

Ref. No.: MJH/J1790/D2/1

Date: June 2019



**INTRUSIVE
INVESTIGATION REPORT
For
NORDER DESIGN ASSOCIATES
On the Site of a
COMBINED HEAT & POWER (CHP) PLANT,
ROYAL BREWERY,
DENMARK ROAD,
MANCHESTER**

CONTENTS

1.0	INTRODUCTION	1
2.0	THE SITE & BACKGROUND.....	2
2.1	Site Location & Description	
2.2	Background	
3.0	SCOPE OF THE INVESTIGATION.....	3
3.1	Site Works	
3.2	Laboratory Testing & Analyses	
4.0	FINDINGS OF THE INVESTIGATION.....	4
4.1	Ground Conditions Encountered	
4.2	Geotechnical Laboratory Testing	
4.3	Chemical Contamination Analyses	
4.4	Preliminary Waste Classification	
5.0	GEOTECHNICAL ASSESSMENT.....	6
5.1	Foundations	
5.2	Concrete Design	
6.0	GEO-ENVIRONMENTAL ASSESSMENT.....	7
6.1	Contamination	
6.2	Ground Gases	

DRAWINGS

J1790/01	Site Location Plan
J1790/02	Site Plan
J1790/03	Approximate Borehole Locations

APPENDICES

Appendix A	Logs of Investigatory Holes
Appendix B	Laboratory Test Results
Appendix C	Preliminary Waste Classification Report

1.0 INTRODUCTION

- 1.1 This report describes an intrusive geotechnical and geo-environmental ground investigation of a site at Royal Brewery, Denmark Road, Manchester, carried out for our Client, Norder Design Associates. This report follows on from and should be read in conjunction with the desk study for the site issued by Emcus in April 2019, (report reference MJH/J1790/D1/1).
- 1.2 The objectives of this investigation have been to obtain further information relating to the geotechnical and geo-environmental conditions pertaining to the site and to produce an updated assessment of these factors in relation to the proposed development of the site.
- 1.3 We have been advised that the proposed development at the site will comprise a containerised CHP engine, pipe bridge and ancillary plant. It has been assumed in the production of this report that ground levels across the site will remain generally unchanged from those at the time of the investigation site works. If the assumptions made above and in the later sections of this report are not the case, then the recommendations presented within this report may require some amendment.
- 1.4 This report has been produced on behalf of the Client, Norder Design Associates and no responsibility is accepted to any third party for all or any part. This report should not be relied upon or transferred to any other parties without the express written authorisation of Emcus Limited. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors owe them no duty of care or skill.
- 1.5 The site plans and drawings enclosed in this report should not be scaled off.

2.0 THE SITE AND BACKGROUND

2.1 Site Location & Description

- 2.1.1 The site is located in the central area of Royal Brewery, Denmark Road, Manchester, (see drawings J1790/01 & J1790/02). The Ordnance Survey grid reference for the approximate centre of the site is SJ 8389 9597.
- 2.1.2 At the time of the investigation site works, (10th April 2019), the site generally comprised part of an approximately flat lying asphalt hardstanding.

2.2 Background

- 2.2.1 The published historical map dated 1848 and reviewed as part of the earlier desk study indicates that the site generally comprised part of a larger field presumably used for agriculture. An east / west orientated watercourse (Corn Brook) is indicated to have extended across the southern area of the site. The subsequent plans dated 1896 to 1985 indicate that the northern area of the site was then generally developed with residential housing and the southern area of the site comprised a road (Denmark Road) and part of a brewery building. The watercourse (Corn Brook) is indicated to have been diverted / culverted as the site was developed. The historical maps dated 1989 – 2019 indicate that the site generally comprised part of a hardstanding associated with a brewery. The southernmost margin of the site is indicated to have comprised part of a brewery building.
- 2.2.2 The published geological map indicates that the natural strata beneath the site comprises glacial till, underlain by the Triassic Chester Pebble Beds Formation (CPB). Till is described on the geological map as sandy clay with unsorted pebbles, cobbles and some boulders. The CPB is described as reddish – brown moderately cemented sandstone. In addition to the natural strata, Made Ground is anticipated beneath the site associated with the historic / previous development.
- 2.2.3 The Superficial deposits beneath the site (glacial till) are identified as a Secondary Undifferentiated Aquifer. The Bedrock (CPB) underlying the site are identified as a Principal Aquifer. The site is located in Zone 1 (Inner Protection Zone) of a Source Protection Zone.
- 2.2.4 There are not any named surface watercourses identified within 250m of the site. However, a culverted watercourse (Corn Brook) is understood to extend beneath the southern area of the site.
- 2.2.5 The Envirocheck report identifies a single historical landfill 135m to the west of the site. That landfill is reported to have operated between May 1994 and June 1995 and accepted inert and industrial waste. The Envirocheck does not identify any other landfills and / or waste management facilities within 250m of the site.

3.0 SCOPE OF THE INVESTIGATION

3.1 Site Works

- 3.1.1 Intrusive investigation of the site was undertaken on 10th April 2019, under the full-time supervision of a suitably experienced Engineer from Emcus. The intrusive investigation site works comprised the pre-coring of the hardstanding (asphalt & concrete) and advancement of 4 boreholes (WS1 – WS4) to depths of 5m bgl., using a tracked dynamic sampler. The locations of the investigatory holes are indicated approximately on drawing J1790/03.
- 3.1.2 Standard Penetration Tests (SPTs) were undertaken in the boreholes at 1m vertical centres. Representative disturbed samples of all the strata encountered in the boreholes were placed into sealable plastic containers and glass jars provided by the analytical laboratory for that purpose. Once advanced to the required depths, the boreholes were generally backfilled with arisings and the surface reinstated with cement mortar or cold lay asphalt, as appropriate.
- 3.1.3 The boreholes were logged in general accordance with BS 5930:2015 Code of practice for ground investigations. The Engineer's logs of the boreholes are presented in Appendix A of this report.

