MR E GROVE

27 KEATS LANE
EARL SHILTON LE9 7DS

GEOENVIRONMENTAL REPORT

Contract: 21175

Date: February 2014

Ian Farmer Associates (1998) Limited
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road, Coventry, CV3 4LJ
Tel: 024 7630 3422
www.ianfarmer.co.uk

GEOENVIRONMENTAL REPORT

Carried out at

27 KEATS LANE

EARL SHILTON LE9 7DS

Prepared for

MR E GROVE
c/o Hayward Architects Ltd
19 Station Road
Hinckley
Leicestershire
LE10 1AW

Contract No: 21175

Date: February 2014

Ian Farmer Associates (1998) Limited
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road, Coventry, CV3 4LJ
Tel: 024 7630 3422
www.ianfarmer.co.uk

EXECUTIVE SUMMARY

On the instructions of Hayward Architects Ltd, architects to Mr E Grove, an investigation was undertaken to determine ground conditions and enable a geoenvironmental risk assessment. It is understood that it is proposed to develop the site for residential housing with associated hardstanding for access and parking, landscaping and private gardens. This report should be read in conjunction with the Preliminary Investigation Report (PIR) which was reported under reference 21175 in January 2014.

The site is situated at situated towards the northeast side of Earl Shilton, approximately 10 km to the south west of the town centre of Leicester and may be located by Grid Reference SP467981. The site is broadly L-shaped, covering an area of approximately 0.1 hectares. At the time of the investigation, the site was predominately covered by a combination of soil and crushed materials.

The site work was carried out on the 31st January 2014, during which five trial pits were dug by machine excavator across the site, with representative disturbed samples taken and selected samples dispatched to the laboratory for analysis. The suite of chemical analyses has been based upon the findings of the desk study, to investigate the potential sources of contamination identified in the conceptual model.

The risk assessment identifies that 'source – pathway – receptor' linkages potentially occur with benzo(a)pyrene impacting upon human health. Concentrations are not significantly elevated above screening levels and appear to be constrained to one corner of the site. End users are the main receptor of concern. Hydrocarbon concentrations in WS05 would also inhibit the use of polyethylene water supply pipes.

Only the gardens of Plots 1 & 2 are deemed to require formal remediation. Considering the scale of work required, a simple capping layer of 'inert' material should be provided to break the pathway between the identified contamination and end users of the site. A layer of 600mm of clean cover is recommended for the gardens of Plots 1 and 2, with appropriate verification on completion.

CONTENTS

EXECUTIVE SUMMARY

1.0 INTRODUCTION 3

2.0 SITE SETTING 4
2.1 Site Location 4
2.2 Site Description 4
2.3 Site History and Geological Setting 4

3.0 SITE WORK 5

4.0 LABORATORY TESTS 6
4.1 Chemical Testing 6

5.0 GROUND CONDITIONS ENCOUNTERED 7
5.1 Sequence 7
5.2 Made Ground 7
5.3 Wigston Member 7
5.4 Groundwater 7

6.0 GEOENVIRONMENTAL RISK ASSESSMENT 8
6.1 Contaminated Land 8
6.2 Site History 8
6.3 Risk Assessment – Human Health 8
6.4 Risk Assessment - Controlled Waters 9
6.5 Gas Generation 9
6.6 Protection Of Services 9
6.7 Conceptual Site Model – Revised 10
6.8 Summary of Risk Evaluation 10
6.9 Waste 10

7.0 MANAGEMENT OF CONTAMINATION 11
7.1 Remediation 11
7.2 Verification 12
7.3 Management of Unidentified Sources of Contamination 12
7.4 Consultation 13
7.5 Risk Management During Site Works 13

8.0 REFERENCES 14

APPENDIX 1 - DRAWINGS
Figure A1.1 - Site Location Plan
Figure A1.2 - Exploratory Hole Location Plan

APPENDIX 2 - SITE WORK
General Notes on Site Work ii/i-ii/i
Figures 11175.TP01-TP05 - Trial Pit Records

