

HOLLINGWORTH LAKE PAVILION CAFÉ, LITTLEBOROUGH

PHASE 2 GEO-ENVIRONMENTAL INVESTIGATION AND RISK ASSESSMENT

Job Number: LKC 20 1963

Date: June 2021

Client: Rochdale Borough Council



INCREASING LAND VALUE

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GROUP

LK Consult Document Verification			
Site Address	Pavilion Café, Hollingworth Lake, OL15 0AP		
Report Title	Final Phase 2 Geo-Environmental Investigation and Risk Assessment		
Job Number	LKC 20 1963	Document Ref.	CL-602-LKC 20 1963-02
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Revision Record			
Revision No.	Date	Nature of Revision	Approved By

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EXECUTIVE SUMMARY

Site Details

Site Location:	End of Smithy Bridge Road, south of Hollingworth Lake, Littleborough. Centred at approximate National Grid Reference 393785E 414708N.
Current Land Use:	Sloping gardens with paths and trees.
Proposed Development:	Hight nets structure and amenity.
Purpose of Report:	Contamination and Geotechnical Assessment.

Preliminary Risk Assessment

History:	Gardens / undeveloped 1889-present
Geology / Hydrogeology:	Till (diamicton) over Pennine lower coal measure formation (Secondary A Aquifer).
Mining:	No recorded mining.
Landfill Sites	One recorded within 250m. Three potential infilled within 250m.
Radon	Probability of <1% of homes above Action Level. No further action required.

Ground Investigation Work Undertaken

Date of Investigation:	17 th May 2021
Intrusive Investigation Work Undertaken:	7no. window sample boreholes (WS101-WS107).
Monitoring Wells:	No installs.
Soil Sampling:	6no. samples tested for metals, speciated PAHs, pH, sulphate, asbestos and SOM. 1no. samples tested for metals, speciated PAHs, cyanide, pH, sulphate, asbestos, phenol, TPHCWG, BTEX, VOCs, SVOCs, PCBs and SOM. 1no. sample tested for waste acceptance criteria.
Insitu Geotechnical Testing:	SPTs.

Ground Conditions and Geotechnical Assessment

General Ground conditions / Geotechnical Testing	– Shallow bedrock was encountered across the site, with refusals (N=50) between 0.65 - 1.39mbgl.) With exception of WS107 at 2.41mbgl. – No groundwater encountered.
Concrete Requirements	– Based on BRE Digest 20051 – DS-1 AC-1 recommended.
Services	– Services – consideration to the presence of services running through the site. Services may need to re-routed depending on structural design.
Coal Mining	– A mining investigation has not been carried out as part of this investigation. The site is within a coal reporting area but the Coal Authority does not indicate that the site is within a development high risk area.
Slope Stability	– The proposed area of the site is located within a slope. The stability of this slope may need to be assessed if the slope is regraded to greater than 1 in 3.

¹ BRE (2005). "Concrete in Aggressive Ground." Special Digest 1.

Contamination Risk Assessment

The chemical analysis has not identified a significant risk to human health. For waste disposal, onsite material has been classified as non-hazardous waste.

WAC testing shows the material is within inert waste landfill acceptance criteria except for Total organic content, although the results are within the typical 2 x derogation limits applied by some sites. This this must be considered when applying for disposal.

Contamination Risk Assessment

On the basis of the above information, no formal remediation works are required in the proposed development.

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1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Rochdale Borough Council to carry out a Phase 2 Geo-Environmental Investigation and Risk Assessment (and Remediation Strategy if required) for Hollingworth Lake Pavilion Café. The investigation was undertaken in support of a proposed high nets amenity development.

This investigation has been undertaken to confirm the ground conditions below the site and to allow a contamination, waste disposal and preliminary geotechnical assessment to be undertaken.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary.

Location	End of Smithy Bridge Road, south of Hollingworth Lake, Littleborough. Centred at approximate National Grid Reference 393785E 414708N.
Topography	179 metres above ordnance datum (AOD). Site is sloping west wards.
Land Use	<u>Site</u> Sloping gardens with paths and trees. <u>Surrounding Area</u> North: Gardens and café. West: Garden and farmland. South: Farmland. East: Footpath and lake.
Proposed Development	High nets structure and amenity land use.

Table 1-1. Summary of site details.

2 Previous Work

2.1 Site History

Rochdale Borough Council were able to provide copies of historical mapping for review and these are the basis for site history as summarised in Table 2-1.

Site Features	Location	Map Dates Present	Comments
Vacant/Gardens	Whole Site	1889-present	
Surrounding Area Features	Distance/Location	Map Dates Present	Comments
Hotel	20m N	1889-1960	
Quarry	10m E	1889-1960	- Unlabelled on some mapping but symbols indicate presence. Potentially infilled.
Large pond	15m NE	1889-1990	- Adjacent to quarry. Potentially infilled.
Quarry	100m SE	1889-1956	- Last annotated on 1956 map. Potentially infilled.

Table 2-1: Summary of significant historical features.

2.2 Environmental Setting

The environmental setting has been obtained from a review of public domain environmental datasets (including Coal Authority, Environment Agency, British Geological Survey and MAGIC map) and is summarised in Table 2-2.