3.2 Laboratory Testing & Analyses

- 3.2.1 Selected disturbed samples recovered from the investigatory holes were subsequently submitted to MCERTS and UKAS accredited laboratories for chemical analysis and geotechnical testing.
- 3.2.2 The chemical analyses were undertaken at the laboratories of Chemtech Environmental and generally comprised the following:
- 5 samples were analysed for a typical suite of potential contaminants, including a range of metals & semi-metals, phenol, cyanides, total sulphate, sulphur, sulphides & pH, USEPA 16 speciated PolyAromatic Hydrocarbons (PAHs).
 - 3 samples were analysed for Total Petroleum Hydrocarbons speciated in accordance with current UK guidelines (TPH-CWG).
 - 4 samples were screened for the presence of asbestos.
- 3.2.3 3 representative samples of the strata were submitted for geotechnical testing at the laboratories of Geolabs, in accordance with BS 1377: Methods of Test of Soils for Civil Engineering Purposes: 1990. The testing carried out on these samples comprised 3 moisture content & plasticity index determinations.
- 3.2.4 5 samples of the strata were analysed for pH and water-soluble sulphates to determine the potential aggressiveness of the ground to buried concrete.
- 3.2.5 The results of the geotechnical testing and chemical contamination analyses are presented in Appendix B of this report.

4.0 FINDINGS OF THE INVESTIGATION

4.1 Ground Conditions Encountered

- 4.1.1 Made Ground was initially encountered in all of the boreholes to depths of 1m – 1.2m bgl. In WS2 – WS4, a veneer of black – grey asphalt, underlain by grey sub-angular gravel fill was encountered to 0.6m – 1m bgl. In WS1, grey reinforced grey concrete was encountered to 0.29m bgl., underlain by grey sub-angular gravel fill to 0.5m bgl. In WS1, WS2 & WS3, the sub-angular gravel fill was underlain by brown clay fill incorporating varying fragments of ash, brick and coal was encountered.
- 4.1.2 Natural strata was encountered underlying the Made Ground in all of the boreholes. In WS1 – WS3, firm brown – grey gravelly clay was encountered to 2m bgl. Underlying the firm clay in WS1 – WS3 and directly underlying the Made Ground in WS4, the natural strata generally comprised stiff gravelly clay. The stiff gravelly clay extended beyond the bottom of the boreholes.
- 4.1.3 The Standard Penetration Tests (SPTs) undertaken fully within the natural clays revealed ‘N’ values in the range 12 to 41.
- 4.1.4 No groundwater was encountered during the advancement of the boreholes.

4.2 Geotechnical Laboratory Testing

- 4.2.1 The pH of the strata at the site was found to range between 7.4 and 8.6, with associated water-soluble sulphate concentrations of 24mg/l to 130mg/l as SO₄ revealed for the samples tested.
- 4.2.2 The results of the moisture content and plasticity index analyses can be summarised in the following table.

Sample Reference	Moisture Content	Percentage of Sample <425mm	Plasticity Index
WS1 at 1.4m bgl.	25%	99%	30
WS3 at 2m bgl.	17%	95%	26
WS4 at 1.5m bgl.	19%	96%	27

4.3 Chemical Contamination Analyses

- 4.3.1 The results of the chemical contamination testing have generally been assessed with reference to the published Soil Guideline Values (SGV's) and Category 4 Screening Levels (C4SLs). In the absence of published SGVs / C4SLs, the results of the chemical contamination analyses have been assessed with reference to criteria calculated using the CLEA software and in-house criteria based on a combination of previous experience or other available assessment guidelines.
- 4.3.2 The calculated SGVs, C4SLs, etc. are interpreted in current guidance as ‘intervention values’ relative to a particular intended end use for the respective site, to provide a

means of assessing possible long term chronic risks to human health. They are based on assumptions about soil conditions and the existence of exposure pathway behaviour for the particular contaminant. The exceedance of an SGV, C4SL, etc. can thus be taken as indicating that further detailed assessment and/or remedial action is required to enable/facilitate development for the particular end use of the site concerned.

- 4.3.3 The results of the chemical analyses indicate the strata at the site to be free of significant contamination, with all of the determinands tested for revealing concentrations, falling either below the levels of detection or below their respective assessment criteria for a commercial end use.

4.4 Preliminary Waste Classification

- 4.4.1 The results of the chemical contamination analyses have been assessed using the 'HazWasteOnline' software. A copy of the Waste Classification report is presented in Appendix C of this report.
- 4.4.2 The waste classification report indicates that the strata beneath the site would generally classify as Non Hazardous Waste if removed from the site for appropriate off-site disposal / recycling.

5.0 GEOTECHNICAL ASSESSMENT

5.1 Foundations

- 5.1.1 It is considered that the strata encountered beneath the site generally confirms the published geological information and reflects the historic / previous development and usage of the site, as indicated by the earlier desk study.
- 5.1.2 It is considered that the Made Ground encountered beneath the site will not provide a suitable foundation bearing strata for the proposed containerised CHP engine and / or the pipe bridge, due to the variability and likely settlement characteristics of that strata.
- 5.1.3 It is anticipated that pad / spread foundations deepened through the Made Ground to bear on the firm and stiff clays will prove appropriate for the proposed CHP engine and pipe bridge stanchions. It is recommended that pad / spread foundations which bear on the firm clays are designed with a presumed bearing resistance of 125kN/m². Pad / spread foundations which bear on the stiff clays could be designed with a presumed bearing resistance of 200kN/m².
- 5.1.4 It is recommended that foundations are adjusted in accordance with the recommendations of NHBC Chapter 4.2 - Building Near Trees, (or similar guidance) to protect against the potential effects of heave and shrinkage associated with existing, proposed or recently removed trees and vegetation. The results of the plasticity index testing indicate that the cohesive strata beneath the site should be regarded as having a medium volume change potential.
- 5.1.5 All foundations should be deepened below roots of more than 5mm in diameter.

5.2 Concrete Design

- 5.2.1 We have considered the geology of the site and the ground conditions in accordance with the guidelines contained in Part C of BRE Special Digest 1: Concrete in aggressive ground (2005) and have categorised the site as a 'brownfield' site.
- 5.2.2 The results of the water soluble sulphate analyses from the site fall within Design Sulphate (DS) Class DS-1. The groundwater conditions at the site should be considered to be mobile (potentially). On this basis and from consideration of the pH conditions at the sites, the site has been assigned an ACEC (Aggressive Chemical Environment for Concrete) Class AC-1.
- 5.2.3 The specific concrete mixes (The Design Chemical Class) to be used on site for all the 'in the ground' and 'on the ground' permanent applications should be determined, mindful of the ACEC Class, by the site specific concrete requirements, in terms of the required durability and structural performance. These are assessed in terms of the Intended Working Life and any need for Additional Protective Measures (APM), as detailed in Part D, with further guidance in Parts E and F, of the BRE Special Digest 1, (2005).