APPENDIX 3	-	GEOENVIRONMENTAL TESTS	
		General Notes on Geoenvironmental Tests	iii/i-iii/i
Test Report 14-98038-1	-	Results of Contamination Tests – Soils	
	-	HazWasteOnline^{tm} Output Sheets	
APPENDIX 4	-	GEOENVIRONMENTAL ASSESSMENT	
		General Notes on Chemical Contamination	iv/i-iv/v

1.0 INTRODUCTION

1.1 On the instructions of Hayward Architects Ltd, architects to Mr E Grove, an investigation was undertaken to determine ground conditions and enable a geoenvironmental risk assessment.

1.2 It is understood that it is proposed to develop the site for residential housing with associated hardstanding for access and parking, landscaping and private gardens.

1.3 This report should be read in conjunction with the Preliminary Investigation Report (PIR) which was reported under reference 21175 in January 2014.

1.4 It is recommended that a copy of this report be submitted to the relevant authorities to enable them to carry out their own site assessments and provide any comments.

1.5 This report has been prepared for the sole use of the Client for the purpose described and no extended duty of care to any third party is implied or offered. Third parties using any information contained within this report do so at their own risk.

1.6 The comments given in this report and the opinions expressed herein are based on the information received, the conditions encountered during site works, and on the results of tests made in the field and laboratory. However, there may be conditions prevailing at the site which have not been disclosed by the investigation and which have not been taken into account in the report.

1.7 The comments on groundwater conditions are based on observations made at the time the site work was carried out. It should be noted that groundwater levels vary owing to seasonal or other effects.

2.0 SITE SETTING

2.1 Site Location

2.1.1 The site is situated at situated towards the northeast side of Earl Shilton, approximately 10 km to the south west of the town centre of Leicester and may be located by Grid Reference SP467981.

2.1.2 A site location plan is included in Appendix 1, Figure A1.1.

2.2 Site Description

2.2.1 The site is broadly L-shaped, covering an area of approximately 0.1 hectares. At the time of the investigation, the demolition ongoing at the time of the walkover survey, detailed in the PIR, was now complete, with the site predominately covered by a combination of soil and crushed materials.

2.2.2 An exploratory hole location plan is given in Appendix 1, Figure A1.2

2.3 Site History and Geological Setting

2.3.1 The historical review, detailed in the PIR, indicates the site to have been occupied by workshops and then a factory from the earliest available maps. Whilst the surrounding area is mainly residential, there have been a number of industrial buildings surrounding and adjoining the site, including a boot and hosiery manufacturers to the south.

2.3.2 The geological map indicates the site to be underlain by superficial sand and gravel deposits of the Wigston Member, underlain by mudstone of the Gunthorpe Member.

3.0 SITE WORK

3.1 The site work was carried out on the 31st January 2014. The locations of the exploratory holes have been planned to give general coverage across the site, primarily in areas of gardens, with TP01 located adjacent to a historical above-ground fuel storage tank.

3.2 The site work has been carried out on the basis of the practices set out in BS 10175:2011, ref. 8.1, BS 5930:1999 ref. 8.2 and BS EN 1997-2:2007, ref 8.3. Additional references are noted within the table.

Exploratory Hole Type	Quantity	Hole Reference	Depths	Notes
Trial pits – machine excavated	5	TP01 to TP05	1.50m to 2.0m	TP01 to target former fuel storage tank, remainder to provide general coverage of site

3.3 The positions of the above are shown on the exploratory hole location plan, Appendix 1, Figure A1.2.

3.4 The depths of the exploratory holes, descriptions of strata encountered and comments on groundwater conditions are given in the site work records in Appendix 2.

3.5 Representative disturbed samples were taken, ref.8.4, at the depths shown on the exploratory hole records and dispatched to the laboratory. Samples for environmental purposes were collected in appropriate containers and retained in cool boxes.