Categories			Details
Geology	Artificial		- None recorded on site.
	Superficial		- Till (Diamicton).
	Bedrock		- Pennine lower coal measure formation (Sandstone).
	BGS logs		- None within 100m.
Hydro-geology	Aquifer	Superficial	- Not provided.
	Designation	Bedrock	- Secondary A.
	Source Protection Zone (SPZ)		- Site is not within an SPZ.
	Groundwater Abstractions		- Information not provided.
Hydrology	Nearest Surface Water		- Hollingworth Lake 120m west.
	Water Quality Data		- No water quality data.
	Flooding		- No risk from rivers or sea.
Minerals / Mining	Coal Mining Development High Risk Area (DHRA)		- Within coal reporting area. - Not within DHRA.
	Cheshire Brine Compensation District		- Not within site area.
Landfill sites	Known/Registered		- None within 250m.
	Potential		- 3 within 250m, see Table 2-1.
Radon			- Probability of <1% of homes above Action Level. No further action required.
Designated Sites			- Within an SSSI impact zone.

Table 2-2: Summary of the environmental setting.

3 Ground Investigation

3.1 Site Investigation Design and Methodology

In order to assess the ground conditions at the site, and to provide contamination and geotechnical information an intrusive investigation was undertaken.

The investigation was carried out on 17th May 2021 and comprised the following:

- 7no. window sample boreholes drilled to 0.65-2.41 metres below ground level (mbgl) (ref. WS101 to WS107).

All site investigation locations are shown in Figure 2.

At the time of the investigation a proposed layout plan had yet to be finalised, therefore the sampling locations were chosen to allow a good spread across the site.

3.2 Sampling Protocol

3.2.1 Soil Sampling (Contamination)

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation².

Soil was collected for onsite testing. A plastic zip bag was half filled with soil allowing a suitably sized headspace. The bag was sealed and stored for at least 20 minutes before being tested for total volatile organic compounds (TVOCs) using a PhoCheck Tiger photoionisation detector (PID). Results of the PID readings are presented on the profile logs (Appendix A). The on-site monitoring was carried out in line CIRIA C665³ to aid in screening samples for volatile analysis.

Soil samples of approximately 500g 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 B. Table 3-1 shows the soil testing undertaken.

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

³ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

Suites and Contaminants	No. Samples	Location & Depth	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.	6	WS101 0.0-0.5m WS102 0.0-0.4m WS104 0.0-0.4m WS105 0.0-0.3m WS106 0.0-0.5m WS107 0.0-0.5m	A basic suite with a broad selection of contaminants tested on samples across the site where no significant evidence of contamination was identified (with the exception of occasional ash and coal) and no TVOCs identified from the PID tests.
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM and asbestos screen.	1	WS103 0.0-0.3m	Although no visual/olfactory evidence of contamination was identified (with the exception of some ash), due to the proposed end use a detailed suite was undertaken to confirm the contamination risk.
Inert Waste Acceptance Criteria	1	WS103 0.0-0.3m	

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.

3.3 Geotechnical Testing

3.3.1 In-situ Onsite Geotechnical Testing

In-situ geotechnical tests were performed in the boreholes to further characterise the sub-soil conditions. The following tests were undertaken:

- » Standard Penetration Tests (SPTs) were performed in the window sample boreholes and cable percussion boreholes at approximately 1m intervals, generally within the natural strata.

The SPT are provided within the profile logs (Appendix A).

4 Ground Conditions

4.1 Geology – Generalised Sequence

The ground conditions beneath the site comprised topsoil underlain by sandy/silty/clayey GRAVEL. A summary section of the logs is provided in Plate 4-1, with additional comments below.

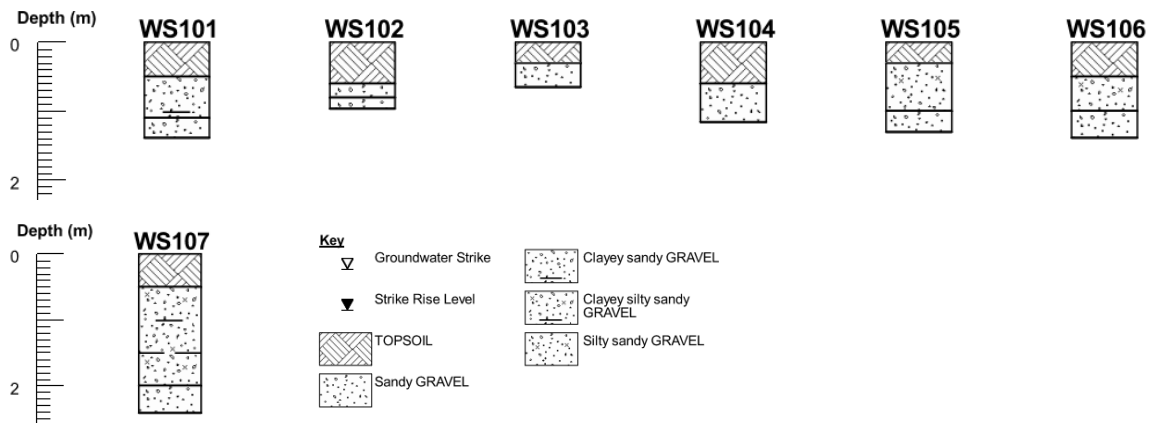


Plate 4-1: Summary of ground conditions.

- Made ground was not encountered within any of the boreholes.
- All boreholes had TOPSOIL to 0.3-0.6mbgl overlaying sandy/silty/clayey GRAVEL to 0.3-2.0mbgl. With
- No visual / olfactory evidence of hydrocarbons or volatile contaminants in any locations.

Possible bedrock (weathered sandstone) recovered as sandy gravel was recorded all of the boreholes from depths ranging between 0.3-2.0mbgl.