6.0 GEO-ENVIRONMENTAL ASSESSMENT

6.1 Contamination

- 6.1.1 The results of the chemical analyses have revealed the strata at the site is free of significant contamination, with all the determinands tested for, revealing concentrations falling below the levels of detection for the laboratory method used, or not exceeding their respective assessment criteria for a residential end use.
- 6.1.2 Excavation arisings should be disposed of off-site at a suitably licensed waste management facility.
- 6.1.3 If any visual and / or olfactory evidence of contamination is encountered during the proposed development, the advice of a suitably experienced geo-environmental engineer should be sought.

6.2 Ground Gases

- 6.2.1 The desk study has identified a historical landfill 135m to the west of the site, which accepted inert and industrial waste. That historical landfill has the potential to generate concentrations of carbon dioxide and perhaps methane. As such, it is recommended that appropriate assessment and controls of atmospheres is undertaken during construction prior to any entry into any excavations, confined spaces, etc.

6.3 **We recommend that the above geo-environmental assessment is discussed and agreed with the Local Authority, etc., prior to any irrevocable actions being taken.**

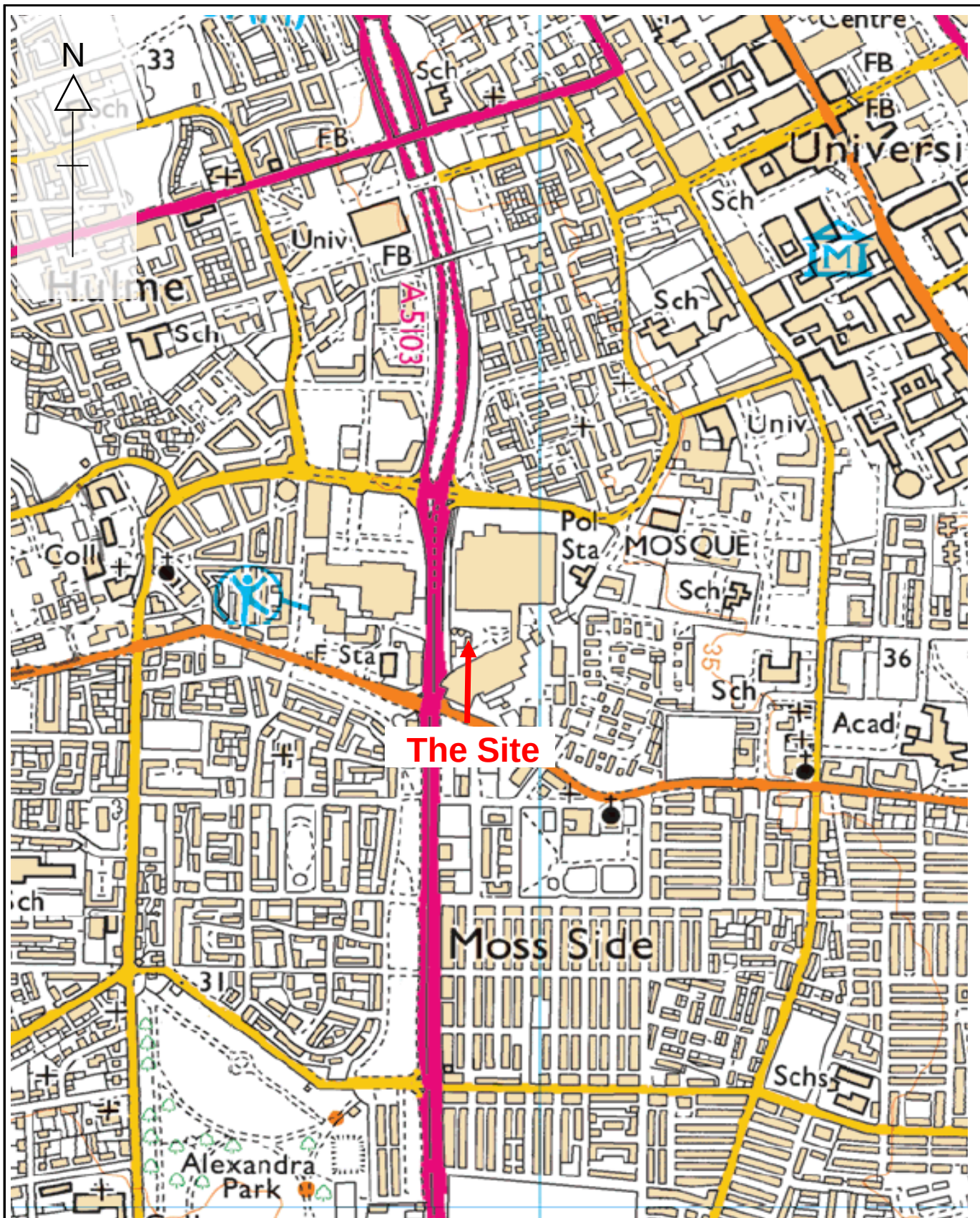
We trust the above report is suitable for your present requirements. Should you have any comments or queries, wish to discuss any of the above matters, or require any further assistance, please do not hesitate to contact us.

For & on behalf of Emcus Ltd.



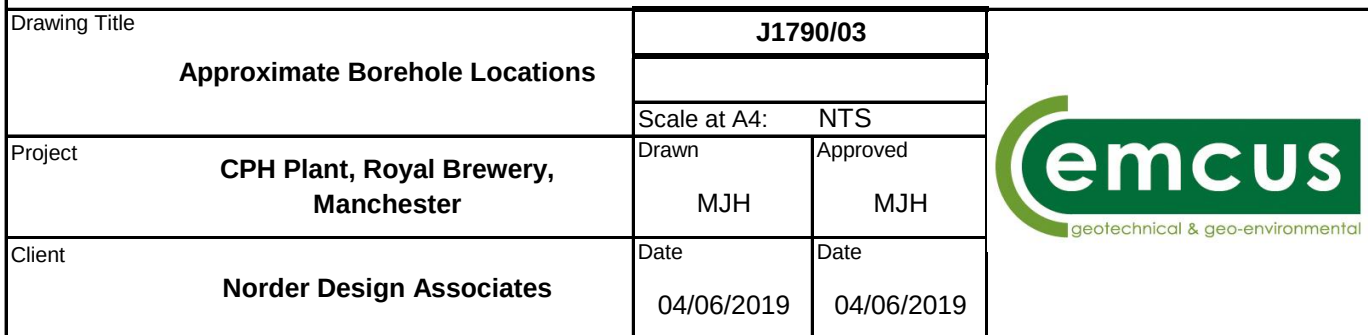
M. J. Hanford, BSc (Hon's) P.Dip FGS
Technical Director

DRAWINGS



Drawing Title		J1790/01	
Site Location Plan			
		Scale at A4: NTS	
Project	CPH Plant, Royal Brewery, Manchester	Drawn	Approved
		MJH	MJH
Client	Norder Design Associates	Date	Date
		04/04/2019	04/04/2019





APPENDICES

Appendix A

Logs of Investigatory Holes

Borehole Log

Borehole No.