3.6 The ground levels at the exploratory hole locations were not determined.

4.0 LABORATORY TESTS

4.1 Chemical Testing

4.1.1 The suite of chemical analyses has been based upon the findings of the desk study, to investigate the potential sources of contamination identified in the conceptual model. The chemical analyses were carried out on eight samples of soil. The nature of the analyses is detailed below:

- 8 No. Metals suites:
  - Arsenic, Cadmium, Chromium (total & hexavalent), Lead, Mercury, Selenium, Copper, Nickel, Zinc
- 6 No. Total petroleum hydrocarbons (TPH) – CWG bandings
- 8 No. Polycyclic aromatic hydrocarbons (PAH) – USEPA 16 suite
- 6 No. Polychlorinated biphenyls (PCB)
- 7 No. Sulphate contents – water soluble
- 8 No. pH values
- 8 No. Organic matter contents
- 6 No. Asbestos screens
- 3 No. Asbestos quantifications

4.1.2 The soil testing was carried out in accordance with the MCERTS performance standard, ref. 8.7, and the results are shown in Appendix 3, Test Report 14-98038-1.

5.0 GROUND CONDITIONS ENCOUNTERED

5.1 Sequence

5.1.1 The sequence of the strata encountered during the investigation generally confirms the anticipated geology as interpreted from the geological map. Interpolation of strata depths between locations should be undertaken with caution, particularly for depths of Made Ground where structures are still present at the time of the investigation.

5.1.2 The sequence and indicative thicknesses of strata are provided below:

Strata Encountered	Depth Encountered (m)		Strata Thickness (m)
	From	To	
Made Ground	0.00	0.40 to 1.90	0.40 to 1.90
Wigston Member	0.40 to 1.90	>1.50 to >2.00	Unproven
Gunthorpe Member	Not encountered		

5.2 Made Ground

5.2.1 Made Ground was encountered as a surface layer across the site, generally ranging from ground level to between 0.40m and 0.80m in depth and up to 1.90m in TP05. This was consistently a gravelly sand, with much brick and concrete, attributed to reworking following demolition and removal of buildings and the concrete slab.

5.2.2 The Made Ground in TP05 included much more part and whole brick, including cemented wall sections. Based on the additional thickness encountered, it is a possibility that this may be an infilled cellar or basement area.

5.2.3 There was no visual or olfactory evidence in any of the locations of significant contamination in the Made Ground, including in TP01, closest to the former fuel storage tank.

5.3 Wigston Member

5.3.1 All pits encountered the Wigston Member underlying any Made Ground present. This generally comprised a gravelly sand, becoming a gravel with depth.

5.3.2 In TP04, this was encountered as a sandy gravelly clay before becoming a gravelly sand by 1.60m. This clay was not encountered elsewhere, implying it is quite localised.

5.4 Groundwater

5.4.1 Groundwater was not encountered in any of the exploratory holes.

6.0 GEOENVIRONMENTAL RISK ASSESSMENT

6.1 Contaminated Land

6.1.1 The definition of 'contaminated land', along with the relevant details on legislation and guidance is set out in Appendix 4.

6.2 Site History

6.2.1 The site is indicated to have been occupied by light industrial workshops and then a factory from the earliest historical maps. These include carton, box and ceramics manufacturers. Adjacent buildings are primarily residential, although textiles manufacturers have been historically present immediately south of the site.

6.3 Risk Assessment – Human Health

6.3.1 The proposed development consists of a six plot residential development with private gardens. The risk assessment has therefore been based on guidelines for a residential end use. Should the proposed development be changed in the future then further risk assessment may be required.

6.3.2 The results of the soil analyses have been compared to CLEA SGV where available, published in Environment Agency Science Reports SC050021/SR3, ref 8.11 and SC050021, ref 8.12, Generic Assessment Criteria (GAC), determined by LQM and CIEH, ref 8.13, as well as screening levels derived in-house using the CLEA Software Version 1.06, ref 8.14. All screening levels derived by Ian Farmer Associates have been determined in accordance with current legislation and guidance, as detailed in Appendix 4.

