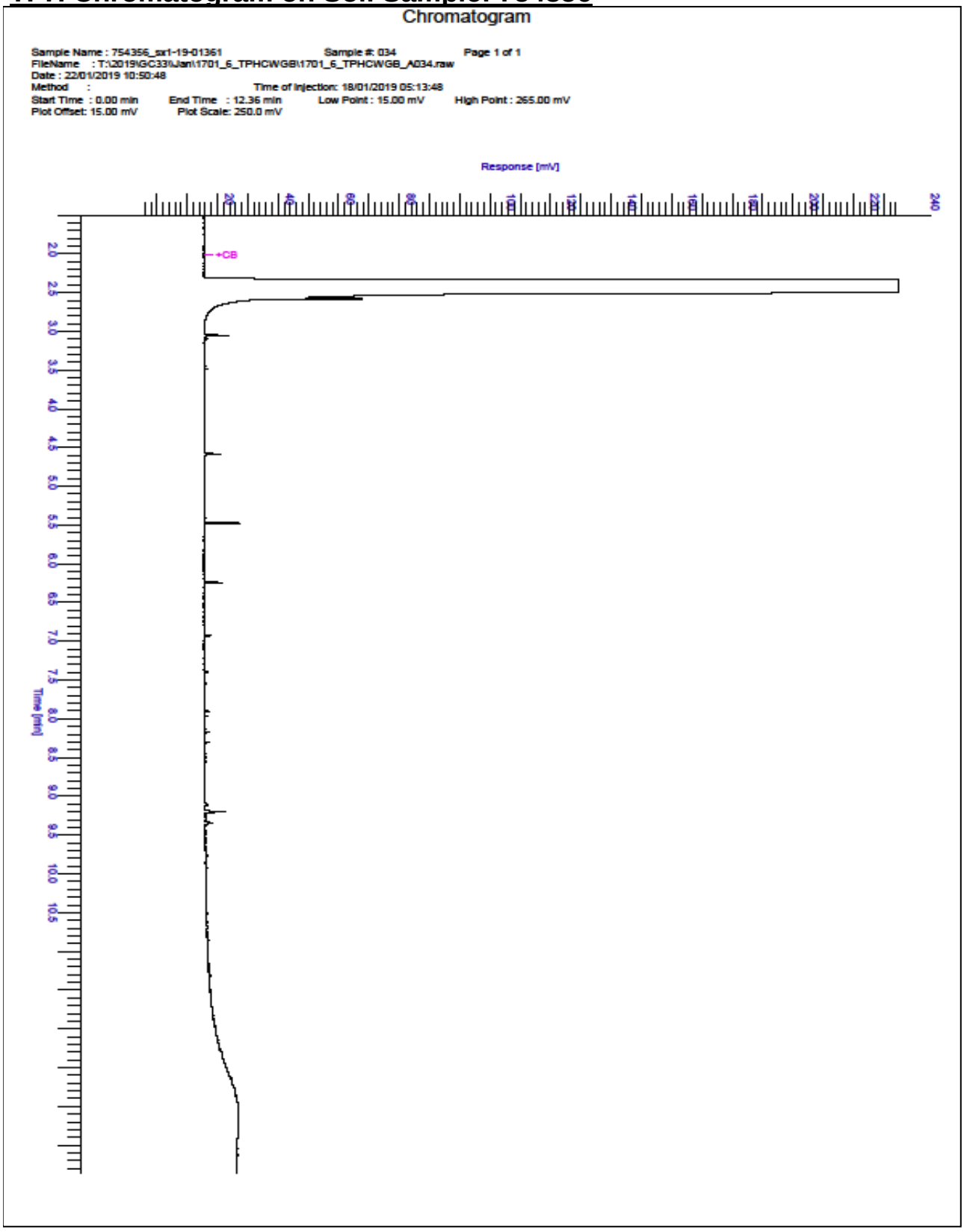
Project: LKC 18 1367 Medieval Quarter, Manchester

Client: LK Consult		**Chemtest Job No.:**			19-01361	19-01361	19-01361	19-01361	19-01361	19-01361
Quotation No.:		**Chemtest Sample ID.:**			754355	754356	754357	754358	754359	754360
		Client Sample ID.:			HD1	HD2	HD3	HD4	HD5	HD6
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.00	0.00	0.40	0.00	0.00
		Bottom Depth (m):			0.60	0.60	0.50	060	0.55	0.60
		Date Sampled:			11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019	11-Jan-2019
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	2.1	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	1.1	21	< 1.0	< 1.0	8.4
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	13	17	66	< 1.0	6.3	8.1
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	20	22	200	< 1.0	50	4.8
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	33	40	290	< 5.0	56	21
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	45	42	340	< 10	77	21
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	0.57	0.64	1.5	< 0.10	< 0.10	0.11
Acenaphthylene	N	2800	mg/kg	0.10	0.12	0.13	0.38	< 0.10	< 0.10	0.10
Acenaphthene	M	2800	mg/kg	0.10	0.30	0.37	0.99	< 0.10	< 0.10	0.39
Fluorene	M	2800	mg/kg	0.10	0.24	0.32	1.1	< 0.10	< 0.10	0.26
Phenanthrene	M	2800	mg/kg	0.10	2.6	4.0	9.7	0.88	3.1	5.0
Anthracene	M	2800	mg/kg	0.10	0.61	1.0	2.3	0.20	0.80	1.3
Fluoranthene	M	2800	mg/kg	0.10	3.8	5.3	12	1.7	3.8	6.9
Pyrene	M	2800	mg/kg	0.10	3.3	5.3	11	1.6	3.9	6.6
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.5	2.4	5.5	0.44	1.4	2.9
Chrysene	M	2800	mg/kg	0.10	1.7	2.7	5.9	0.47	1.7	3.1
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.0	2.8	5.8	0.67	1.6	3.1
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.65	1.0	2.3	0.17	0.46	1.1
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.4	2.2	4.5	0.40	1.2	2.3
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.92	1.2	2.8	0.21	0.67	1.3
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.10	0.14	0.56	< 0.10	< 0.10	0.15
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.2	1.4	2.7	0.40	0.90	1.4
Total Of 16 PAH's	N	2800	mg/kg	2.0	21	31	69	7.1	20	36
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	0.66