4.2 Groundwater

4.2.1 Groundwater Levels

No groundwater was present in the boreholes.

4.3 In-Situ Geotechnical Testing

4.3.1 Standard Penetration Tests

In-situ standard penetration tests (SPTs) were undertaken, predominantly in the natural ground. The results are summarised in Table 4-2 and provided within the profile logs in Appendix A.

Approximate Depth (mbgl)	SPT 'N' Values						
	WS101	WS102	WS103	WS104	WS105	WS106	WS107
0.65-1.39	50 (G)	50 (G)	50 (G)	50 (G)	50 (G)	50 (G)	40 (G)
2.41	-	-	-	-	-	-	50 (G)

Table 4-2: Summary of SPT (N) values.

Notes:

G=Gravel.

Groundwater level based on strikes during investigation.

4.4 Geotechnical Laboratory Testing

Water soluble sulphate and pH tests were carried out on soil samples. Full results are presented in Appendix B and summarised in Table 4-3.

Strata	pH	Sulphate (g/l)
Natural	5.3-6.4	<0.010

Table 4-3: Summary of pH and sulphate results.

5 Geotechnical Assessment

Final foundation design and plans will need to be confirmed once loadings of proposed structures are known and details of ground works (i.e. potential cut and fill exercises) are known.

A preliminary geotechnical assessment is summarised in Table 5-1.

General Ground conditions / Geotechnical Testing	- Shallow bedrock was encountered across the site, with refusals (N=50) between 0.65 - 1.39mbgl.) With exception of WS107 at 2.41mbgl. - No groundwater encountered.
Concrete Requirements	- Based on BRE Digest 2005 ⁴ – DS-1 AC-1 recommended.
Services	- Services – consideration to the presence of services running through the site. Services may need to re-routed depending on structural design.
Coal Mining	- A mining investigation has not been carried out as part of this investigation. The site is within a coal reporting area but the Coal Authority does not indicate that the site is within a development high risk area.
Slope Stability	- The proposed area of the site is located within a slope. The stability of this slope may need to be assessed if the slope is regraded to greater than 1 in 3.

Table 5-1. Preliminary Geotechnical Assessment.

⁴ BRE (2005). "Concrete in Aggressive Ground." Special Digest 1.

6 Generic Risk Assessment

6.1 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^{5,6}. The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))⁷ 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 S4ULs⁸. 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^{9,10,11,12}.

The proposed development is for high nets structures and amenity use; therefore, LKC propose to use the assessment criteria for residential without plant uptake as a highly conservative screen.

All criteria have been generated using the CLEA V1.06 model¹⁴ 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 C. ATRISK SSVs and CL:AIRE GACs were not required for this dataset and have not been included.

6.2 Soil Results Comparison against Assessment Criteria

Soil results have been compared to the relevant assessment criteria and no elevated contaminants were identified.

⁵ Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."

⁶ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

⁷ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

⁸ LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."

⁹ EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.

¹⁰ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

¹¹ EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.

¹² EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.

¹⁴ EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

7 Waste Disposal Assessment

The soil contamination results as presented in Appendix B have been used to help determine the waste classification of material for off-site disposal.

As an initial screen the soil results were inputted into Hazwaste Online™. This is a web-based facility that allows an assessment waste as either hazardous or non-hazardous waste based on relevant guidance and legislation^{15, 16, 17, 18, 19, 20, 21, 22, 23}.

Hazwaste Online™. has been designed to cover, amongst other waste types, the European Waste List of Waste (LoW) code number 17 "Construction and Demolition Waste (Including Excavated Soil from Contaminated Sites)".

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

Where applicable, appropriate metal species based on hazard statements/ molecular weight, site history, ground conditions and likely species present in soils were used (e.g. metal oxides relating to an ash-based source).

The results show that all the samples tested are classified as NON-HAZARDOUS WASTE and LoW code "17-05-04 - soil and stones other than those mentioned in 17 05 03" is suitable. The Hazwaste Online™ output sheets are provided in Appendix D.

7.1 Waste Acceptance Criteria (WAC) Testing

Waste Acceptance Criteria (WAC) testing was also undertaken on 1no. sample representative of material likely to be earmarked for off-site disposal. WAC test results are included in Appendix B.

The WAC limits cannot be used to make an assessment of whether a waste is hazardous. Landfills are classified according to whether they can accept hazardous or non-hazardous wastes. Wastes can only be accepted at a landfill if they meet the WAC for that class of landfill.

With regards to non-hazardous waste, material can only be designated to an inert cell of a non-hazardous landfill based on WAC testing. With regards to hazardous waste, material can only be designated as SNRH cell within a non-hazardous landfill or hazardous landfill from WAC testing.

The TOC concentration from sample WS103 (0.0-0.3m) is slightly above the inert waste landfill criteria (3.4% in contrast to the inert waste landfill criteria of 3%). Environment Agency²⁴ guidance includes a potential derogation to allow soils up to two times the TOC limits to be deposited at landfills for inert waste in certain circumstances.

¹⁵ EA (2018). "Guidance on the Classification and Assessment of Waste (1st Edition v1.1)". Technical Guidance WM3.

¹⁶ CLP Regulation - Regulation 1272/2008/EC of 16 December 2008.

¹⁷ 1st ATP - Regulation 790/2009/EC of 10 August 2009

¹⁸ Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

¹⁹ WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

²⁰ Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014

²¹ 13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

²² POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

²³ 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

²⁴ EA 2010 "Waste Acceptance at Landfills" Guidance on Waste Acceptance Procedures and Criteria.