WS1

Sheet 1 of 1

Project Name: Combined Heat & Power Plant

Project No.
J1790

Co-ords: -

Hole Type
WS

Location: Royal Brewery, Manchester

Level:

Scale
1:50

Client: Norder Design Associates

Dates: 10/04/2019 - 10/04/2019

Logged By
JST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.29			MADE GROUND: Grey concrete. 8mm steel reinforcement bar at 0.17 and 0.19m bgl.	
					0.50			MADE GROUND: Grey clayey angular gravel limestone fill.	
		0.70	ES					MADE GROUND: Brown - grey clay fill with occasional angular gravel sized fragments of coal, brick and ash.	1
		1.00		N=9 (1,2/1,2,3,3)					
		1.30	ES		1.20				
		1.40	D					Firm (becoming stiff at 2.0m bgl) brown - grey CLAY. Occasional subangular and subrounded fine medium and coarse igneous rock, quartzite and coal.	2
		2.00		N=24 (3,4/4,5,7,8)					
		3.00		N=25 (4,4/5,6,6,8)					3
		4.00		N=22 (4,4/4,5,6,7)					4
		5.00		N=41 (6,7/8,10,11,12)	5.00			End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks

1) Concrete surfacing pre cored prior to advancement of window sampling. 2) Groundwater was not encountered. 3) Window sample hole backfilled with arisings upon completion.

Borehole Log

Borehole No.

WS2

Sheet 1 of 1

Project Name: Combined Heat & Power Plant

Project No.
J1790

Co-ords: -

Hole Type
WS

Location: Royal Brewery, Manchester

Level:

Scale
1:50

Client: Norder Design Associates

Dates: 10/04/2019 - 10/04/2019

Logged By
JST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15			MADE GROUND: Black - grey asphalt	
		0.50	ES		0.60			MADE GROUND: Grey clayey angular gravel limestone fill.	
		1.00		N=9 (1,1/2,2,2,3)	1.10			MADE GROUND: Brown - grey sandy clay fill with occasional angular gravel sized fragments of brick.	1
		1.20	ES					Firm (becoming stiff at 2.0m bgl) brown - grey CLAY. Occasional subangular and subrounded fine medium and coarse igneous rock, quartzite and coal.	
		2.00		N=20 (3,3/4,4,5,7)					2
		3.00		N=23 (4,3/4,5,6,8)					3
		4.00		N=25 (4,4/5,6,7,7)					4
		5.00		N=30 (5,6/7,6,8,9)	5.00			End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks

1) Asphalt surfacing pre cored prior to advancement of window sampling. 2) Groundwater was not encountered. 3) Window sample hole backfilled with arisings upon completion.

Borehole Log

Borehole No.

WS3

Sheet 1 of 1

Project Name: Combined Heat & Power Plant

Project No.
J1790

Co-ords: -

Hole Type
WS

Location: Royal Brewery, Manchester

Level:

Scale
1:50

Client: Norder Design Associates

Dates: 10/04/2019 - 10/04/2019

Logged By
JST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.12			0.12			MADE GROUND: Black - grey asphalt	
		0.50	ES		0.80			MADE GROUND: Grey clayey angular gravel limestone fill.	
		1.00		N=12 (1,2/2,3,3,4)	1.00			MADE GROUND: Brown - grey clay fill with occasional angular gravel sized fragments of brick.	1
		1.10	ES					Firm (becoming stiff at 2.0m bgl) brown - grey CLAY. Occasional subangular and subrounded fine medium and coarse igneous rock, quartzite and coal.	
		2.00		N=27 (3,4/5,6,7,9)					2
		2.00	D						
		3.00		N=23 (3,4/4,5,7,7)					3
		4.00		N=23 (5,4/4,6,6,7)					4
		5.00		N=27 (5,5/5,7,7,8)	5.00			End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks

1) Asphalt surfacing pre cored prior to advancement of window sampling. 2) Groundwater was not encountered. 3) Window sample hole backfilled with arisings upon completion.

Borehole Log

Borehole No.

WS4

Sheet 1 of 1

Project Name: Combined Heat & Power Plant

Project No.
J1790

Co-ords: -

Hole Type
WS

Location: Royal Brewery, Manchester

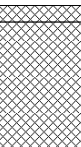
Level:

Scale
1:50

Client: Norder Design Associates

Dates: 10/04/2019 - 10/04/2019

Logged By
JST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.11			MADE GROUND: Black - grey asphalt MADE GROUND: Grey clayey angular gravel limestone fill.	
		1.00 1.10	ES	N=21 (3,3/4,5,6,6)	1.00			Stiff brown - grey CLAY. Occasional subangular and subrounded fine medium and coarse igneous rock, quartzite and coal.	1
		1.50	D						
		2.00		N=25 (3,4/5,6,7,7)					2
		3.00		N=30 (5,6/7,7,7,9)					3
		4.00		N=22 (4,4/4,5,6,7)					4
		5.00		N=36 (5,5/7,8,10,11)	5.00			End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks

1) Asphalt surfacing pre cored prior to advancement of window sampling. 2) Groundwater was not encountered. 3) Window sample hole backfilled with arisings upon completion.

Appendix B

Laboratory Test Results



ANALYTICAL TEST REPORT

Contract no: 78187
Contract name: CHP Paint, Heineken, Manchester
Client reference: J1790
Clients name: Emcus
Clients address: 42 Mount Pleasant Drive
Belper
Derbyshire
DE56 2TH

Samples received: 15 April 2019

Analysis started: 15 April 2019

Analysis completed: 24 April 2019

Report issued: 24 April 2019

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:

Dave Bowerbank
Customer Services Co-ordinator

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
78187-1	WS1	0.70	Sandy Clay	-	-	25.1
78187-2	WS1	1.30	Clay	-	-	18.9
78187-3	WS2	0.50	Silty Clay with Gravel & Chalk	-	-	4.1
78187-4	WS2	1.20	Silty Clay	-	-	18.2
78187-5	WS3	0.50	Sandy Clay with Gravel	-	-	4.9
78187-6	WS3	1.10	Silty Clay	-	-	19.6
78187-7	WS4	0.20	Sandy Clay with Gravel	-	-	4.7