6.3.3 The results of chemical analyses have been processed in accordance with recommendations set out in the CIEH and CL:AIRE document 'Guidance on Comparing Soil Contamination Data with a Critical Concentration', ref.8.15. Where the concentrations determined on site are at or below the respective Screening Level, they are considered not to pose a risk and are removed from further consideration, unless otherwise stated. Those contaminants with observed concentrations above the Screening Level are detailed below:

Location	Depth (m)	Contaminant	Concentration (mg/kg)	Guidance Level (mg/kg)
TP1 & TP5	0.4, 0.3, 0.9	Chrysotile asbestos fibres	<0.001%	N/A
TP4	0.5	Benzo(a)pyrene	1.4	0.83-1.00
TP5	0.3		3.8	
	0.9		1.2	

6.3.4 Further statistical analysis is deemed inappropriate for the density and distribution of the results obtained.

6.3.5 Asbestos quantification has been undertaken on the three positively identified sample. All were below the Level of Detection and as such are not deemed to represent any significant risk to human health.

6.3.6 Slightly elevated benzo(a)pyrene concentrations in relation to the screening level were observed in one sample from WS04 and two from WS05 (where Made Ground was present to a deeper extent). These will be considered further in terms of limited remedial work in Chapter 7.

6.3.7 There was no evidence within TP01 of significant contamination associated with the former fuel tank.

6.4 Risk Assessment - Controlled Waters

6.4.1 The site is located on a Secondary aquifer, is not within a groundwater source protection zone and there is one groundwater abstraction within 500m of the site, located 40m from the site for farming and domestic purposes.

6.4.2 Based on the soil results, in which no significantly elevated concentrations have been observed and given the ground conditions encountered at the site and the results of this contamination assessment, it is considered that further assessment of the risks to controlled waters is not required.

6.5 Gas Generation

6.5.1 On the basis of the PIR, and the absence of any significant organic material within the Made Ground observed, no potential pollutant linkage was determined and therefore, it is considered that no special precautions need be adopted within the proposed structures to prevent the ingress of toxic gases.

6.6 Protection Of Services

6.6.1 Guidance from the UKWIR, ref 8.21, sets out the material requirements for newly laid water supply pipes within Brownfield sites. However, the exact requirements should be clarified with the relevant local water utility supplier for the site.

6.6.2 Hydrocarbon levels above the threshold for polyethylene plastic pipes are observed in one sample from TP05. Based on the proximity of this location to the main site entrance, it's likely that new supply pipes will be fed along this route and as such, polyethylene is not a suitable material for use on this site.

6.7 Conceptual Site Model – Revised

6.7.1 The conceptual model formed within the Phase 1 Desk Study has been updated to reflect the findings of the contamination risk assessment and the revised conceptual model, detailing the relevant pollutant linkages, is tabulated below:

Source	Potential Pathways	Receptor Group
Benzo(a)pyrene	• Ingestion of contaminated soil by direct contact. • Ingestion of contaminants through vegetables. • Entry of contaminants by skin or eye contact with contaminated soils or dust. • Inhalation of contaminated dust.	Humans • Site occupants[1] • Site users[1] • Construction workers[2] • Maintenance workers[1] • Neighbouring site users[2]
Hydrocarbons	• Direct contact of contaminants with building materials.	Building Materials and Services • Plastic water pipes
[1] – Assumes no remediation is undertaken [2] – Pathway exists only during the construction period		

6.8 Summary of Risk Evaluation

6.8.1 The above assessment identifies that 'source – pathway – receptor' linkages potentially occur with benzo(a)pyrene impacting upon human health. Concentrations are not significantly elevated above screening levels and appear to be constrained to one corner of the site. End users are the main receptor of concern.

6.8.2 Hydrocarbon concentrations in WS05 would also inhibit the use of polyethylene water supply pipes.

6.9 Waste

6.9.1 An initial assessment of the likely waste classification for any material to be disposed of has been conducted on the basis of the chemical test results obtained as part of the contamination risk assessment.