Landfill operators wishing to pursue this approach will need to apply to vary their permit. The application must be waste-specific and must specify what limit of TOC is being applied for. It must include a risk assessment considering whether the landfill is designed such that it can cope with any gas and/or leachate that may be produced as a result of accepting this waste.

The producer will need to make a case for an increased TOC up to 2 x the WAC limit.

8 Summary Conclusions & Recommendations

Ground investigation work has been undertaken to identify the ground conditions below the site to allow a geotechnical, contamination and waste disposal assessment of the site to be undertaken.

A review of historical mapping did not identify any development on the study site. The site is within a coal mining reporting area, but not within a development high risk area.

Seven window sample boreholes drilled, from which samples were collected and in-situ geotechnical tests were undertaken.

Ground conditions encountered during the site work typically comprised of topsoil from 0.3-0.6mbgl over sandy/silty/clayey GRAVEL to 0.3-2.0mbgl. Refusals were encountered between 0.65 to 2.41mbgl indicating shallow sandstone bedrock (recovered as sandy gravel).

When compared with guidance given in BRE Digest 2005, the test results classify the concrete requirement as none sulphate resistant concrete (DS-1 AC-1s) within the natural soils. This should be confirmed by the structural engineer.

Further advice on foundation design should be sought from the appointed structural engineer.

Laboratory testing has not identified a risk to human health with all contaminant levels below the highly conservative generic assessment criteria of residential without plant uptake. Therefore the soil on site is considered suitable for the proposed use of high nets and amenity.

For waste disposal, the soil may be classified as non-hazardous waste.

WAC testing on the shallow soil sample from WS103 indicates a slight exceedance of the inert waste landfill criteria for TOC; however, the results is within the 2 x derogation for TOC limits applied by many landfill sites.

On the basis of the available information, no formal remediation works are required in the study site.

Figures



Client: Rochdale Borough Council				Title: Site Location & Boundary Plan		LK CONSULT	
Site: Hollingworth Lake Pavillion Cafe, Littleborough				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4			
Job No.: LKC 20 1963	Drawn By: RW	Checked By: CC	Drawn: May 2021	Figure: 1	Revision:		



KEY



Site Boundary



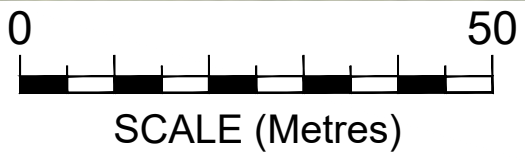
Window Sample
Borehole (WS)

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.



Client: Rochdale Borough Council			
Site: Hollingworth Lake Pavillion Cafe, Littleborough			
Title: Site Investigation Location Plan			
Job No.: LKC 20 1963	Scale (See Scale Bar): See Scale Bar	Figure: 2	Revision:
Drawn By: AC	Checked By: RW	Drawn: Jun 2021	

Extract from: © Apple Maps
Drawing Ref: Hollingworth Lake, Littleborough



Appendix A

Profile Logs

Excavation Method

Window sample carried out to
1.1mbgl.
SPT carried out to 1.385mbgl.

Dimensions
Ground Level (mOD)

179.00

Client

Rochdale Borough Council

Job
Number
LKC 20 1963

Location

393768 E 414689 N

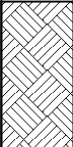
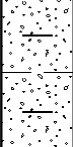
Dates

18/05/2021

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	ES1				(0.50)	TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.50-1.10	B2			178.50	0.50 (0.60)	Light brown sandy clayey GRAVEL. Gravel is fine to medium comprising sandstone.		
1.10-1.39 1.10-1.39	SPT 50/135 X3		9,9/10,14,26	177.90 177.61	1.10 (0.29) 1.39	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
						Terminated at 1.39m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS101

Excavation Method

Window sample carried out to
0.8mbgl.
SPT carried out to 0.955mbgl.

Dimensions
Location

393782 E 414674 N

Ground Level (mOD)

179.00

Dates

18/05/2021

Client

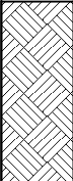
Rochdale Borough Council

Engineer

LKC

Job
Number
LKC 20 1963

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1				(0.60)	TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.60-0.80	B2			178.40	0.60 (0.20)	Light brown sandy silty GRAVEL. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.80-0.96	SPT 25*/105 50/50		12,13/50	178.20 178.04	0.80 (0.16) 0.96	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular. Terminated at 0.96m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale (approx)

1:25

Logged By

RW

Figure No.

LKC 20 1963.WS102

Excavation Method

Window sample carried out to
0.5mbgl.
SPT carried out to 0.645mbgl.

Dimensions
Ground Level (mOD)

178.00

Client

Rochdale Borough Council

Job
Number

LKC 20 1963

Location

393762 E 414671 N

Dates

18/05/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1				(0.30)	TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.50-0.65	SPT 25*/75 50/70		25/50	177.70	0.30 (0.35)	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
0.50-0.65	B2			177.35	0.65	Terminated at 0.65m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS103

Excavation Method

Window sample carried out to
1.0mbgl.
SPT carried out to 1.155mbgl.

Dimensions
Ground Level (mOD)

178.00

Client

Rochdale Borough Council

Job
Number
LKC 20 1963

Location

393746 E 414679 N

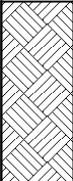
Dates

18/05/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1					TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.60-1.00	B2			177.40	0.60 (0.60)	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
1.00-1.16	SPT 25*/70 50/85		25/39,11	176.84	1.16 (0.56)	Terminated at 1.16m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS104

Excavation Method

Window sample carried out to
1.0mbgl.
SPT carried out to 1.295mbgl.