Chemtech Environmental Limited

SOILS

Lab number Sample id Depth (m) Date sampled			78187-1 WS1 0.70 10/04/2019	78187-2 WS1 1.30 10/04/2019	78187-3 WS2 0.50 10/04/2019	78187-4 WS2 1.20 10/04/2019	78187-5 WS3 0.50 10/04/2019	78187-6 WS3 1.10 10/04/2019
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	15	7.7	-	-	2.0	7.9
Boron (water soluble)	CE063 ^M	mg/kg B	1.7	0.7	-	-	<0.5	1.0
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	<0.2	-	-	1.7	<0.2
Chromium (total)	CE127 ^M	mg/kg Cr	51	66	-	-	17	60
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	-	-	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	51	22	-	-	9.3	20
Lead (total)	CE127 ^M	mg/kg Pb	149	18	-	-	24	15
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	-	-	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	24	52	-	-	22	42
Selenium (total)	CE127 ^M	mg/kg Se	1.1	1.3	-	-	0.4	1.3
Zinc (total)	CE127 ^M	mg/kg Zn	71	72	-	-	38	57
pH	CE004 ^M	units	7.5	7.4	-	-	8.3	8.1
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	130	80	-	-	29	30
Sulphate (total)	CE062 ^M	mg/kg SO ₄	928	277	-	-	322	124
Sulphide	CE079	mg/kg S ²⁻	<10	<10	-	-	<10	<10
Cyanide (free)	CE077	mg/kg CN	<1	<1	-	-	<1	<1
Cyanide (total)	CE077	mg/kg CN	<1	<1	-	-	<1	<1
Thiocyanate	CE145 ^M	mg/kg SCN	1.1	<1	-	-	<1	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5	<0.5	-	-	<0.5	<0.5
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	3.9	0.5	-	-	0.4	0.7
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	6.7	0.9	-	-	0.6	1.1
PAH								
Naphthalene	CE087 ^M	mg/kg	0.03	<0.02	-	-	<0.02	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
Acenaphthene	CE087 ^M	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
Fluorene	CE087 ^U	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
Phenanthrene	CE087 ^M	mg/kg	0.06	<0.02	-	-	<0.02	<0.02
Anthracene	CE087 ^U	mg/kg	0.04	<0.02	-	-	<0.02	<0.02
Fluoranthene	CE087 ^M	mg/kg	0.07	<0.02	-	-	<0.02	<0.02
Pyrene	CE087 ^M	mg/kg	0.09	<0.02	-	-	<0.02	<0.02
Benzo(a)anthracene	CE087 ^U	mg/kg	0.04	<0.02	-	-	<0.02	<0.02
Chrysene	CE087 ^M	mg/kg	<0.03	<0.03	-	-	<0.03	<0.03
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.04	<0.02	-	-	<0.02	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.03	<0.03	-	-	<0.03	<0.03
Benzo(a)pyrene	CE087 ^U	mg/kg	0.02	<0.02	-	-	<0.02	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	<0.02	-	-	<0.02	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	0.41	<0.34	-	-	<0.34	<0.34

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SOILS

Lab number			78187-1	78187-2	78187-3	78187-4	78187-5	78187-6
Sample id			WS1	WS1	WS2	WS2	WS3	WS3
Depth (m)			0.70	1.30	0.50	1.20	0.50	1.10
Date sampled			10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019
Test	Method	Units						
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	-	<0.01	<0.01	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	-	<0.01	<0.01	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	-	<0.01	<0.01	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	-	<1	<1	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	-	<1	<1	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	-	<1	<1	-	-
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	-	<1	<1	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	-	<1	<1	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	-	<0.1	<0.1	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	-	<0.1	<0.1	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	-	<0.1	<0.1	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	-	<4	<4	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	-	<4	<4	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	-	28	19	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	-	<10	<10	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	-	NAD	-	NAD	-

Chemtech Environmental Limited

SOILS

Lab number Sample id Depth (m) Date sampled			78187-7 WS4 0.20 10/04/2019
Test	Method	Units	
Arsenic (total)	CE127 ^M	mg/kg As	<1
Boron (water soluble)	CE063 ^M	mg/kg B	<0.5
Cadmium (total)	CE127 ^M	mg/kg Cd	0.5
Chromium (total)	CE127 ^M	mg/kg Cr	5.6
Chromium (VI)	CE146	mg/kg CrVI	<1
Copper (total)	CE127 ^M	mg/kg Cu	1.3
Lead (total)	CE127 ^M	mg/kg Pb	2.0
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	2.4
Selenium (total)	CE127 ^M	mg/kg Se	<0.3
Zinc (total)	CE127 ^M	mg/kg Zn	10
pH	CE004 ^M	units	8.6
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	24
Sulphate (total)	CE062 ^M	mg/kg SO ₄	77
Sulphide	CE079	mg/kg S ²⁻	<10
Cyanide (free)	CE077	mg/kg CN	<1
Cyanide (total)	CE077	mg/kg CN	<1
Thiocyanate	CE145 ^M	mg/kg SCN	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	0.3
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	0.6
PAH			
Naphthalene	CE087 ^M	mg/kg	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02
Acenaphthene	CE087 ^M	mg/kg	<0.02
Fluorene	CE087 ^U	mg/kg	<0.02
Phenanthrene	CE087 ^M	mg/kg	<0.02
Anthracene	CE087 ^U	mg/kg	<0.02
Fluoranthene	CE087 ^M	mg/kg	<0.02
Pyrene	CE087 ^M	mg/kg	<0.02
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02
Chrysene	CE087 ^M	mg/kg	<0.03
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.03
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	<0.34

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SOILS

Lab number			78187-7
Sample id			WS4
Depth (m)			0.20
Date sampled			10/04/2019
Test	Method	Units	
TPH			
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	5
EPH Aliphatic (>C16-C35)	CE068	mg/kg	21
EPH Aliphatic (>C35-C44)	CE068	mg/kg	<10
Subcontracted analysis			
Asbestos (qualitative)	\$	-	NAD

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry	M	0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE049	Sulphate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE079	Sulphide	Extraction, Continuous Flow Colorimetry	As received		10	mg/kg S ²⁻
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE145	Thiocyanate	Weak acid extraction, Colorimetry	Dry	M	1	mg/kg SCN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	As received		0.5	mg/kg PhOH
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	M	0.1	% w/w
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	As received		1	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	As received		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
78187-1	WS1	0.70	N	
78187-2	WS1	1.30	N	
78187-3	WS2	0.50	N	
78187-4	WS2	1.20	N	
78187-5	WS3	0.50	N	
78187-6	WS3	1.10	N	
78187-7	WS4	0.20	N	