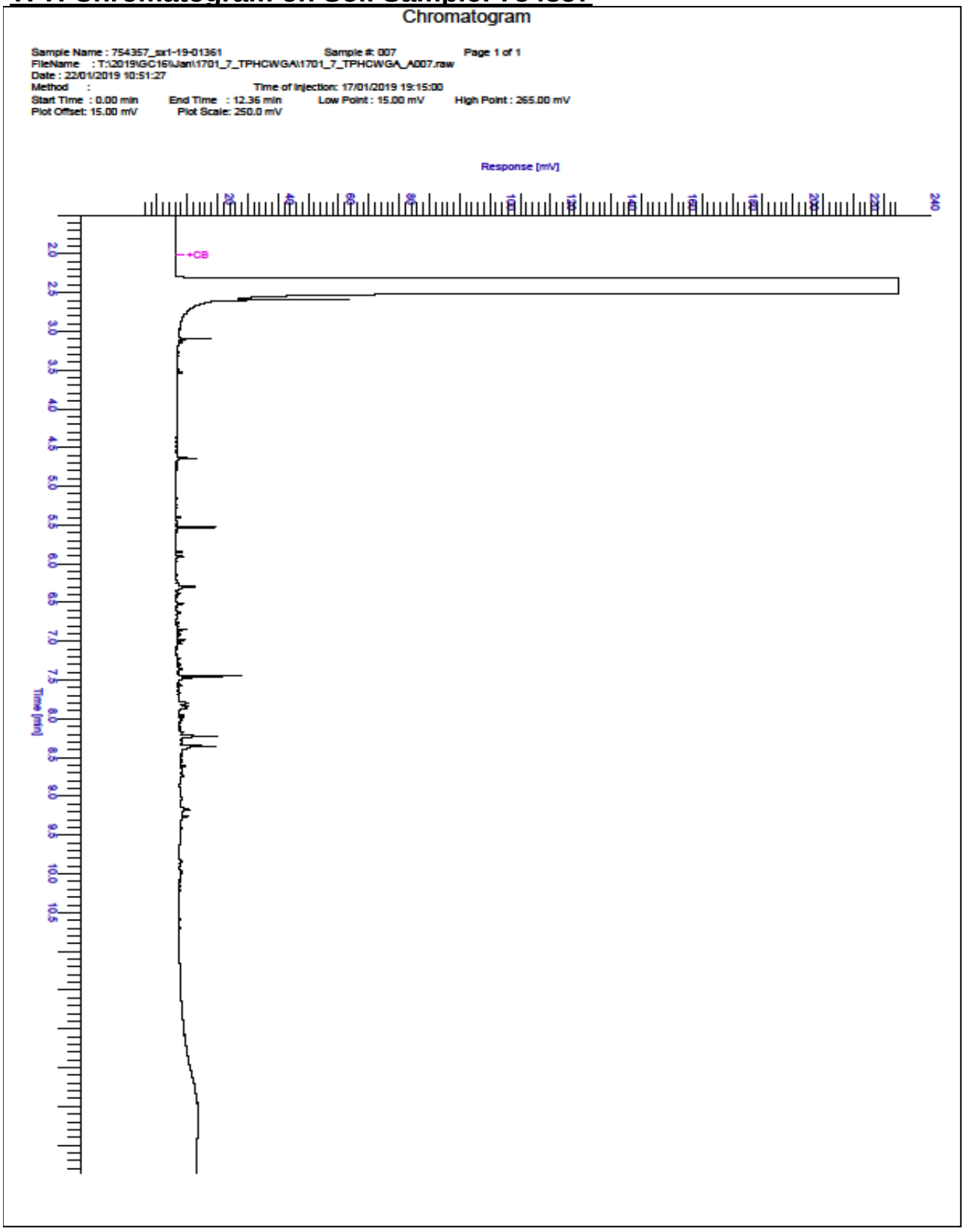
TPH Chromatogram on Soil Sample: 754355



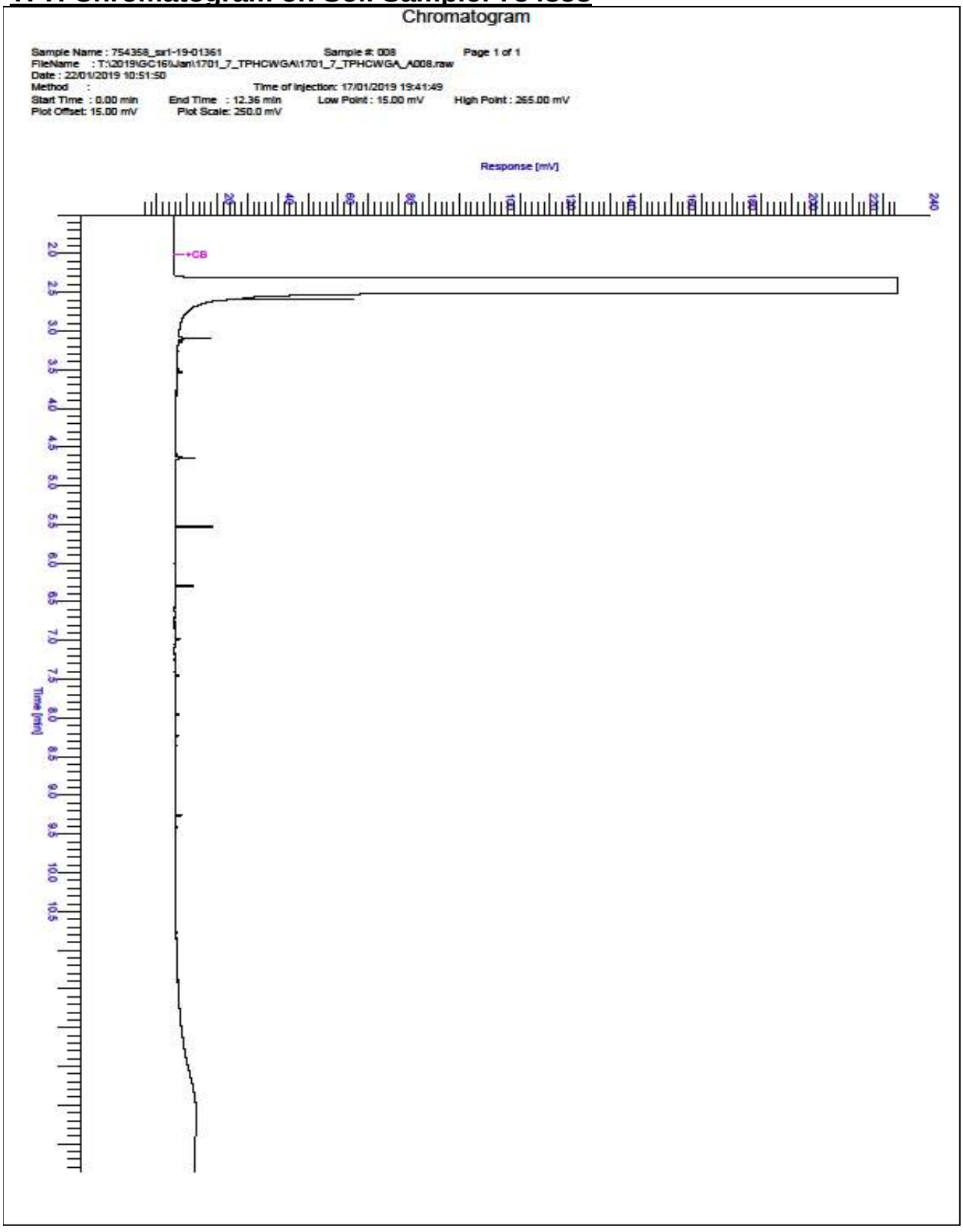
TPH Chromatogram on Soil Sample: 754356



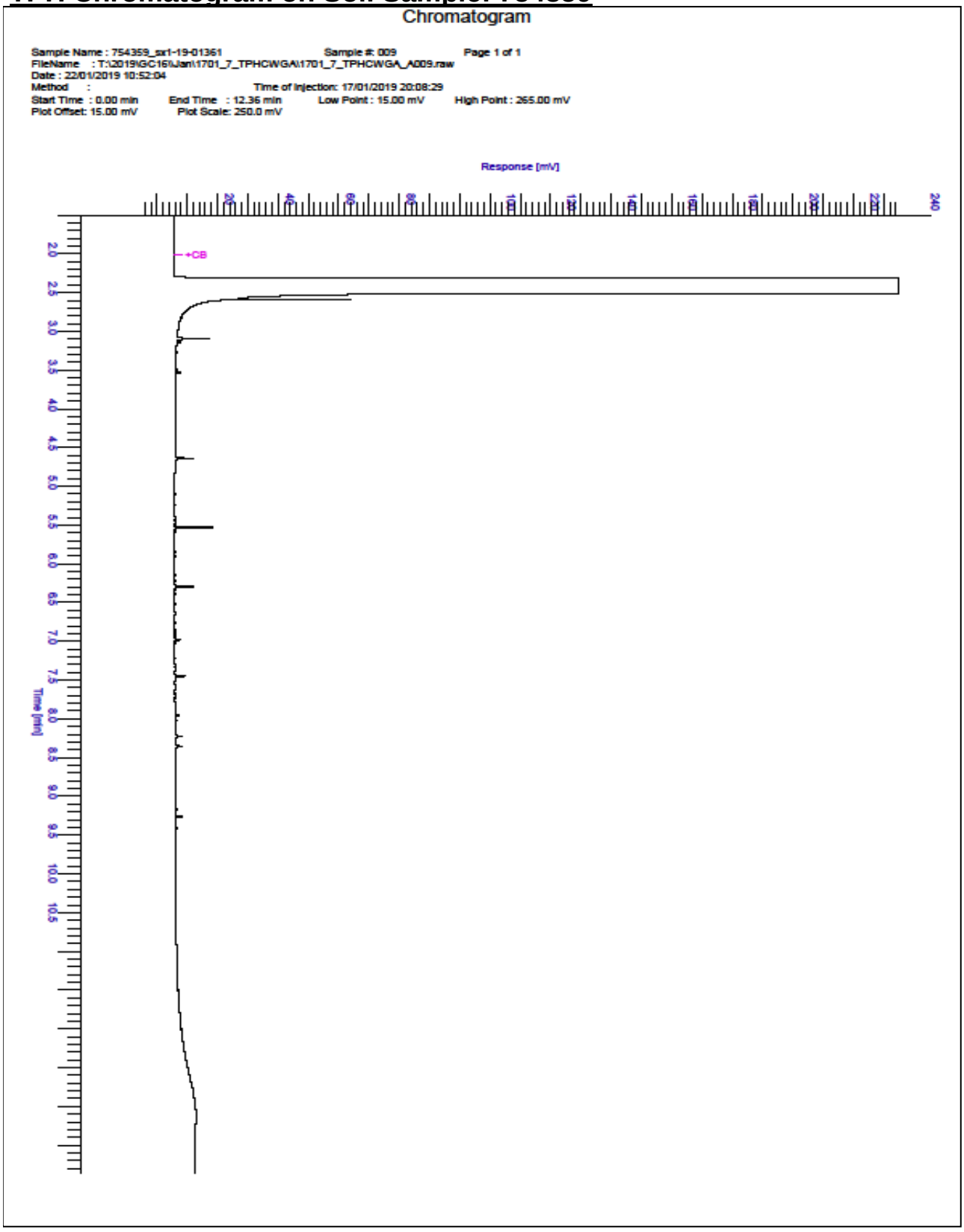
TPH Chromatogram on Soil Sample: 754357



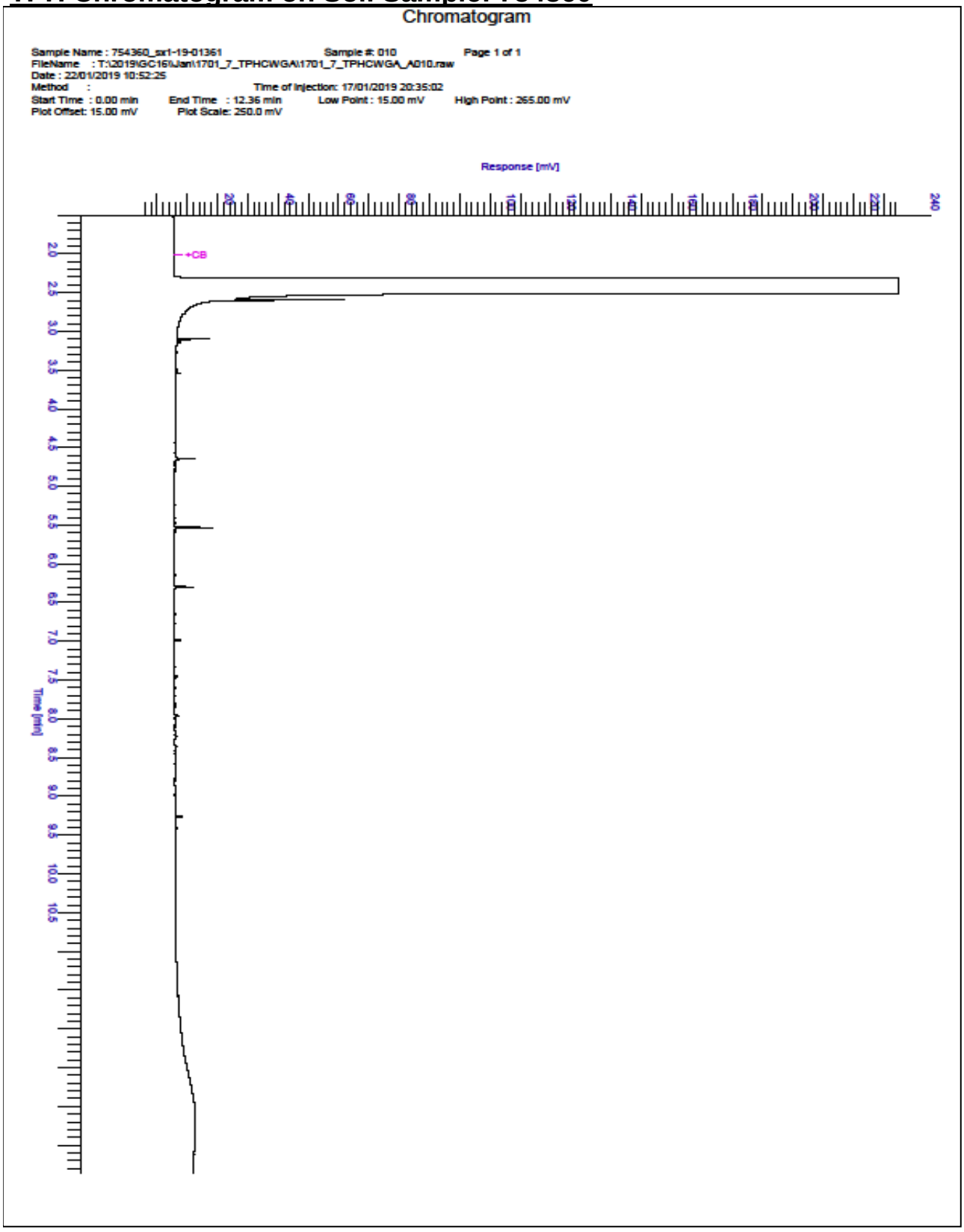
TPH Chromatogram on Soil Sample: 754358



TPH Chromatogram on Soil Sample: 754359



TPH Chromatogram on Soil Sample: 754360



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
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

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"

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 45 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 D

Photographs

TP1



Photograph 1:
View of exposed services within the eastern footpath.



Photograph 2:
View of exposed services within the carriageway TP1.



Photograph 3:
View of exposed services within the western footpath.



Photograph 4:
Reinstatement of TP1.

TP2



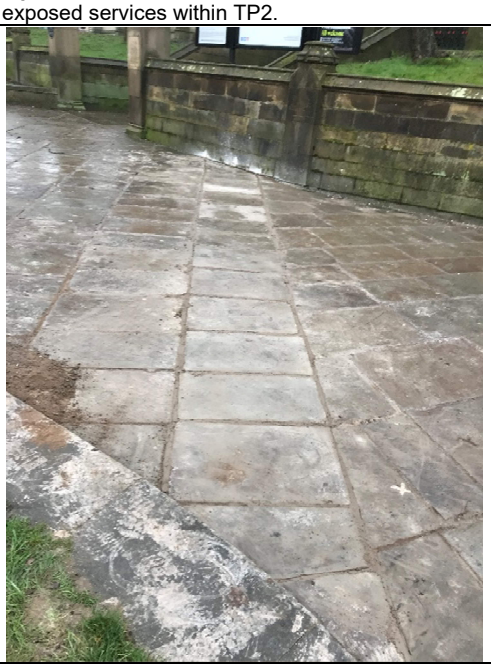
Photograph 5:
View of exposed services within TP2.



Photograph 6:
View of exposed services within TP2.



Photograph 7:
View of exposed services within TP2.



Photograph 8:
Reinstatement of TP2.

TP3



Photograph 9:
View of an exposed service within the soft landscaped area of TP3..



Photograph 10:
View of exposed services within the eastern footpath of TP3..



Photograph 11:
View of exposed fibre optic ducting in the carriageway of TP3..



Photograph 12:
Reinstatement of TP3.

TP4



Photograph 15:
View across TP4.



Photograph 16:
View of exposed services in TP4.



Photograph 17:
View of exposed services in TP4.



Photograph 18:
Reinstatement of TP4.

TP5



Photograph 21:
View of exposed tram track within the road way of TP5.



Photograph 22:
View of the exposed services within the eastern footpath in TP5.



Photograph 23:
Exposed services within the western footpath in TP5.



Photograph 24:
Reinstatement of TP5.

Appendix E

Generic Assessment Criteria

Summary of Category 4 Screening Levels: 2015

Substance	Residential (with home-grown produce)	Residential (without home-grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37 mg/kg	40 mg/kg	49 mg/kg	640 mg/kg	79 mg/kg	170 mg/kg
Benzene	0.87 mg/kg	3.3 mg/kg	0.18 mg/kg	98 mg/kg	140 mg/kg	230 mg/kg
Benzo(a)pyrene	5.0 mg/kg	5.3 mg/kg	5.7 mg/kg	77 mg/kg	10 mg/kg	21 mg/kg