Dimensions
Ground Level (mOD)

178.00

Client

Rochdale Borough Council

Job
Number
LKC 20 1963

Location

393756 E 414647 N

Dates

18/05/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1				(0.30)	TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.30-1.00	B2			177.70	0.30	Brown sandy silty GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular comprising sandstone.		
					(0.70)			
1.00-1.30	SPT 50/145 X3		15,10/16,34	177.00	1.00	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
1.00-1.30				176.70	(0.30)			
					1.30	Terminated at 1.30m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS105

Excavation Method

Window sample carried out to
1.0mbgl.
SPT carried out to 1.39mbgl.

Dimensions
Ground Level (mOD)

179.00

Client

Rochdale Borough Council

Job
Number
LKC 20 1963

Location

393782 E 414708 N

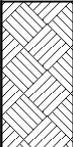
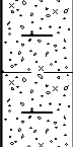
Dates

18/05/2021

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	ES1				(0.50)	TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.50-1.00	B2			178.50	0.50 (0.50)	Brown clayey sandy silty GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular comprising sandstone.		
1.00-1.39	SPT 50/240		5,7/15,15,15,5	178.00	1.00 (0.39)	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
				177.61	1.39	Terminated at 1.39m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS106

Excavation Method

Window sample carried out to
2.0mbgl.
SPT carried out to 2.405mbgl.

Dimensions
Location

393743 E 414703 N

Ground Level (mOD)

178.00

Dates

18/05/2021

Client

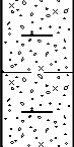
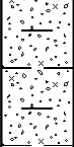
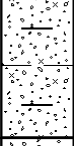
Rochdale Borough Council

Engineer

LKC

Job
Number
LKC 20 1963

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.50	ES1					TOPSOIL: Brown sandy gravelly clayey SILT with rare rootlets. Sand is fine to medium. Gravel is fine to coarse, angular to subangular comprising sandstone.		
0.50-1.00	B2			177.50	0.50	Brown clayey sandy silty GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular comprising sandstone.		
1.00-1.45 1.00-2.00	SPT N=40 B3		8,8/10,15,10,5		(1.50)			
2.00-2.41	SPT 50/255		8,13/10,10,10,20	176.00	2.00	Brown sandy GRAVEL comprising sandstone (possible weathered bedrock). Sand is fine to medium. Gravel is fine, angular to subangular.		
				175.59	2.41	Terminated at 2.41m		

Remarks

Grid reference estimated using www.gridreferencefinder.com
Elevation estimated using www.freemaptools.com/elevation-finder.com
Borehole was dry and stable.
Refusal on possible weathered sandstone bedrock.

Scale
(approx)

1:25

Logged
By

RW

Figure No.

LKC 20 1963.WS107

Appendix B

Certificates of Analysis



Final Report

Report No.: 21-16571-1
Initial Date of Issue: 02-Jun-2021
Client LK Consult
Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS
Contact(s): Colin Crompton
Contaminated Land
Project LKC 20 1963 Hollingworth Lake
Pavillion Cafe, Littleborough

Quotation No.:		Date Received:	19-May-2021
Order No.:	738663	Date Instructed:	25-May-2021
No. of Samples:	7		
Turnaround (Wkdays):	5	Results Due:	01-Jun-2021
Date Approved:	02-Jun-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKC 20 1963 Hollingworth Lake Pavillion Cafe, Littleborough

Client: LK Consult	Chemtest Job No.:				21-16571	21-16571	21-16571	21-16571	21-16571	21-16571	21-16571	21-16571
Quotation No.:	Chemtest Sample ID.:				1202909	1202910	1202911	1202913	1202914	1202915	1202916	1202916
Order No.: 738663	Client Sample Ref.:				ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
	Client Sample ID.:				WS101	WS102	WS103	WS104	WS105	WS106	WS107	WS107
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bottom Depth (m):				0.50	0.40	0.30	0.40	0.30	0.50	0.50	0.50
	Date Sampled:				18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	22	14	27	12	20	19	17	17
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones, Roots and Wood	Roots and Wood	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A			See Attached					
pH	M	2010		4.0	6.4	6.1	5.6	6.4	5.5	6.1	5.3	5.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40			< 0.40					
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50			< 0.50					
Cyanide (Total)	M	2300	mg/kg	0.50			< 0.50					
Arsenic	M	2450	mg/kg	1.0	14	9.0	21	7.0	9.8	8.7	8.9	8.9
Cadmium	M	2450	mg/kg	0.10	0.24	< 0.10	< 0.10	0.14	< 0.10	< 0.10	0.10	0.10
Chromium	M	2450	mg/kg	1.0	33	19	18	17	15	22	23	23
Copper	M	2450	mg/kg	0.50	25	24	40	19	21	26	26	26
Mercury	M	2450	mg/kg	0.10	0.60	0.10	0.37	0.13	0.16	0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	25	13	16	20	15	17	18	18
Lead	M	2450	mg/kg	0.50	27	21	160	32	52	46	45	45
Selenium	M	2450	mg/kg	0.20	1.7	0.50	0.73	< 0.20	0.55	0.40	0.60	0.60
Vanadium	U	2450	mg/kg	5.0	65	23	25	19	21	29	31	31
Zinc	M	2450	mg/kg	0.50	63	51	45	60	42	50	51	51
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	2.2	2.2	5.3	2.6	5.2	1.9	1.6	1.6
Diesel Present	N	2670		N/A			False					
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0			< 1.0					
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			< 1.0					