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03 May 2019

Report No : GEO/28987/01

Page 1 of 1

For the attention of Dr J Thompson

Dear Sirs

Our ref **GEO / 28987**
Your Ref **J1790**

Date samples received 15/04/2019
Date written instructions received 15/04/2019
Date testing commenced 16/04/2019
Date of sample disposal 31/05/2019

Project **CHP PLANT HEINEKEN, MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	3	Water Content
2	3	Liquid & Plastic Limits

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



J A Reynolds
Laboratory Manager

SUMMARY OF LIQUID AND PLASTIC LIMIT TESTS

[illegible]

Test Type:

- 1 - 1 point cone penetrometer clause 4.4
- 2 - 4 point cone penetrometer clause 4.3
- 3 - Non plastic determination

Sample condition:

- 1 - As Received
2 - Air Dried
3 - Washed & Air Dried

Checked and Approved by:

J A Rogers

J A Reynolds - Laboratory Manager
03/05/2019

Project Number:

GEO / 28987

Project Name:

CHP PLANT HEINEKEN, MANCHESTER
J1790

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BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

BH / TP WS1
Depth (m) 1.40
Sample Type D

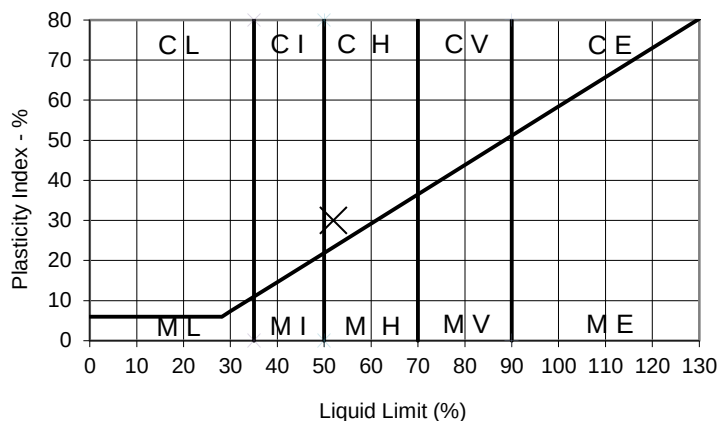
Description:

Greyish brown CLAY with rare fine to medium gravel.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014) 24.5 %
Percentage passing 425µm sieve : 99 %
Liquid Limit : 52 %
Plastic Limit : 22 %
Plasticity Index : 30 %

Equivalent Water Content of material passing 425µm sieve : 24.8 %
Liquidity Index : 0.09



Processed by PK/BB
Checked and Approved by

J A Reynolds

J A Reynolds - Laboratory Manager
03/05/2019

Project Number:

GEO / 28987

Project Name:

CHP PLANT HEINEKEN, MANCHESTER
J1790

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BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

BH / TP WS3
Depth (m) 2.00
Sample Type D

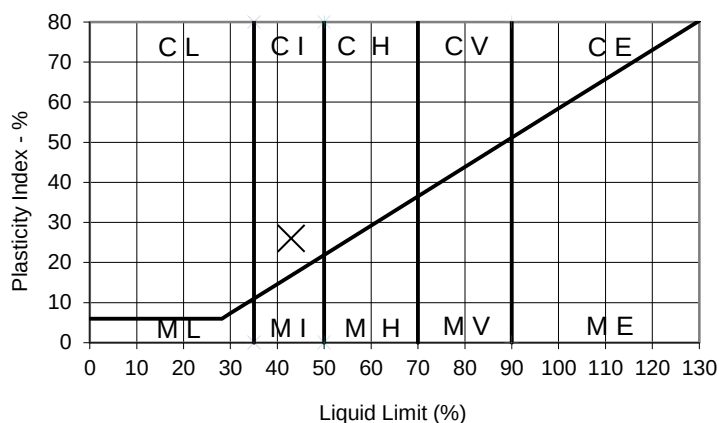
Description:

Greyish brown firm CLAY with some fine to medium gravel.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014) 16.9 %
Percentage passing 425µm sieve : 95 %
Liquid Limit : 43 %
Plastic Limit : 17 %
Plasticity Index : 26 %

Equivalent Water Content of material passing 425µm sieve : 17.7 %
Liquidity Index : 0.03



Processed by PK/BB
Checked and Approved by

J A Reynolds

J A Reynolds - Laboratory Manager
03/05/2019

Project Number:

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Project Name:

CHP PLANT HEINEKEN, MANCHESTER
J1790

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BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

BH / TP WS4
Depth (m) 1.50
Sample Type D

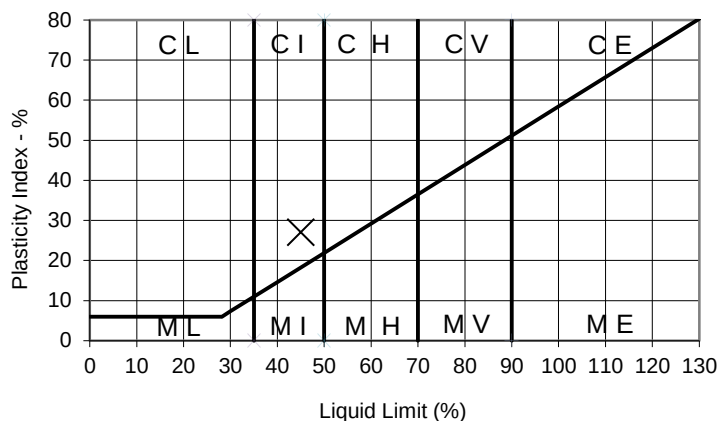
Description:

Dark brown firm CLAY with some fine to medium gravel.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014) 18.9 %
Percentage passing 425µm sieve : 96 %
Liquid Limit : 45 %
Plastic Limit : 18 %
Plasticity Index : 27 %

Equivalent Water Content of material passing 425µm sieve : 19.6 %
Liquidity Index : 0.06



Processed by PK/BB
Checked and Approved by

J A Reynolds

J A Reynolds - Laboratory Manager
03/05/2019

Project Number:

GEO / 28987

Project Name:

CHP PLANT HEINEKEN, MANCHESTER
J1790

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Appendix C

Preliminary Waste Classification Report

Waste Classification Report



BU7RV-NW4E7-JSWTK

Job name

J1790

Description/Comments

Classification from results of ground investigation analyses

Project

CHP Plant, Royal Brewery

Site

Related Documents

#	Name	Description
None		

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Marcus Hanford
Date:
04 Jun 2019 12:48 GMT
Telephone:
07913 740 475