Cadmium	22 mg/kg	150 mg/kg	3.9 mg/kg	410 mg/kg	220 mg/kg	880 mg/kg
Chromium VI	21 mg/kg	21 mg/kg	170 mg/kg	49 mg/kg	21 mg/kg	250 mg/kg
Lead	200 mg/kg	310 mg/kg	80 mg/kg	2300 mg/kg	630 mg/kg	1300 mg/kg

Summary Table for the Generic Assessment Criteria for Human Health Risk Assessment Land Quality Management (LQM) S4ULs.

All GAC are based on sandy loam soils with a pH 7.

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
			Res +	Res -	Allot.	Comm.	POS_{resi}	POS_{park}
Metals	Inorganic Arsenic	6%	37	40	43	640	79	170
	Beryllium	6%	1.7	1.7	35	12	2.2	63
	Boron	6%	290	11,000	45	240,000	21,000	46,000
	Cadmium	6%	11	85	1.9	190	120	532
	Chromium (III)	6%	910	910	18,000	8,600	1,500	33,000
	Chromium (VI)	6%	6.0	6.0	1.8	33	7.7	220
	Copper	6%	2,400	7,100	520	68,000	12,000	44,000
	Elemental Mercury	6%	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}
	Inorganic Mercury	6%	40	56	19	1,100	120	240
	Methylmercury	6%	11	15	6.0	320	40	68
	Nickel	6%	180	180	230	980	230	3,400
	Selenium	6%	250	430	88	12,000	1,100	1,800
	Vanadium	6%	410	1,200	91	9,000	2,000	5,000
	Zinc	6%	3,700	40,000	620	730,000	81,000	170,000
BTEX Compounds	Benzene	1%	0.087	0.38	0.017	27	72	90
		2.5%	0.17	0.70	0.034	47	72	100
		6%	0.37	1.4	0.075	90	73	110
	Toluene	1%	130	880 (869) ^{vap}	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
		2.5%	290	1,900	51	110,000 (1,920) ^{vap}	56,000	95,000 (1,920) ^{vap}
		6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
	Ethylbenzene	1%	47	83	16	5,700 (518) ^{vap}	24,000	17,000 (518) ^{vap}
		2.5%	110	190	39	13,000 (1,220) ^{vap}	24,000	22,000 (1,220) ^{vap}
		6%	260	440	91	27,000 (2,840) ^{vap}	25,000	27,000 (2,840) ^{vap}
	o-xylene	1%	60	88	28	6,600 (478) ^{sol}	41,000	17,000 (478) ^{sol}
		2.5%	140	210	67	15,000 (1,120) ^{sol}	42,000	24,000 (1,120) ^{sol}
		6%	330	480	160	33,000 (2,620) ^{sol}	43,000	33,000 (2,620) ^{sol}
	m-xylene	1%	59	82	31	6,200 (625) ^{vap}	41,000	17,000 (625) ^{vap}
		2.5%	140	190	74	14,000 (1,470) ^{vap}	42,000	24,000 (1,470) ^{vap}
		6%	320	450	170	31,000 (3,460) ^{vap}	43,000	32,000 (3,460) ^{vap}
	p-xylene	1%	56	79	29	5,900 (576) ^{sol}	41,000	17,000 (576) ^{sol}
		2.5%	130	180	69	14,000 (1,350) ^{sol}	42,000	23,000 (1,350) ^{sol}
		6%	310	430	160	30,000 (3,170) ^{sol}	43,000	31,000 (3,170) ^{sol}

NOTES

$^{Sol / vap}$ = solubility / vapour limit (potentially use if free product identified, although highly conservative).