Results - Soil

Project: LKC 20 1963 Hollingworth Lake Pavillion Cafe, Littleborough

Client: LK Consult	Chemtest Job No.:				21-16571	21-16571	21-16571	21-16571	21-16571	21-16571	21-16571
Quotation No.:	Chemtest Sample ID.:				1202909	1202910	1202911	1202913	1202914	1202915	1202916
Order No.: 738663	Client Sample Ref.:				ES1	ES1	ES1	ES1	ES1	ES1	ES1
	Client Sample ID.:				WS101	WS102	WS103	WS104	WS105	WS106	WS107
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bottom Depth (m):				0.50	0.40	0.30	0.40	0.30	0.50	0.50
	Date Sampled:				18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021	18-May-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD							
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			< 5.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			< 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			< 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			< 10				
Benzene	M	2760	µg/kg	1.0			< 1.0				
Toluene	M	2760	µg/kg	1.0			< 1.0				
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0				
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0				
o-Xylene	M	2760	µg/kg	1.0			< 1.0				
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			< 1.0				
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.15	< 0.10
Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.10			< 0.10				

TPH Chromatogram on Soil Sample: 1202911

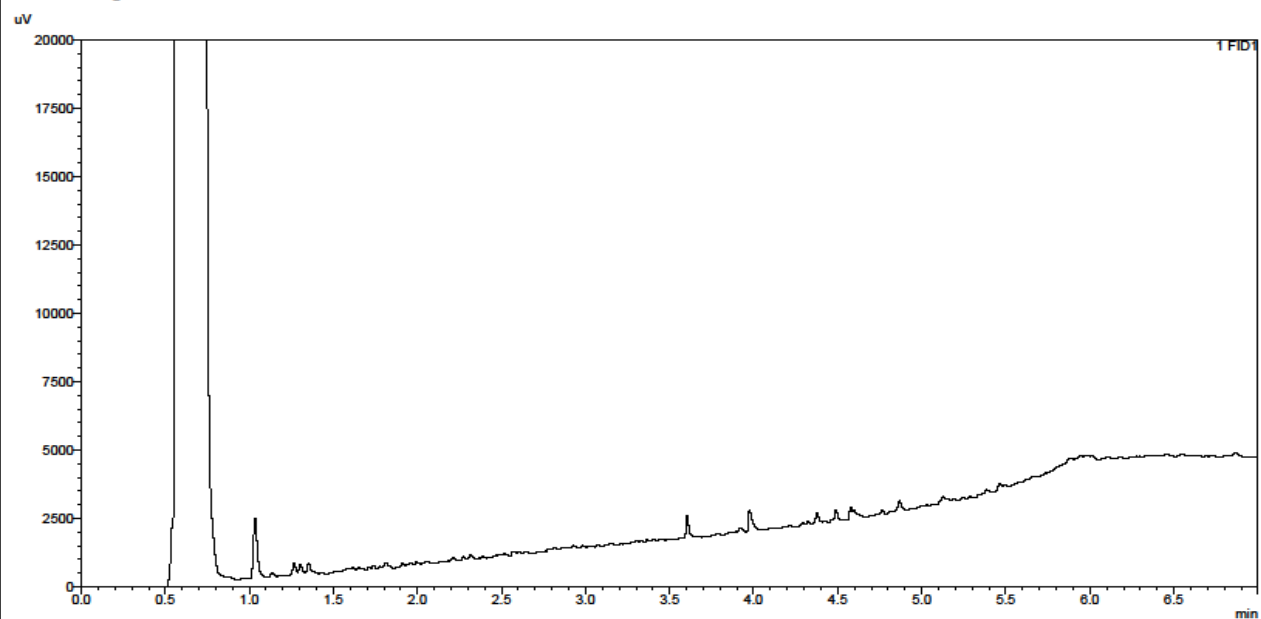
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Data Filename : 26 May 2021_26052021_1202911 21-10571_021.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 11
Date Acquired : 26/05/2021 18:34:51
Date Processed : 26/05/2021



Chemtest

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-16571	1202911	S		ES1	WS103	0.00	No	N/A

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	Alkaline 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*; Dibenzo[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"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 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



Final Report

Report No.: 21-17421-1
Initial Date of Issue: 03-Jun-2021
Client LK Consult
Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS
Contact(s): Colin Crompton
Contaminated Land
Project LKC 20 1963 Hollingworth Lake
Pavillion Cafe, Littleborough

Quotation No.:		Date Received:	19-May-2021
Order No.:	738663	Date Instructed:	25-May-2021
No. of Samples:	1		
Turnaround (Wkdays):	7	Results Due:	03-Jun-2021
Date Approved:	03-Jun-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: LKC 20 1963 Hollingworth Lake Pavillion Cafe, Littleborough