6.9.2 This assessment has been conducted using the HazWasteOnline^{tm} tool, ref.8.22, the output sheets from which are included within Appendix 3.

6.9.3 This initial assessment indicates all material represented by the samples tested may be disposed of to landfill as non-hazardous waste.

7.0 MANAGEMENT OF CONTAMINATION

7.1 Remediation

7.1.1 The risk management framework set out in the Model Procedures for the Management of Land Contamination, CLR 11, ref.8.23, is applicable to the redevelopment of sites that may be affected by contamination.

7.1.2 The risk management process set out in the Model Procedures has three main components:

- Risk assessment
- Options appraisal
- Implementation

7.1.3 This initial risk assessment has identified the presence of elevated benzo(a)pyrene concentrations within the Made Ground in one area of the site. Relevant pollutant linkages have been identified, as demonstrated in the updated conceptual model.

7.1.4 An important part of the risk management process is identifying and informing all stakeholders with an interest in the outcome of the risk management project. To this end, if the regulators have not yet been contacted with regard to the redevelopment of this site, it is recommended that they be supplied with a copy of all relevant reports in order to enable liaison to be undertaken with them.

7.1.5 The remediation strategy will need to review methods of reducing or controlling the identified unacceptable risks. This may be achieved by removing or treating the source of contamination, removing or modifying the pathways or removing or modifying the behaviour of the receptors, to ensure there is no significant risk of significant harm to identified receptors from the contamination known to be present, in relation to the proposed end use.

7.1.6 In areas that are to be covered by buildings or hard standing, no pathway is likely to exist between any source of contamination and the human receptors by ingestion or dermal contact, therefore no further remedial action is likely to be required.

7.1.7 As such, only the gardens of Plots 1 & 2 are deemed to require formal remediation. Considering the scale of work required, a simple capping layer of ‘inert’ material should be provided to break the pathway between the identified contamination and end users of the site. Taking into account the levels of benzo(a)pyrene present and the thickness of the Made Ground in the location of TP5, a layer of 600mm of clean cover is recommended for the gardens of Plots 1 and 2.

7.1.8 In order to minimise the impact on future maintenance workers, it is also recommended that where services are to be placed underlying the access road/parking areas, the trenches should allow the services to be surrounded with clean inert material. Polyethylene is not a suitable material for the installation of new water supply pipes.

7.2 Verification

7.2.1 A verification report will need to be submitted following implementation of the remediation strategy above, which should provide a complete record of all remedial activities conducted on site and include all the data obtained to support the remedial objectives and demonstrate that the remediation has been effective. Any unexpected conditions encountered during the remedial works should also be detailed within the verification report.

7.2.2 It is recommended that where imported topsoil is to be brought onto site, its certificate should be forwarded for review prior to importation. Once confirmed, soil should be imported and stockpiled with at least two independent samples then obtained to confirm material is fit for purpose prior to laying in gardens. The thickness of material laid in each garden should be confirmed that it meets the minimum thickness, at which time the verification report should be submitted.

7.2.3 Samples may be obtained during thickness verification if stockpiling is not practical due to site constraints during construction, although this may lead to further issues if imported material is found not to be adequate.

7.3 Management of Unidentified Sources of Contamination

7.3.1 There is the possibility that other sources of contamination may be present on site that were not detected during the investigation. Should such contamination be identified or suspected during the site clearance or ground works, these should be dealt with accordingly. A number of options are available for handling this material, which include:

- The removal from site and disposal to a suitably licensed tip of all material suspected of being contaminated. The material would need to be classified prior to disposal.

- Short-term storage of the suspected material while undertaking verification testing for potential contamination. The storage area should be a contained area to ensure that contamination does not migrate and affect other areas of the site. Depending upon the amounts of material under consideration, this could be either a skip or a lined area.

- Having a suitably experienced environmental engineer either on-call or with a watching brief for the visual and olfactory assessment of the material, and sampling for verification purposes.

7.4 Consultation

7.4.1 During the development of a contaminated site, consultation may be required for a number of reasons with a number of regulatory Authorities. The following provides an indication as to the most likely Authorities with which consultation may be required.