f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
			Res +	Res -	Allot.	Comm.	POS_{resi}	POS_{park}
Polycyclic Aromatic Hydrocarbons (PAHs)	Acenaphthene	1%	210	3,000 (57.1) ^{sol}	34	84,000 (57.0) ^{sol}	15,000	29,000
		2.5%	510	4,700 (141) ^{sol}	85	97,000 (141) ^{sol}	15,000	30,000
		6%	1,100	6,000 (336) ^{sol}	200	100,000	15,000	30,000
	Acenaphthylene	1%	170	2,900 (86.1) ^{sol}	28	83,000 (86.1) ^{sol}	15,000	29,000
		2.5%	420	4,600 (212) ^{sol}	69	97,000 (212) ^{sol}	15,000	30,000
		6%	920	6,000 (506) ^{sol}	160	100,000	15,000	30,000
	Anthracene	1%	2,400	31,000 (1.17) ^{vap}	380	520,000	74,000	150,000
		2.5%	5,400	35,000	950	540,000	74,000	150,000
		6%	11,000	37,000	2,200	540,000	74,000	150,000
	Benz(a)anthracene	1%	7.2	11	2.9	170	29	49
		2.5%	11	14	6.5	170	29	56
		6%	13	15	13	180	29	62
	Benzo(a)pyrene (only)	1%	2.2	3.2	0.97	35	5.7	11
		2.5%	2.7	3.2	2.0	35	5.7	12
		6%	3.0	3.2	3.5	36	5.7	13
	Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13
		2.5%	3.3	4.0	2.1	44	7.2	15
		6%	3.7	4.0	3.9	45	7.2	16
	Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400
		2.5%	340	360	470	4,000	640	1,500
		6%	350	360	640	4,000	640	1,600
	Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370
		2.5%	93	110	75	1,200	190	410
		6%	100	110	130	1,200	190	440
	Chrysene	1%	15	30	4.1	350	57	93
		2.5%	22	31	9.4	350	57	110
		6%	27	32	19	350	57	120
	Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1
		2.5%	0.28	0.32	0.27	3.6	0.58	1.3
		6%	0.3	0.32	0.43	3.6	0.58	1.4
	Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300
		2.5%	560	1,600	130	23,000	3,100	6,300
		6%	890	1,600	290	23,000	3,100	6,400
	Fluorene	1%	170	2,800 (36.0) ^{sol}	27	63,000 (30.9) ^{sol}	9,900	20,000
		2.5%	400	3,800 (76.5) ^{sol}	67	68,000	9,900	20,000
		6%	860	4,500 (183) ^{sol}	160	71,000	9,900	20,000
	Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150
		2.5%	36	46	21	510	82	170
		6%	41	46	39	510	82	180
	Naphthalene	1%	2.3 ^{f}	2.3 ^{f}	4.1 ^{f}	190 ^{f} (76.4) ^{sol}	4,900 ^{f}	1,200 ^{f} (76.4) ^{sol}
		2.5%	5.6 ^{f}	5.6 ^{f}	10 ^{f}	460 ^{f} (183) ^{sol}	4,900 ^{f}	1,900 ^{f} (183) ^{sol}
		6%	13 ^{f}	13 ^{f}	24 ^{f}	1,100 ^{f} (432) ^{sol}	4,900 ^{f}	3,000
	Phenanthrene	1%	95	1,300 (36.0) ^{sol}	15	22,000	3,100	6,200
		2.5%	220	1,500	38	22,000	3,100	6,200
		6%	440	1,500	90	22,000	3,100	6,300
	Pyrene	1%	620	3,700	110	54,000	7,400	15,000
		2.5%	1,200	3,800	270	54,000	7,400	15,000
		6%	2,000	3,800	620	54,000	7,400	15,000
	Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4
		2.5%	0.98	1.2	0.67	15	2.2	4.7
		6%	1.1	1.2	1.2	15	2.2	4.8

NOTES

$^{sol / vap}$ = solubility / vapour limit (potentially use if free product identified, although highly conservative).

f = naphthalene is based on comparison of inhalation exposure with TDI_{inhal} for localised effect.

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POS_{resi}	POS_{park}
Petroleum Hydrocarbons	**Aliphatic**							
	EC 5-6	1%	42	42	730	3,200 (304) ^{sol}	570,000(304)^{sol}	95,000 (304) ^{sol}
	EC>6-8	1%	100	100	2,300	7,800 (144) ^{sol}	600,000	150,000 (144) ^{sol}
	EC>8-10	1%	27	27	320	2,000 (78) ^{sol}	13,000	14,000 (78) ^{vap}
	EC>10-12	1%	130 (48) ^{vap}	130 (48) ^{vap}	2,200	9,700 (48) ^{sol}	13,000	21,000 (48) ^{vap}
	EC>12-16	1%	1,100 (24) ^{sol}	1,100 (24) ^{sol}	11,000	59,000 (24) ^{sol}	13,000	25,000 (24) ^{sol}
	EC>16-35	1%	65,000 (8.48) ^{f,sol}	65,000 (8.48) ^{f,sol}	260,000 ^{f}	160,000 ^{f}	250,000 ^{f}	450,000 ^{f}
	EC>35-44	1%	65,000 (8.48) ^{f,sol}	65,000 (8.48) ^{f,sol}	260,000 ^{f}	160,000 ^{f}	250,000 ^{f}	450,000 ^{f}
	Aliphatic							
	EC 5-6	2.5%	78	78	1,700	5,900 (558) ^{sol}	590,000	130,000 (558) ^{sol}
	EC>6-8	2.5%	230	230	5,600	17,000 (322) ^{sol}	610,000	220,000 (322) ^{sol}
	EC>8-10	2.5%	65	65	770	4,800 (190) ^{vap}	13,000	18,000 (190) ^{vap}
	EC>10-12	2.5%	330 (118) ^{vap}	330 (118) ^{vap}	4,400	23,000 (118) ^{vap}	13,000	23,000 (118) ^{vap}
	EC>12-16	2.5%	2,400 (59) ^{sol}	2,400 (59) ^{sol}	13,000	82,000 (59) ^{sol}	13,000	25,000 (59) ^{sol}
	EC>16-35	2.5%	92,000 (21) ^{f,sol}	92,000 (21) ^{f,sol}	270,000 ^{f}	1,700,000 ^{f}	250,000 ^{f}	480,000 ^{f}
	EC>35-44	2.5%	92,000 (21) ^{f,sol}	92,000 (21) ^{f,sol}	270,000 ^{f}	1,700,000 ^{f}	250,000 ^{f}	480,000 ^{f}
	Aliphatic							
	EC 5-6	6%	160	160	3,900	12,000 (1,150) ^{sol}	600,000	180,000 (1,150) ^{sol}
	EC>6-8	6%	530	530	13,000	40,000 (736) ^{sol}	620,000	320,000 (736) ^{sol}
	EC>8-10	6%	150	150	1,700	11,000 (451) ^{vap}	13,000	21,000 (451) ^{vap}
	EC>10-12	6%	760 (283) ^{vap}	760 (283) ^{vap}	7,300	47,000 (283) ^{vap}	13,000	24,000 (283) ^{vap}
	EC>12-16	6%	4,300 (142) ^{sol}	4,400 (142) ^{sol}	13,000	90,000 (142) ^{sol}	13,000	26,000 (142) ^{sol}
	EC>16-35	6%	110,000^{f}	110,000^{f}	270,000 ^{f}	1,800,000^{f}	250,000 ^{f}	490,000 ^{f}
	EC>35-44	6%	110,000^{f}	110,000^{f}	270,000 ^{f}	1,800,000^{f}	250,000 ^{f}	490,000 ^{f}
	Aromatic							
	EC5-7(benzene as non-threshold)	1%	70	370	13	26,000 (1,220) ^{sol}	56,000	76,000 (1,220) ^{sol}
	EC>7-8(toluene)	1%	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
	EC>8-10	1%	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}
	EC>10-12	1%	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}
	EC>12-16	1%	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000
	EC>16-21	1%	260 ^{f}	1,900 ^{f}	46 ^{f}	28,000 ^{f}	3,800 ^{f}	7,600 ^{f}
	EC>21-35	1%	1,100 ^{f}	1,900 ^{f}	370 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
	EC>35-44	1%	1,100 ^{f}	1,900 ^{f}	370^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
	Aromatic							
	EC5-7(benzene as non-threshold)	2.5%	140	690	27	46,000 (2,260) ^{sol}	56,000	84,000 (2,260) ^{sol}
	EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) ^{sol}	56,000	95,000 (1,920) ^{sol}
	EC>8-10	2.5%	83	110	21	8,100 (1,500) ^{vap}	5,000	8,500 (1,500) ^{vap}
	EC>10-12	2.5%	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (899) ^{sol}
	EC>12-16	2.5%	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000
	EC>16-21	2.5%	540 ^{f}	1,900 ^{f}	110 ^{f}	28,000 ^{f}	3,800 ^{f}	7,700 ^{f}
	EC>21-35	2.5%	1,500 ^{f}	1,900 ^{f}	820 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
	EC>35-44	2.5%	1,500 ^{f}	1,900 ^{f}	820 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
	Aromatic							
	EC5-7(benzene as non-threshold)	6%	300	1,400	57	86,000 (4,710) ^{sol}	56,000	92,000 (4,710) ^{sol}
	EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
	EC>8-10	6%	190	270	51	17,000 (3,580) ^{vap}	5,000	9,300 (3,580) ^{vap}
	EC>10-12	6%	380	1,200	4	34,000 (2,150) ^{sol}	5,000	10,000
	EC>12-16	6%	660	2,500	130	38,000	5,100	10,000
	EC>16-21	6%	930^{f}	1,900 ^{f}	260 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
	EC>21-35	6%	1,700 ^{f}	1,900 ^{f}	1,600 ^{f}	28,000 ^{f}	3,800 ^{f}	7,900 ^{f}
	EC>35-44	6%	1,700 ^{f}	1,900 ^{f}	1,600 ^{f}	28,000 ^{f}	3,800 ^{f}	7,900 ^{f}
	Aliphatic +Aromatic >EC44	1%	1,600 ^{f}	1,900 ^{f}	1,200 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
		2.5%	1,800 ^{f}	1,900 ^{f}	2,100 ^{f}	28,000 ^{f}	3,800 ^{f}	7,800 ^{f}
		6%	1,900 ^{f}	1,900 ^{f}	3,000 ^{f}	28,000 ^{f}	3,800 ^{f}	7,900 ^{f}