Chemtest Job No: 21-17421 Chemtest Sample ID: 1202912 Sample Ref: WAC Sample ID: WS103 Sample Location: Top Depth(m): 0.00 Bottom Depth(m): 0.30 Sampling Date: 18-May-2021							Landfill Waste Acceptance Criteria			
			Limits							
			Inert Waste Landfill				Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill		
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				3.4	3	5	6
Loss On Ignition	2610	M	%				10	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				74	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				36	100	--	--
pH	2010	M					5.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				< 0.0020	--	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	1455	U	0.0026	0.0007	0.0051	0.0082	0.5	2	25	
Barium	1455	U	0.058	0.025	0.11	0.26	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0009	< 0.0005	0.0018	< 0.0005	0.5	10	70	
Copper	1455	U	0.0052	0.0033	0.010	0.0026	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	10	30	
Nickel	1455	U	0.0024	0.0006	0.0046	0.0064	0.4	10	40	
Lead	1455	U	0.013	0.0036	0.025	0.041	0.5	10	50	
Antimony	1455	U	0.0011	< 0.0005	0.0021	0.0005	0.06	0.7	5	
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7	
Zinc	1455	U	0.014	0.004	0.027	0.047	4	50	200	
Chloride	1220	U	3.4	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.10	0.089	< 1.0	< 1.0	10	150	500	
Sulphate	1220	U	15	6.3	29	67	1000	20000	50000	
Total Dissolved Solids	1020	N	40	20	78	200	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	19	14	< 50	140	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	19

Leachate Test Information	
Leachant volume 1st extract/l	0.309
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.086

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.
1455	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.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
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; Dibenzo[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 C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	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"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 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 C

Generic Assessment Criteria Values

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.

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

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}
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}
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	1%	1,600 ^f	1,900 ^f	1,200 ^f	28,000 ^f	3,800 ^f	7,800 ^f
+Aromatic	2.5%	1,800 ^f	1,900 ^f	2,100 ^f	28,000 ^f	3,800 ^f	7,800 ^f
>EC44	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.

		LQM Generic Assessment Criteria (mg/kg) Dry weight soil						
Contaminant		SOM	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-Trinitrotoluene (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
	Endosulfans (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.

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}
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.

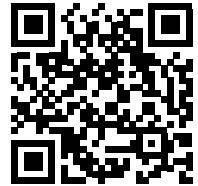
Appendix D

Hazwaste Online Output Sheets

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

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



983PM-PADCZ-ZTU5K

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

Job name

LKC 20 1963

Description/Comments

Project

LKC 20 1963

Site

Hollingworth Lake

Classified by

Name: **Colin Crompton**
Date: **07 Jun 2021 15:46 GMT**
Telephone: **0161 763 7200**

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

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

08 Oct 2020

Next 3 year Refresher due by Oct 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS101-18/05/2021-0.00	0.00-0.50	Non Hazardous		2
2	WS102-18/05/2021-0.00	0.00-0.40	Non Hazardous		4
3	WS103-18/05/2021-0.00	0.00-0.30	Non Hazardous		6
4	WS104-18/05/2021-0.00	0.00-0.40	Non Hazardous		8
5	WS105-18/05/2021-0.00	0.00-0.30	Non Hazardous		10
6	WS106-18/05/2021-0.00	0.00-0.50	Non Hazardous		12
7	WS107-18/05/2021-0.00	0.00-0.50	Non Hazardous		14

Related documents

#	Name	Description
1	HWOL_21-16571-20210602 150437.hwol	.hwol file used to create the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Colin Crompton

Created date: 07 Jun 2021 15:46 GMT

Appendices

	Page
Appendix A: Classifier defined and non CLP determinands	16
Appendix B: Rationale for selection of metal species	17
Appendix C: Version	18

Classification of sample: WS101-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS101-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.50 m	
Moisture content:	
22%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 22% 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 }				14	mg/kg	1.32	14.418	mg/kg	0.00144 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.24	mg/kg	1.142	0.214	mg/kg	0.0000214 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				33	mg/kg	1.462	37.62	mg/kg	0.00376 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				25	mg/kg	1.126	21.955	mg/kg	0.0022 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	27	mg/kg	1.56	32.85	mg/kg	0.00211 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.6	mg/kg	1.353	0.633	mg/kg	0.0000633 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				25	mg/kg	2.976	58.037	mg/kg	0.0058 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				1.7	mg/kg	2.554	3.386	mg/kg	0.000339 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				63	mg/kg	2.774	136.322	mg/kg	0.0136 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.4	pH		6.4	pH	6.4 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		65 mg/kg	1.785	90.509 mg/kg	0.00905 %		✓	
Total:									0.0387 %		

Key

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

Classification of sample: WS102-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS102-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.40 m	
Moisture content:	
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% 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 }				9	mg/kg	1.32	10.219	mg/kg	0.00102 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19	mg/kg	1.462	23.882	mg/kg	0.00239 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	23.238	mg/kg	0.00232 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	21	mg/kg	1.56	28.17	mg/kg	0.00181 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.1	mg/kg	1.353	0.116	mg/kg	0.0000116 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				13	mg/kg	2.976	33.275	mg/kg	0.00333 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.5	mg/kg	2.554	1.098	mg/kg	0.00011 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				51	mg/kg	2.774	121.674	mg/kg	0.0122 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.1	pH		6.1	pH	6.1 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		23 mg/kg	1.785	35.311 mg/kg	0.00353 %		✓	
Total:									0.027 %		