Company:
Emcus Limited
42 Mount Pleasant Drive
Belper
DE56 2TH

Report

Created by: Marcus Hanford
Created date: 04 Jun 2019 12:48 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS1	0.7	Non Hazardous		3
2	WS 1	1.3	Non Hazardous		5
3	WS2	0.5	Non Hazardous		7
4	WS 2	1.2	Non Hazardous		8
5	WS3	0.5	Non Hazardous		9
6	WS 3	1.1	Non Hazardous		11
7	WS4	0.2	Non Hazardous		13

Appendices

	Page
Appendix A: Classifier defined and non CLP determinands	15
Appendix B: Rationale for selection of metal species	16

Appendices	Page
Appendix C: Version	17

Classification of sample: WS1

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

Sample details

Sample Name:	WS1	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.7 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No 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 }	033-003-00-0	215-481-4	1327-53-3	15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	1.7 mg/kg	3.22	5.474 mg/kg	0.000547 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9	51 mg/kg	1.462	74.539 mg/kg	0.00745 %		
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			1 mg/kg	1.923	1.923 mg/kg	0.000192 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	51 mg/kg	1.126	57.42 mg/kg	0.00574 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	149 mg/kg	1.56	232.412 mg/kg	0.0149 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	24 mg/kg	2.976	71.43 mg/kg	0.00714 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			1.1 mg/kg	2.554	2.809 mg/kg	0.000281 %		
11	zinc { zinc chromate }	024-007-00-3			71 mg/kg	2.774	196.964 mg/kg	0.0197 %		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			1 mg/kg	1.884	1.884 mg/kg	0.000188 %		
13	naphthalene	601-052-00-2	202-049-5	91-20-3	0.03 mg/kg		0.03 mg/kg	0.000003 %		

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	acenaphthylene	205-917-1	208-96-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
15	acenaphthene	201-469-6	83-32-9		0.02	mg/kg		0.02	mg/kg	0.000002 %		
16	fluorene	201-695-5	86-73-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
17	phenanthrene	201-581-5	85-01-8		0.06	mg/kg		0.06	mg/kg	0.000006 %		
18	anthracene	204-371-1	120-12-7		0.04	mg/kg		0.04	mg/kg	0.000004 %		
19	fluoranthene	205-912-4	206-44-0		0.07	mg/kg		0.07	mg/kg	0.000007 %		
20	pyrene	204-927-3	129-00-0		0.09	mg/kg		0.09	mg/kg	0.000009 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.04	mg/kg		0.04	mg/kg	0.000004 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.04	mg/kg		0.04	mg/kg	0.000004 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.02	mg/kg		0.02	mg/kg	0.000002 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.02	mg/kg		0.02	mg/kg	0.000002 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.02	mg/kg		0.02	mg/kg	0.000002 %		
29	phenol	604-001-00-2	203-632-7	108-95-2	0.5	mg/kg		0.5	mg/kg	0.00005 %		
Total:										0.0583 %		

Key

- User supplied data
- 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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS 1

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

Sample details

Sample Name:	LoW Code:
WS 1	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.3 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No 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 }				7.7 mg/kg	1.32	10.167 mg/kg	0.00102 %		
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }				66 mg/kg	1.462	96.463 mg/kg	0.00965 %		
		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 }				1 mg/kg	1.923	1.923 mg/kg	0.000192 %		
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	18 mg/kg	1.56	28.077 mg/kg	0.0018 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %		
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				52 mg/kg	2.976	154.766 mg/kg	0.0155 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.3 mg/kg	2.554	3.32 mg/kg	0.000332 %		
	034-002-00-8									
11	zinc { zinc chromate }				72 mg/kg	2.774	199.739 mg/kg	0.02 %		
	024-007-00-3									
12	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 }				1 mg/kg	1.884	1.884 mg/kg	0.000188 %		
	006-007-00-5									
13	naphthalene				0.02 mg/kg		0.02 mg/kg	0.000002 %		
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	acenaphthylene	205-917-1	208-96-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
15	acenaphthene	201-469-6	83-32-9		0.02	mg/kg		0.02	mg/kg	0.000002 %		
16	fluorene	201-695-5	86-73-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
17	phenanthrene	201-581-5	85-01-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
18	anthracene	204-371-1	120-12-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
19	fluoranthene	205-912-4	206-44-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
20	pyrene	204-927-3	129-00-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.02	mg/kg		0.02	mg/kg	0.000002 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.02	mg/kg		0.02	mg/kg	0.000002 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.02	mg/kg		0.02	mg/kg	0.000002 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.02	mg/kg		0.02	mg/kg	0.000002 %		
29	phenol	604-001-00-2	203-632-7	108-95-2	0.5	mg/kg		0.5	mg/kg	0.00005 %		
Total:										0.0515 %		

Key

- User supplied data
- 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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS2

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

Sample details

Sample Name:	LoW Code:	
WS2	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)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No 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	●	TPH (C6 to C40) petroleum group			52 mg/kg		52 mg/kg	0.0052 %		
			TPH							
Total:								0.0052 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Non flammable in soil

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0052%)

Classification of sample: WS 2



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

Sample details

Sample Name:	LoW Code:
WS 2	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.2 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No 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	● TPH (C6 to C40) petroleum group				43 mg/kg		43 mg/kg	0.0043 %		
			TPH							
Total:								0.0043 %		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Non flammable in soil

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0043%)

Classification of sample: WS3

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

Sample details

Sample Name:	LoW Code:	
WS3	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)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No 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 }				2 mg/kg	1.32	2.641 mg/kg	0.000264 %		
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.5 mg/kg	3.22	1.61 mg/kg	0.000161 %		
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				1.7 mg/kg	1.142	1.942 mg/kg	0.000194 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }				17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
		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 }				1 mg/kg	1.923	1.923 mg/kg	0.000192 %		
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				9.3 mg/kg	1.126	10.471 mg/kg	0.00105 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %		
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				22 mg/kg	2.976	65.478 mg/kg	0.00655 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.4 mg/kg	2.554	1.021 mg/kg	0.000102 %		
	034-002-00-8									
11	zinc { zinc chromate }				38 mg/kg	2.774	105.418 mg/kg	0.0105 %		
	024-007-00-3									
12	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 }				1 mg/kg	1.884	1.884 mg/kg	0.000188 %		
	006-007-00-5									
13	naphthalene				0.02 mg/kg		0.02 mg/kg	0.000002 %		
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	acenaphthylene	205-917-1	208-96-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
15	acenaphthene	201-469-6	83-32-9		0.02	mg/kg		0.02	mg/kg	0.000002 %		
16	fluorene	201-695-5	86-73-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
17	phenanthrene	201-581-5	85-01-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
18	anthracene	204-371-1	120-12-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
19	fluoranthene	205-912-4	206-44-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
20	pyrene	204-927-3	129-00-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.02	mg/kg		0.02	mg/kg	0.000002 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.02	mg/kg		0.02	mg/kg	0.000002 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.02	mg/kg		0.02	mg/kg	0.000002 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.02	mg/kg		0.02	mg/kg	0.000002 %		
29	phenol	604-001-00-2	203-632-7	108-95-2	0.5	mg/kg		0.5	mg/kg	0.00005 %		
Total:										0.0243 %		