NOTES

$^{Sol\ /\ vap}$ = solubility / vapour limit (potentially use if free product identified, although highly conservative).

f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil: Res +	Res -	Allot.	Comm.	POS_{resi}	POS_{park}
Chloalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	7.1E-03	9.2E-03	4.6E-03	0.67	29	21
		2.5%	1.1E-02	1.3E-02	8.3E-03	0.97	29	24
		6%	1.9E-02	2.3E-02	1.6E-02	1.7	29	28
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425) vap
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) vap
		6%	39	40	240	3,000	140,000	100,000 (6,392) vap
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800
		2.5%	3.4	8.0	0.89	550	1,400	2,100
		6%	7.5	17	2.0	1,100	1,400	2,300
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500
		2.5%	2.8	3.5	1.9	250	1,400	1,800
		6%	6.4	8.2	4.4	560	1,400	2,100
	Tetrachloroethene (PCE)	1%	0.18	0.18	0.65	19	1,400	810 (424) sol
		2.5%	0.39	0.40	1.5	42	1,400	1,100 (951) sol
		6%	0.90	0.92	3.6	95	1,400	1,500
	Tetrachloromethane (carbon tetrachloride)	1%	2.6E-02	2.6E-02	0.45	2.9	890	190
		2.5%	5.6E-02	5.6E-02	1.0	6.3	920	270
		6%	0.13	0.13	2.4	14	950	400
	Trichloroethene (TCE)	1%	1.6E-02	1.7E-02	4.1E-02	1.2	120	70
		2.5%	3.4E-02	3.6E-02	9.1E-02	2.6	120	91
		6%	7.5E-02	8.0E-02	0.21	5.7	120	120
	Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600
		2.5%	1.7	2.1	0.83	170	2,500	2,800
		6%	3.4	4.2	1.7	350	2,500	3,100
	Chloroethene (vinyl chloride)	1%	6.4E-04	7.7E-04	5.5E-04	5.9E-02	3.5	4.8
		2.5%	8.7E-04	1.0E-03	1.0E-03	7.7E-02	3.5	5.0
		6%	1.4E-03	1.5E-03	1.8E-03	0.12	3.5	5.4
	2,4,6-Trinitritoluene (TNT)	1%	1.6	65	0.24	1,000	130	260
		2.5%	3.7	66	0.58	1,000	130	270
		6%	8.1	66	1.4	1,000	130	270
	RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) sol
		2.5%	250	13,000	38	210,000	26,000	51,000
		6%	540	13,000	85	210,000	27,000	53,000
	HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) vap
		2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) vap
		6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) vap
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30
		2.5%	6.6	7.4	6.1	170	18	31
		6%	7.1	7.5	9.8	170	18	31
	Dieldrin	1%	0.97	7.0	0.17	170	18	30
		2.5%	2.0	7.3	0.41	170	18	30
		6%	3.5	7.4	0.96	170	18	31
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300
		2.5%	7.8	620	1.2	9,400	1,200	2,400
		6%	17.4	620	2.7	9,400	1,200	2,400
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26
		6%	0.14	6.6	2.2E-02	140	16	27
	Endosulfanns (2 isomers)	1%	7.4	160 (3.0E-03) vap	1.2	5,600 (3.0E-03) vap	1,200	2,300
		2.5%	18	280 (7.0E-03) vap	2.9	7,400 (7.0E-03) vap	1,200	2,400
		6%	41	410 (1.6E-02) vap	6.8	8,400 (1.6E-02) vap	1,200	2,500
	Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15
		2.5%	0.2	3.8	3.2E-02	65	8.1	15
		6%	0.46	3.8	7.7E-02	65	8.1	16

NOTES

Sol / vap = solubility / vapour limit (potentially use if free product identified, although highly conservative).

All GAC are based on sandy loam soils with a pH 7.

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
			Res +	Res -	Allot.	Comm.	POS_{resi}	POS_{park}
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) ^{sol}
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) ^{sol}
		6%	2.4	2.4	32	290	14,000	2,900
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) ^{sol}	90,000	24,000 (571) ^{sol}
		2.5%	55	57	230	4,800 (1,370) ^{sol}	95,000	36,000 (1,370) ^{sol}
		6%	130	130	540	11,000 (3,240) ^{sol}	98,000	51,000 (3,270) ^{sol}
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) ^{vap}
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) ^{vap}
		6%	15	15	320	1,300	19,000	4,000 (1,880) ^{vap}
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) ^{vap}	78	110 (39) ^{vap}
		2.5%	1.6	1.9	0.90	120 (98.1) ^{vap}	79	120
		6%	3.7	4.3	2.2	240 (235) ^{vap}	79	130
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) ^{sol}	100	190
		2.5%	12	30	3.1	770 (107) ^{sol}	100	190
		6%	22	38	7.0	830	100	190
	Hexachlorobenzene	1%	1.8 (0.20) ^{vap}	4.1 (0.20) ^{vap}	0.47	110 (0.20) ^{vap}	16	30
		2.5%	3.3 (0.50) ^{vap}	5.7 (0.50) ^{vap}	1.1	120	16	30
		6%	4.9	6.7 (1.2) ^{vap}	2.5	120	16	30
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 ^{g}	94	0.13 ^{g}	3,500	620	1,100
		2.5%	2.0	150	0.30	4,000	620	1,100
		6%	4.5	210	0.70	4,300	620	1,100
	Pentachlorophenol	1%	0.22	27 (16.4) ^{vap}	3.0E-02	400	60	110
		2.5%	0.52	29	8.0E-02	400	60	120
		6%	1.2	31	0.19	400	60	120
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300
		2.5%	0.29	0.29	10	22	11,000	1,900
		6%	0.62	0.62	23	47	11,000	2,700
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48
		2.5%	0.7	0.78	0.61	66	25	50
		6%	1.6	1.8	1.4	120	25	51
	Phenol	1%	280	750	66	760 ^{dir} (31,000)	760 ^{dir} (11,000)	760 ^{dir} (8,600)
		2.5%	550	1,300	140	1,500 ^{dir} (35,000)	1,500 ^{dir} (11,000)	1,500 ^{dir} (9,700)
		6%	1,100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir} (11,000)	3,200 ^{dir} (11,000)

NOTES

$^{Sol / vap}$ = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^{dir} = S4uls based on threshold protective of direct skin contact with phenol (brackets long term exposure for illustration purposes).

^{g} = derived based on 2,3,4,6-tetrachlorophenol.

Appendix F

HazWaste Classification Report

HazWasteOnline™

Waste Classification Report

NQ7D2-URX5A-8DYYF

Job name

Medieval Quarter, Manchester

Description/Comments

Manchester Cathedral, Victoria Street, Manchester, M3 1SX

Project

LKC 18 1367

Site

Medieval Quarter, Manchester

Related Documents

#	Name	Description
1	HWOL-19-01361-20190122 150606.hwol	.hwol file used to create the Job

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Colin Crompton
Date:
31 Jan 2019 14:27 GMT
Telephone:
0161 763 7200

Company:
LK Group
Unit 29, Eton Business Park
Eton Hill Rd, Radcliffe
Manchester
M26 2ZS

Report

Created by: Colin Crompton
Created date: 31 Jan 2019 14:27 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	HD1-754355-11/01/2019-0.00	0.00-0.60	Non Hazardous		3
2	HD2-754356-11/01/2019-0.00	0.00-0.60	Non Hazardous		6
3	HD3-754357-11/01/2019-0.00	0.00-0.50	Non Hazardous		9
4	HD4-754358-11/01/2019-0.40	0.40-060	Non Hazardous		12
5	HD5-754359-11/01/2019-0.00	0.00-0.55	Non Hazardous		15
6	HD6-754360-11/01/2019-0.00	0.00-0.60	Non Hazardous		18
7	TP3		Hazardous	HP 8	21
8	TP4		Hazardous	HP 8	24
9	TP5		Non Hazardous		27
10	TP2		Hazardous	HP 7, HP 11	30
11	TP1		Hazardous	HP 7, HP 11	33

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	36
Appendix B: Rationale for selection of metal species	37
Appendix C: Version	38