Key

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

Classification of sample: WS103-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS103-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.30 m	
Moisture content:	
27%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 27% 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 }				21	mg/kg	1.32	20.241	mg/kg	0.00202 %	✓	
	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 }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18	mg/kg	1.462	19.205	mg/kg	0.00192 %	✓	
		215-160-9	1308-38-9									
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
6	copper { dicopper oxide; copper (I) oxide }				40	mg/kg	1.126	32.876	mg/kg	0.00329 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	160	mg/kg	1.56	182.186	mg/kg	0.0117 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
8	mercury { mercury dichloride }				0.37	mg/kg	1.353	0.366	mg/kg	0.0000366 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				16	mg/kg	2.976	34.763	mg/kg	0.00348 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				0.73	mg/kg	2.554	1.361	mg/kg	0.000136 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				45	mg/kg	2.774	91.131	mg/kg	0.00911 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
13	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									
14	benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
15	toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
16	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
18	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
19	 pH		PH		5.6 pH		5.6 pH	5.6 pH			
20	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
29	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
30	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
31	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
32	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
33	 indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
34	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
35	 benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
36	 vanadium {  divanadium pentaoxide;  vanadium pentoxide } 023-001-00-8	215-239-8	1314-62-1		25 mg/kg	1.785	32.58 mg/kg	0.00326 %	✓		
37	 monohydric phenols		P1186		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
Total:									0.0365 %		

Key

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

Classification of sample: WS104-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS104-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.40 m	
Moisture content:	
12%	
(wet weight correction)	

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 }				7	mg/kg	1.32	8.133	mg/kg	0.000813 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.14	mg/kg	1.142	0.141	mg/kg	0.0000141 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				17	mg/kg	1.462	21.865	mg/kg	0.00219 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	18.825	mg/kg	0.00188 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	32	mg/kg	1.56	43.924	mg/kg	0.00282 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.13	mg/kg	1.353	0.155	mg/kg	0.0000155 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				20	mg/kg	2.976	52.382	mg/kg	0.00524 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<LOD
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				60	mg/kg	2.774	146.475	mg/kg	0.0146 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.4	pH		6.4	pH	6.4 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		19 mg/kg	1.785	29.848 mg/kg	0.00298 %		✓	
Total:									0.0309 %		

Key

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

Classification of sample: WS105-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS105-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.30 m	
Moisture content:	
20%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 20% 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 }				9.8	mg/kg	1.32	10.351	mg/kg	0.00104 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	17.539	mg/kg	0.00175 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				21	mg/kg	1.126	18.915	mg/kg	0.00189 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	52	mg/kg	1.56	64.888	mg/kg	0.00416 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.16	mg/kg	1.353	0.173	mg/kg	0.0000173 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				15	mg/kg	2.976	35.715	mg/kg	0.00357 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.55	mg/kg	2.554	1.124	mg/kg	0.000112 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				42	mg/kg	2.774	93.211	mg/kg	0.00932 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				5.5	pH		5.5	pH	5.5 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		21 mg/kg	1.785	29.991 mg/kg	0.003 %		✓	
Total:									0.0251 %		

Key

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

Classification of sample: WS106-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS106-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.50 m	
Moisture content:	
19%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19% 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 }				8.7	mg/kg	1.32	9.304	mg/kg	0.00093 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				22	mg/kg	1.462	26.045	mg/kg	0.0026 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	23.711	mg/kg	0.00237 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	46	mg/kg	1.56	58.119	mg/kg	0.00373 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.1	mg/kg	1.353	0.11	mg/kg	0.000011 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				17	mg/kg	2.976	40.983	mg/kg	0.0041 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.4	mg/kg	2.554	0.827	mg/kg	0.0000827 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				50	mg/kg	2.774	112.353	mg/kg	0.0112 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.1	pH		6.1	pH	6.1 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.11	mg/kg		0.0891	mg/kg	0.00000891 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.15 mg/kg		0.122 mg/kg	0.0000121 %	✓	
19	pyrene	204-927-3	129-00-0		0.12 mg/kg		0.0972 mg/kg	0.00000972 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		29 mg/kg	1.785	41.934 mg/kg	0.00419 %	✓	
Total:								0.0295 %		

Key

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

Classification of sample: WS107-18/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS107-18/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.50 m	
Moisture content:	
17%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 17% 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 }				8.9	mg/kg	1.32	9.753	mg/kg	0.000975 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.0948	mg/kg	0.00000948 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23	mg/kg	1.462	27.901	mg/kg	0.00279 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	24.297	mg/kg	0.00243 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	45	mg/kg	1.56	58.259	mg/kg	0.00374 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				18	mg/kg	2.976	44.465	mg/kg	0.00445 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.6	mg/kg	2.554	1.272	mg/kg	0.000127 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				51	mg/kg	2.774	117.43	mg/kg	0.0117 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				5.3	pH		5.3	pH	5.3 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		31 mg/kg	1.785	45.933 mg/kg	0.00459 %		✓	
Total:									0.0311 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

■ acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

■ fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

■ phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

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

■ anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

■ fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

■ pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

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

■ indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2 H351

▪ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

▪ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

▪ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Acute Tox. 3 H301 , Acute Tox. 3 H311 , Acute Tox. 3 H331 , Skin Corr. 1B H314 , Skin Corr. 1B H314 >= 3 % , Skin Irrit. 2 H315 1 E conc. < 3 % , Eye Irrit. 2 H319 1 E conc. < 3 % , Muta. 2 H341 , STOT RE 2 H373 , Aquatic Chronic 2 H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

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

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

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) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case/most likely scenario

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)

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

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

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2021.155.4797.9144 (05 Jun 2021)

HazWasteOnline Database: 2021.155.4797.9144 (05 Jun 2021)

This classification utilises the following guidance and legislation:

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

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

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

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

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

Based across the UK with
offices in Manchester,
London, Liverpool and Glasgow.

Manchester (Head Office)

Unit 29,
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

London

2 Falcon Gate
Welwyn Garden City
Hertfordshire
AL7 1TW

t: 01707 909059
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



- » Geotechnical
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- » Invasive Species
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