Key

- User supplied data
- 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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS 3

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

Sample details

Sample Name:	WS 3	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.1 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No 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 }	033-003-00-0	215-481-4	1327-53-3	7.9 mg/kg	1.32	10.431 mg/kg	0.00104 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	1 mg/kg	3.22	3.22 mg/kg	0.000322 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9	60 mg/kg	1.462	87.693 mg/kg	0.00877 %		
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8			1 mg/kg	1.923	1.923 mg/kg	0.000192 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	15 mg/kg	1.56	23.397 mg/kg	0.0015 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	42 mg/kg	2.976	125.003 mg/kg	0.0125 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			1.3 mg/kg	2.554	3.32 mg/kg	0.000332 %		
11	zinc { zinc chromate }	024-007-00-3			57 mg/kg	2.774	158.126 mg/kg	0.0158 %		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			1 mg/kg	1.884	1.884 mg/kg	0.000188 %		
13	naphthalene	601-052-00-2	202-049-5	91-20-3	0.02 mg/kg		0.02 mg/kg	0.000002 %		

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	acenaphthylene	205-917-1	208-96-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
15	acenaphthene	201-469-6	83-32-9		0.02	mg/kg		0.02	mg/kg	0.000002 %		
16	fluorene	201-695-5	86-73-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
17	phenanthrene	201-581-5	85-01-8		0.02	mg/kg		0.02	mg/kg	0.000002 %		
18	anthracene	204-371-1	120-12-7		0.02	mg/kg		0.02	mg/kg	0.000002 %		
19	fluoranthene	205-912-4	206-44-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
20	pyrene	204-927-3	129-00-0		0.02	mg/kg		0.02	mg/kg	0.000002 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.02	mg/kg		0.02	mg/kg	0.000002 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.03	mg/kg		0.03	mg/kg	0.000003 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.02	mg/kg		0.02	mg/kg	0.000002 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.02	mg/kg		0.02	mg/kg	0.000002 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.02	mg/kg		0.02	mg/kg	0.000002 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.02	mg/kg		0.02	mg/kg	0.000002 %		
29	phenol	604-001-00-2	203-632-7	108-95-2	0.5	mg/kg		0.5	mg/kg	0.00005 %		
Total:										0.0431 %		

Key

- User supplied data
- 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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS4

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

Sample details

Sample Name:	WS4	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No 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 }				1	mg/kg	1.32	1.32	mg/kg	0.000132 %		
		033-003-00-0	215-481-4	1327-53-3									
2		boron { diboron trioxide; boric oxide }				0.5	mg/kg	3.22	1.61	mg/kg	0.000161 %		
		005-008-00-8	215-125-8	1303-86-2									
3		cadmium { cadmium oxide }				0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
		048-002-00-0	215-146-2	1306-19-0									
4		chromium in chromium(III) compounds { chromium(III) oxide }				5.6	mg/kg	1.462	8.185	mg/kg	0.000818 %		
			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 }				1	mg/kg	1.923	1.923	mg/kg	0.000192 %		
		024-017-00-8											
6		copper { dicopper oxide; copper (I) oxide }				1.3	mg/kg	1.126	1.464	mg/kg	0.000146 %		
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	2	mg/kg	1.56	3.12	mg/kg	0.0002 %		
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				0.5	mg/kg	1.353	0.677	mg/kg	0.0000677 %		
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel chromate }				2.4	mg/kg	2.976	7.143	mg/kg	0.000714 %		
		028-035-00-7	238-766-5	14721-18-7									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.3	mg/kg	2.554	0.766	mg/kg	0.0000766 %		
		034-002-00-8											
11		zinc { zinc chromate }				10	mg/kg	2.774	27.741	mg/kg	0.00277 %		
		024-007-00-3											
12		TPH (C6 to C40) petroleum group				46	mg/kg		46	mg/kg	0.0046 %		
				TPH									
13		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 }				1	mg/kg	1.884	1.884	mg/kg	0.000188 %		
		006-007-00-5											

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	naphthalene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
	601-052-00-2	202-049-5	91-20-3									
15	acenaphthylene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		205-917-1	208-96-8									
16	acenaphthene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		201-469-6	83-32-9									
17	fluorene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		201-695-5	86-73-7									
18	phenanthrene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		201-581-5	85-01-8									
19	anthracene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		204-371-1	120-12-7									
20	fluoranthene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		205-912-4	206-44-0									
21	pyrene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		204-927-3	129-00-0									
22	benzo[a]anthracene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
	601-033-00-9	200-280-6	56-55-3									
23	chrysene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
	601-048-00-0	205-923-4	218-01-9									
24	benzo[b]fluoranthene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
	601-034-00-4	205-911-9	205-99-2									
25	benzo[k]fluoranthene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
	601-036-00-5	205-916-6	207-08-9									
26	benzo[a]pyrene; benzo[def]chrysene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
	601-032-00-3	200-028-5	50-32-8									
27	indeno[123-cd]pyrene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		205-893-2	193-39-5									
28	dibenz[a,h]anthracene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
	601-041-00-2	200-181-8	53-70-3									
29	benzo[ghi]perylene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		205-883-8	191-24-2									
30	phenol				0.5	mg/kg		0.5	mg/kg	0.00005 %		
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0102 %		

Key

- User supplied data
- 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

CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Non flammable in soil

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0046%)

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

CLP index number: 006-007-00-5

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

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

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

Reason for additional Hazards Statement(s)/Risk Phrase(s):

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 21 Aug 2015

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

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

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

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

Data source date: 21 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

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

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

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

boron {diboron trioxide; boric oxide}

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

cadmium {cadmium oxide}

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

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

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

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

Most likely

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

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

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

zinc {zinc chromate}

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

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

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

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2019.152.3882.7895 (01 Jun 2019)

HazWasteOnline Database: 2019.152.3882.7895 (01 Jun 2019)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010

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