Classification of sample: HD1-754355-11/01/2019-0.00

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

Sample details

Sample Name:
HD1-754355-11/01/2019-0.00
Sample Depth:
0.00-0.60 m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	16.266 mg/kg	0.00163 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.65 mg/kg	3.22	1.842 mg/kg	0.000184 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.36 mg/kg	1.142	0.362 mg/kg	0.0000362 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		25 mg/kg	1.462	32.154 mg/kg	0.00322 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33 mg/kg	1.126	32.696 mg/kg	0.00327 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	94 mg/kg	1.56	129.028 mg/kg	0.00827 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.46 mg/kg	1.353	0.548 mg/kg	0.0000548 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11 mg/kg	2.976	28.81 mg/kg	0.00288 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.39 mg/kg	2.554	0.876 mg/kg	0.0000876 %	✓	
11	zinc { zinc chromate }	024-007-00-3				72 mg/kg	2.774	175.77 mg/kg	0.0176 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		45 mg/kg		39.6 mg/kg	0.00396 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18		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]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		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
20		pH			PH		8.4	pH		8.4	pH	8.4 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		0.57	mg/kg		0.502	mg/kg	0.0000502 %	✓	
22		acenaphthylene		205-917-1	208-96-8		0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
23		acenaphthene		201-469-6	83-32-9		0.3	mg/kg		0.264	mg/kg	0.0000264 %	✓	
24		fluorene		201-695-5	86-73-7		0.24	mg/kg		0.211	mg/kg	0.0000211 %	✓	
25		phenanthrene		201-581-5	85-01-8		2.6	mg/kg		2.288	mg/kg	0.000229 %	✓	
26		anthracene		204-371-1	120-12-7		0.61	mg/kg		0.537	mg/kg	0.0000537 %	✓	
27		fluoranthene		205-912-4	206-44-0		3.8	mg/kg		3.344	mg/kg	0.000334 %	✓	
28		pyrene		204-927-3	129-00-0		3.3	mg/kg		2.904	mg/kg	0.00029 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.5	mg/kg		1.32	mg/kg	0.000132 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		1.7	mg/kg		1.496	mg/kg	0.00015 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2	mg/kg		1.76	mg/kg	0.000176 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.65	mg/kg		0.572	mg/kg	0.0000572 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.4	mg/kg		1.232	mg/kg	0.000123 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.92	mg/kg		0.81	mg/kg	0.000081 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		1.2	mg/kg		1.056	mg/kg	0.000106 %	✓	
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		19	mg/kg	1.785	29.848	mg/kg	0.00298 %	✓	
38		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.0472 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00396%)

Classification of sample: HD2-754356-11/01/2019-0.00

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

Sample details

Sample Name:
HD2-754356-11/01/2019-0.00
Sample Depth:
0.00-0.60 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	14.933 mg/kg	0.00149 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.67 mg/kg	3.22	1.877 mg/kg	0.000188 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.33 mg/kg	1.142	0.328 mg/kg	0.0000328 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		21 mg/kg	1.462	26.703 mg/kg	0.00267 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		34 mg/kg	1.126	33.304 mg/kg	0.00333 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	88 mg/kg	1.56	119.419 mg/kg	0.00766 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.37 mg/kg	1.353	0.436 mg/kg	0.0000436 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11 mg/kg	2.976	28.483 mg/kg	0.00285 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.38 mg/kg	2.554	0.844 mg/kg	0.0000844 %	✓	
11	zinc { zinc chromate }	024-007-00-3				60 mg/kg	2.774	144.81 mg/kg	0.0145 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		42 mg/kg		36.54 mg/kg	0.00365 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					

#		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		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**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]									
19		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											
20		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
21		naphthalene				0.64	mg/kg		0.557	mg/kg	0.0000557 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.13	mg/kg		0.113	mg/kg	0.0000113 %	✓	
			205-917-1	208-96-8									
23		acenaphthene				0.37	mg/kg		0.322	mg/kg	0.0000322 %	✓	
			201-469-6	83-32-9									
24		fluorene				0.32	mg/kg		0.278	mg/kg	0.0000278 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				4	mg/kg		3.48	mg/kg	0.000348 %	✓	
			201-581-5	85-01-8									
26		anthracene				1	mg/kg		0.87	mg/kg	0.000087 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				5.3	mg/kg		4.611	mg/kg	0.000461 %	✓	
			205-912-4	206-44-0									
28		pyrene				5.3	mg/kg		4.611	mg/kg	0.000461 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				2.4	mg/kg		2.088	mg/kg	0.000209 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				2.7	mg/kg		2.349	mg/kg	0.000235 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				2.8	mg/kg		2.436	mg/kg	0.000244 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				1	mg/kg		0.87	mg/kg	0.000087 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				2.2	mg/kg		1.914	mg/kg	0.000191 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				1.2	mg/kg		1.044	mg/kg	0.000104 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				1.4	mg/kg		1.218	mg/kg	0.000122 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	29.509	mg/kg	0.00295 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.0433 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00365%)

Classification of sample: HD3-754357-11/01/2019-0.00

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

Sample details

Sample Name:
HD3-754357-11/01/2019-0.00
Sample Depth:
0.00-0.50 m
Moisture content:
9.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.7% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	14.307 mg/kg	0.00143 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.48 mg/kg	3.22	1.396 mg/kg	0.00014 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.34 mg/kg	1.142	0.351 mg/kg	0.0000351 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19 mg/kg	1.462	25.076 mg/kg	0.00251 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		32 mg/kg	1.126	32.534 mg/kg	0.00325 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	94 mg/kg	1.56	132.4 mg/kg	0.00849 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.1 mg/kg	1.353	1.344 mg/kg	0.000134 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		17 mg/kg	2.976	45.689 mg/kg	0.00457 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.27 mg/kg	2.554	0.623 mg/kg	0.0000623 %	✓	
11	zinc { zinc chromate }	024-007-00-3				69 mg/kg	2.774	172.849 mg/kg	0.0173 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		340 mg/kg		307.02 mg/kg	0.0307 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18		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]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		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
20		pH			PH		8.4	pH		8.4	pH	8.4 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		1.5	mg/kg		1.354	mg/kg	0.000135 %	✓	
22		acenaphthylene		205-917-1	208-96-8		0.38	mg/kg		0.343	mg/kg	0.0000343 %	✓	
23		acenaphthene		201-469-6	83-32-9		0.99	mg/kg		0.894	mg/kg	0.0000894 %	✓	
24		fluorene		201-695-5	86-73-7		1.1	mg/kg		0.993	mg/kg	0.0000993 %	✓	
25		phenanthrene		201-581-5	85-01-8		9.7	mg/kg		8.759	mg/kg	0.000876 %	✓	
26		anthracene		204-371-1	120-12-7		2.3	mg/kg		2.077	mg/kg	0.000208 %	✓	
27		fluoranthene		205-912-4	206-44-0		12	mg/kg		10.836	mg/kg	0.00108 %	✓	
28		pyrene		204-927-3	129-00-0		11	mg/kg		9.933	mg/kg	0.000993 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		5.5	mg/kg		4.967	mg/kg	0.000497 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		5.9	mg/kg		5.328	mg/kg	0.000533 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		5.8	mg/kg		5.237	mg/kg	0.000524 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		2.3	mg/kg		2.077	mg/kg	0.000208 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		4.5	mg/kg		4.063	mg/kg	0.000406 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		2.8	mg/kg		2.528	mg/kg	0.000253 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.56	mg/kg		0.506	mg/kg	0.0000506 %	✓	
36		benzo[ghi]perylene		205-883-8	191-24-2		2.7	mg/kg		2.438	mg/kg	0.000244 %	✓	
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		21	mg/kg	1.785	33.852	mg/kg	0.00339 %	✓	
38		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.0794 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0307%)

Classification of sample: HD4-754358-11/01/2019-0.40

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

Sample details

Sample Name:
HD4-754358-11/01/2019-0.40
Sample Depth:
0.40-060 m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet 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	arsenic { arsenic trioxide }		8.3 mg/kg	1.32	9.644 mg/kg	0.000964 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.34 mg/kg	1.142	0.342 mg/kg	0.0000342 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		11 mg/kg	1.462	14.148 mg/kg	0.00141 %	✓	
	/ 215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		29 mg/kg	1.126	28.733 mg/kg	0.00287 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	62 mg/kg	1.56	85.104 mg/kg	0.00546 %	✓	
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		0.24 mg/kg	1.353	0.286 mg/kg	0.0000286 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		8.7 mg/kg	2.976	22.786 mg/kg	0.00228 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		0.34 mg/kg	2.554	0.764 mg/kg	0.0000764 %	✓	
	034-002-00-8 / /							
11	zinc { zinc chromate }		57 mg/kg	2.774	139.151 mg/kg	0.0139 %	✓	
	024-007-00-3 / /							
12	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
	/ / TPH							
13	confirm TPH has NOT arisen from diesel or petrol		☑					
	/ /							

#		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		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**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]									
19		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											
20		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.88	mg/kg		0.774	mg/kg	0.0000774 %	✓	
			201-581-5	85-01-8									
26		anthracene				0.2	mg/kg		0.176	mg/kg	0.0000176 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				1.7	mg/kg		1.496	mg/kg	0.00015 %	✓	
			205-912-4	206-44-0									
28		pyrene				1.6	mg/kg		1.408	mg/kg	0.000141 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.44	mg/kg		0.387	mg/kg	0.0000387 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.47	mg/kg		0.414	mg/kg	0.0000414 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.67	mg/kg		0.59	mg/kg	0.000059 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.17	mg/kg		0.15	mg/kg	0.000015 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.4	mg/kg		0.352	mg/kg	0.0000352 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.21	mg/kg		0.185	mg/kg	0.0000185 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.4	mg/kg		0.352	mg/kg	0.0000352 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	28.277	mg/kg	0.00283 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.0329 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HD5-754359-11/01/2019-0.00

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

Sample details

Sample Name:
HD5-754359-11/01/2019-0.00
Sample Depth:
0.00-0.55 m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10	mg/kg	1.32	11.751	mg/kg	0.00118 %	✓	
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.45	mg/kg	3.22	1.29	mg/kg	0.000129 %	✓	
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.28	mg/kg	1.142	0.285	mg/kg	0.0000285 %	✓	
4		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		15	mg/kg	1.462	19.512	mg/kg	0.00195 %	✓	
5		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		**<LOD**
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		31	mg/kg	1.126	31.063	mg/kg	0.00311 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	66	mg/kg	1.56	91.624	mg/kg	0.00587 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.27	mg/kg	1.353	0.325	mg/kg	0.0000325 %	✓	
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		9.6	mg/kg	2.976	25.429	mg/kg	0.00254 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.34	mg/kg	2.554	0.773	mg/kg	0.0000773 %	✓	
11		zinc { zinc chromate }	024-007-00-3				50	mg/kg	2.774	123.45	mg/kg	0.0123 %	✓	
12		TPH (C6 to C40) petroleum group			TPH		77	mg/kg		68.53	mg/kg	0.00685 %	✓	
13		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18		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]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		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
20		pH			PH		8.1	pH		8.1	pH	8.1 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		3.1	mg/kg		2.759	mg/kg	0.000276 %	✓	
26		anthracene		204-371-1	120-12-7		0.8	mg/kg		0.712	mg/kg	0.0000712 %	✓	
27		fluoranthene		205-912-4	206-44-0		3.8	mg/kg		3.382	mg/kg	0.000338 %	✓	
28		pyrene		204-927-3	129-00-0		3.9	mg/kg		3.471	mg/kg	0.000347 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.4	mg/kg		1.246	mg/kg	0.000125 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		1.7	mg/kg		1.513	mg/kg	0.000151 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.6	mg/kg		1.424	mg/kg	0.000142 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.46	mg/kg		0.409	mg/kg	0.0000409 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.2	mg/kg		1.068	mg/kg	0.000107 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.67	mg/kg		0.596	mg/kg	0.0000596 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		0.9	mg/kg		0.801	mg/kg	0.0000801 %	✓	
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		18	mg/kg	1.785	28.599	mg/kg	0.00286 %	✓	
38		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.04 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00685%)

Classification of sample: HD6-754360-11/01/2019-0.00

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

Sample details

Sample Name:
HD6-754360-11/01/2019-0.00
Sample Depth:
0.00-0.60 m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet 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	arsenic { arsenic trioxide }		8.3 mg/kg	1.32	9.753 mg/kg	0.000975 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		0.43 mg/kg	3.22	1.232 mg/kg	0.000123 %	✓	
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.23 mg/kg	1.142	0.234 mg/kg	0.0000234 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		9.9 mg/kg	1.462	12.878 mg/kg	0.00129 %	✓	
	215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		30 mg/kg	1.126	30.061 mg/kg	0.00301 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	68 mg/kg	1.56	94.4 mg/kg	0.00605 %	✓	
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		0.22 mg/kg	1.353	0.265 mg/kg	0.0000265 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		11 mg/kg	2.976	29.138 mg/kg	0.00291 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
	034-002-00-8							
11	zinc { zinc chromate }		52 mg/kg	2.774	128.388 mg/kg	0.0128 %	✓	
	024-007-00-3							
12	TPH (C6 to C40) petroleum group		21 mg/kg		18.69 mg/kg	0.00187 %	✓	
	TPH							
13	confirm TPH has NOT arisen from diesel or petrol		☑					

#		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		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**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]									
19		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											
20		pH				8	pH		8	pH	8pH		
				PH									
21		naphthalene				0.11	mg/kg		0.0979	mg/kg	0.00000979 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				0.39	mg/kg		0.347	mg/kg	0.0000347 %	✓	
			201-469-6	83-32-9									
24		fluorene				0.26	mg/kg		0.231	mg/kg	0.0000231 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				5	mg/kg		4.45	mg/kg	0.000445 %	✓	
			201-581-5	85-01-8									
26		anthracene				1.3	mg/kg		1.157	mg/kg	0.000116 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				6.9	mg/kg		6.141	mg/kg	0.000614 %	✓	
			205-912-4	206-44-0									
28		pyrene				6.6	mg/kg		5.874	mg/kg	0.000587 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				2.9	mg/kg		2.581	mg/kg	0.000258 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				3.1	mg/kg		2.759	mg/kg	0.000276 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				3.1	mg/kg		2.759	mg/kg	0.000276 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				1.1	mg/kg		0.979	mg/kg	0.0000979 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				2.3	mg/kg		2.047	mg/kg	0.000205 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				1.3	mg/kg		1.157	mg/kg	0.000116 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.15	mg/kg		0.134	mg/kg	0.0000134 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				1.4	mg/kg		1.246	mg/kg	0.000125 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				13	mg/kg	1.785	20.655	mg/kg	0.00207 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
								Total:	0.0356 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00187%)

Classification of sample: TP3

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP3
Moisture content:
9.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.9 pH)

Determinands

Moisture content: 9.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.2 mg/kg	1.32	10.981 mg/kg	0.0011 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.38 mg/kg	1.142	0.392 mg/kg	0.0000392 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		12 mg/kg	1.462	15.855 mg/kg	0.00159 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16 mg/kg	1.126	16.285 mg/kg	0.00163 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	62 mg/kg	1.56	87.425 mg/kg	0.0056 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.16 mg/kg	1.353	0.196 mg/kg	0.0000196 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11 mg/kg	2.976	29.596 mg/kg	0.00296 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
11	zinc { zinc chromate }	024-007-00-3				40 mg/kg	2.774	100.313 mg/kg	0.01 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		86 mg/kg		77.744 mg/kg	0.00777 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
13	confirm TPH has NOT arisen from diesel or petrol					☑					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
17	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
18	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]		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
19	pH			PH		11.9 pH		11.9 pH	11.9 pH		
20	naphthalene	601-052-00-2	202-049-5	91-20-3		0.93 mg/kg		0.841 mg/kg	0.0000841 %	✓	
21	acenaphthylene		205-917-1	208-96-8		0.57 mg/kg		0.515 mg/kg	0.0000515 %	✓	
22	acenaphthene		201-469-6	83-32-9		1.3 mg/kg		1.175 mg/kg	0.000118 %	✓	
23	fluorene		201-695-5	86-73-7		1.4 mg/kg		1.266 mg/kg	0.000127 %	✓	
24	phenanthrene		201-581-5	85-01-8		13 mg/kg		11.752 mg/kg	0.00118 %	✓	
25	anthracene		204-371-1	120-12-7		3.2 mg/kg		2.893 mg/kg	0.000289 %	✓	
26	fluoranthene		205-912-4	206-44-0		16 mg/kg		14.464 mg/kg	0.00145 %	✓	
27	pyrene		204-927-3	129-00-0		16 mg/kg		14.464 mg/kg	0.00145 %	✓	
28	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		6.4 mg/kg		5.786 mg/kg	0.000579 %	✓	
29	chrysene	601-048-00-0	205-923-4	218-01-9		7.5 mg/kg		6.78 mg/kg	0.000678 %	✓	
30	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		6.9 mg/kg		6.238 mg/kg	0.000624 %	✓	
31	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		3.4 mg/kg		3.074 mg/kg	0.000307 %	✓	
32	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		5.8 mg/kg		5.243 mg/kg	0.000524 %	✓	
33	indeno[123-cd]pyrene		205-893-2	193-39-5		3.1 mg/kg		2.802 mg/kg	0.00028 %	✓	
34	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.63 mg/kg		0.57 mg/kg	0.000057 %	✓	
35	benzo[ghi]perylene		205-883-8	191-24-2		3.6 mg/kg		3.254 mg/kg	0.000325 %	✓	
36	phenol	604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
37	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		18 mg/kg	1.785	29.049 mg/kg	0.0029 %	✓	
38	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		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
								Total:	0.0436 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00777%)

Classification of sample: TP4

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP4
Moisture content:
7.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12 pH)

Determinands

Moisture content: 7.9% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	13.376 mg/kg	0.00134 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.526 mg/kg	0.0000526 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		11 mg/kg	1.462	14.807 mg/kg	0.00148 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15 mg/kg	1.126	15.554 mg/kg	0.00156 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	40 mg/kg	1.56	57.464 mg/kg	0.00368 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.15 mg/kg	1.353	0.187 mg/kg	0.0000187 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11 mg/kg	2.976	30.153 mg/kg	0.00302 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
11	zinc { zinc chromate }	024-007-00-3				36 mg/kg	2.774	91.98 mg/kg	0.0092 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		70 mg/kg		64.47 mg/kg	0.00645 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
13		confirm TPH has NOT arisen from diesel or petrol					☑							
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
18		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]		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
19		pH			PH		12	pH		12	pH	12pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		0.41	mg/kg		0.378	mg/kg	0.0000378 %	✓	
21		acenaphthylene		205-917-1	208-96-8		0.42	mg/kg		0.387	mg/kg	0.0000387 %	✓	
22		acenaphthene		201-469-6	83-32-9		0.52	mg/kg		0.479	mg/kg	0.0000479 %	✓	
23		fluorene		201-695-5	86-73-7		0.53	mg/kg		0.488	mg/kg	0.0000488 %	✓	
24		phenanthrene		201-581-5	85-01-8		5.9	mg/kg		5.434	mg/kg	0.000543 %	✓	
25		anthracene		204-371-1	120-12-7		1.6	mg/kg		1.474	mg/kg	0.000147 %	✓	
26		fluoranthene		205-912-4	206-44-0		9.3	mg/kg		8.565	mg/kg	0.000857 %	✓	
27		pyrene		204-927-3	129-00-0		9.6	mg/kg		8.842	mg/kg	0.000884 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		4	mg/kg		3.684	mg/kg	0.000368 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		5.4	mg/kg		4.973	mg/kg	0.000497 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		5.2	mg/kg		4.789	mg/kg	0.000479 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		2.2	mg/kg		2.026	mg/kg	0.000203 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3.8	mg/kg		3.5	mg/kg	0.00035 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		2.2	mg/kg		2.026	mg/kg	0.000203 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.37	mg/kg		0.341	mg/kg	0.0000341 %	✓	
35		benzo[ghi]perylene		205-883-8	191-24-2		2.5	mg/kg		2.303	mg/kg	0.00023 %	✓	
36		phenol	604-001-00-2	203-632-7	108-95-2		<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		18	mg/kg	1.785	29.595	mg/kg	0.00296 %	✓	
38		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		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
								Total:	0.0365 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00645%)

Classification of sample: TP5

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

Sample details

Sample Name:
TP5
Moisture content:
9.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.5 mg/kg	1.32	11.377 mg/kg	0.00114 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.53 mg/kg	3.22	1.548 mg/kg	0.000155 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.4 mg/kg	1.142	2.487 mg/kg	0.000249 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		13 mg/kg	1.462	17.233 mg/kg	0.00172 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		45 mg/kg	1.126	45.953 mg/kg	0.0046 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	150 mg/kg	1.56	212.213 mg/kg	0.0136 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.7 mg/kg	1.353	0.859 mg/kg	0.0000859 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		16 mg/kg	2.976	43.192 mg/kg	0.00432 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.22 mg/kg	2.554	0.51 mg/kg	0.000051 %	✓	
11	zinc { zinc chromate }	024-007-00-3				170 mg/kg	2.774	427.746 mg/kg	0.0428 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		380 mg/kg		344.66 mg/kg	0.0345 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**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]									
19		pH				11.4	pH		11.4	pH	11.4 pH		
				PH									
20		naphthalene				27	mg/kg		24.489	mg/kg	0.00245 %	✓	
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				6.3	mg/kg		5.714	mg/kg	0.000571 %	✓	
			205-917-1	208-96-8									
22		acenaphthene				27	mg/kg		24.489	mg/kg	0.00245 %	✓	
			201-469-6	83-32-9									
23		fluorene				26	mg/kg		23.582	mg/kg	0.00236 %	✓	
			201-695-5	86-73-7									
24		phenanthrene				160	mg/kg		145.12	mg/kg	0.0145 %	✓	
			201-581-5	85-01-8									
25		anthracene				45	mg/kg		40.815	mg/kg	0.00408 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				160	mg/kg		145.12	mg/kg	0.0145 %	✓	
			205-912-4	206-44-0									
27		pyrene				140	mg/kg		126.98	mg/kg	0.0127 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				74	mg/kg		67.118	mg/kg	0.00671 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				76	mg/kg		68.932	mg/kg	0.00689 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				84	mg/kg		76.188	mg/kg	0.00762 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				34	mg/kg		30.838	mg/kg	0.00308 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				73	mg/kg		66.211	mg/kg	0.00662 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				45	mg/kg		40.815	mg/kg	0.00408 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				11	mg/kg		9.977	mg/kg	0.000998 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				44	mg/kg		39.908	mg/kg	0.00399 %	✓	
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				21	mg/kg	1.785	34.002	mg/kg	0.0034 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.202 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0345%)

Classification of sample: TP2

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP2
Moisture content:
8.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.119%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.119%)

Determinands

Moisture content: 8.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10 mg/kg	1.32	12.094 mg/kg	0.00121 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.41 mg/kg	3.22	1.209 mg/kg	0.000121 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.4 mg/kg	1.142	1.465 mg/kg	0.000146 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		9.6 mg/kg	1.462	12.852 mg/kg	0.00129 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		56 mg/kg	1.126	57.754 mg/kg	0.00578 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	140 mg/kg	1.56	200.031 mg/kg	0.0128 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.43 mg/kg	1.353	0.533 mg/kg	0.0000533 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
9		nickel { nickel chromate }				11	mg/kg	2.976	29.989	mg/kg	0.003 %	✓	
		028-035-00-7	238-766-5	14721-18-7									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.21	mg/kg	2.554	0.491	mg/kg	0.0000491 %	✓	
		034-002-00-8											
11		zinc { zinc chromate }				130	mg/kg	2.774	330.345	mg/kg	0.033 %	✓	
		024-007-00-3											
12		TPH (C6 to C40) petroleum group				1300	mg/kg		1190.8	mg/kg	0.119 %	✓	
				TPH									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**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]									
19		pH				10.9	pH		10.9	pH	10.9 pH		
				PH									
20		naphthalene				16	mg/kg		14.656	mg/kg	0.00147 %	✓	
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				2.3	mg/kg		2.107	mg/kg	0.000211 %	✓	
			205-917-1	208-96-8									
22		acenaphthene				16	mg/kg		14.656	mg/kg	0.00147 %	✓	
			201-469-6	83-32-9									
23		fluorene				14	mg/kg		12.824	mg/kg	0.00128 %	✓	
			201-695-5	86-73-7									
24		phenanthrene				100	mg/kg		91.6	mg/kg	0.00916 %	✓	
			201-581-5	85-01-8									
25		anthracene				26	mg/kg		23.816	mg/kg	0.00238 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				110	mg/kg		100.76	mg/kg	0.0101 %	✓	
			205-912-4	206-44-0									
27		pyrene				110	mg/kg		100.76	mg/kg	0.0101 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				51	mg/kg		46.716	mg/kg	0.00467 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				53	mg/kg		48.548	mg/kg	0.00485 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				55	mg/kg		50.38	mg/kg	0.00504 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				23	mg/kg		21.068	mg/kg	0.00211 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				49	mg/kg		44.884	mg/kg	0.00449 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				30	mg/kg		27.48	mg/kg	0.00275 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				7.5	mg/kg		6.87	mg/kg	0.000687 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				28	mg/kg		25.648	mg/kg	0.00256 %	✓	
			205-883-8	191-24-2									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
36		phenol				0.86	mg/kg		0.788	mg/kg	0.0000788 %	✓	
		604-001-00-2	203-632-7	108-95-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	31.069	mg/kg	0.00311 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.245 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.119%)

Classification of sample: TP1

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP1
Moisture content:
5.8%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.254%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.254%)

Determinands

Moisture content: 5.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.8 mg/kg	1.32	8.457 mg/kg	0.000846 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.4 mg/kg	1.142	1.507 mg/kg	0.000151 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		8.4 mg/kg	1.462	11.565 mg/kg	0.00116 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12 mg/kg	1.126	12.727 mg/kg	0.00127 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	75 mg/kg	1.56	110.201 mg/kg	0.00707 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.13 mg/kg	1.353	0.166 mg/kg	0.0000166 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		8	mg/kg	2.976	22.429	mg/kg	0.00224 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
11		zinc { zinc chromate }	024-007-00-3				100	mg/kg	2.774	261.325	mg/kg	0.0261 %	✓	
12		TPH (C6 to C40) petroleum group			TPH		2700	mg/kg		2543.4	mg/kg	0.254 %	✓	
13		confirm TPH has NOT arisen from diesel or petrol					☑							
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
18		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]		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
19		pH			PH		10.4	pH		10.4	pH	10.4 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		25	mg/kg		23.55	mg/kg	0.00236 %	✓	
21		acenaphthylene		205-917-1	208-96-8		5.3	mg/kg		4.993	mg/kg	0.000499 %	✓	
22		acenaphthene		201-469-6	83-32-9		16	mg/kg		15.072	mg/kg	0.00151 %	✓	
23		fluorene		201-695-5	86-73-7		18	mg/kg		16.956	mg/kg	0.0017 %	✓	
24		phenanthrene		201-581-5	85-01-8		98	mg/kg		92.316	mg/kg	0.00923 %	✓	
25		anthracene		204-371-1	120-12-7		26	mg/kg		24.492	mg/kg	0.00245 %	✓	
26		fluoranthene		205-912-4	206-44-0		100	mg/kg		94.2	mg/kg	0.00942 %	✓	
27		pyrene		204-927-3	129-00-0		94	mg/kg		88.548	mg/kg	0.00885 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		48	mg/kg		45.216	mg/kg	0.00452 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		49	mg/kg		46.158	mg/kg	0.00462 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		54	mg/kg		50.868	mg/kg	0.00509 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		21	mg/kg		19.782	mg/kg	0.00198 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		48	mg/kg		45.216	mg/kg	0.00452 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		30	mg/kg		28.26	mg/kg	0.00283 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		7.6	mg/kg		7.159	mg/kg	0.000716 %	✓	
35		benzo[ghi]perylene		205-883-8	191-24-2		27	mg/kg		25.434	mg/kg	0.00254 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
36		phenol				1.5	mg/kg		1.413	mg/kg	0.000141 %	✓	
		604-001-00-2	203-632-7	108-95-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				17	mg/kg	1.785	28.588	mg/kg	0.00286 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
38		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.361 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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 The absence of a free draining liquid, the relatively low concentration of TPH reported and the absence of short chain petroleum hydrocarbon fractions indicate that this risk phrase is not applicable to this waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.254%)

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462
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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **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: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

- **confirm TPH has NOT arisen from diesel or petrol**

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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

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

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)/Risk Phrase(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

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

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

- **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: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

- **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: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

boron {diboron trioxide; boric oxide}

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

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

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

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

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

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

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

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case/most likely scenario

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2019.25.3765.7686 (26 Jan 2019)
HazWasteOnline Database: 2019.25.3765.7686 (26 Jan 2019)

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 Wastes 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
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010