- **Local Authority.** There may be a planning condition regarding contamination and consultation will be required with a designated Contaminated Land Officer within the Environmental Health Department. The Local Authority is generally concerned with human health risks. Some Authorities now require 'Completion Certificates' to be signed off following remediation works.

- **Environment Agency.** Where a site is within a groundwater protection zone or has been designated as a special site, the Environment Agency is likely to be involved to ensure that controlled waters are protected.

- **National House Building Council, NHBC.** Section 4.1 of the NHBC Standards requires land management to be addressed. For a new housing development to be approved by the NHBC, any remediation will require a validation report.

7.4.2 Based on the results of any consultation, there may be specific remediation requirements imposed by one or more of the Authorities.

7.5 Risk Management During Site Works

7.5.1 During ground works, some simple measures may have to be put in place to mitigate the risk of contamination affecting the site workers and the environs. The majority of the proposed measures represent good practice for the construction industry and include:

- Informing the site workers of the contamination on site and the potential health effects from exposure. Where appropriate, the provision of suitable Personal Protective Equipment (PPE) for workers who may be potentially impacted by working in areas of the contamination.

- Ensuring good hygiene is enforced on site and washing facilities are maintained on the site. Workers are discouraged from smoking, eating or drinking without washing their hands first.

- Dust monitoring, and if necessary, suppression measures should be put into practice where contamination is becoming airborne.

7.5.2 Where contaminated materials are being removed from the site they should be disposed of at a suitably licensed landfill, with a 'duty of care' system in place and maintained throughout the disposal operations.

8.0 REFERENCES

8.1 BS 10175: 2011 '*Investigation of potentially contaminated sites. Code of practice*', British Standards Institute, 2011

8.2 BS 5930:1999+A2:2010 '*Code of practice for site investigations*', British Standards Institute, 2010

8.3 BS EN 1997, Part 2:2007, '*Eurocode 7 – Geotechnical Design – Part 2, Ground Investigation and Design*' British Standards Institute, 2007

8.4 BS EN ISO 22475-1:2006, '*Geotechnical Investigation and Testing – Sampling Methods and Groundwater Measurements*' *Part 1: Technical Principles for Execution*', British Standards Institute, 2006

8.5 BS EN ISO 14688 Part 1:2002 and Part 2:2004, '*Geotechnical Investigation and Testing – Identification and Classification of Soil*', British Standards Institute, 2004

8.6 BRE Digest 365, '*Soakaway Design*', Building Research Establishment, 2003

8.7 MCERTS '*Performance Standard for Laboratories Undertaking Chemical Testing of Soil*' v3, Environment Agency, 2006.

8.8 The Environmental Protection Act, Part IIA, Section 78, DoE 1990.

8.9 Environment Act 1995, Section 57, DoE 1995.

8.10 CLR 3, '*Documentary research on industrial sites*', Report by RPS Consultants Ltd, DoE, 1994.

8.11 Science Report SC050021/SR3 '*Updated technical background to the CLEA model*', Environment Agency, 2008

8.12 Science Report SC050021 '*Contaminants in Soil: Updated Collation of Toxicological Data and Intake Values for Humans*', Environment Agency, 2009

8.13 Nathanial P, McCaffery C, Ashmore M, Cheng Y, Gillett A, Ogden R, and Scott D '*Generic Assessment Criteria for Human Health Risk Assessment*' (2nd Edition), Land Quality Press, Nottingham, July 2009.

8.14 CLEA '*Software Version 1.06*' (downloaded from the Environment Agency website, http://www.environment-agency.gov.uk)

8.15 CIEH '*Guidance on Comparing Soil Contamination Data with a Critical Concentration*', Chartered Institute of Environmental Health (CIEH) and Contaminated Land: Applications in Real Environments (CL:AIRE), May 2008.

8.16 USEPA '*Pro UCL Version 4.00.02 software tool*'. Down loaded from USEPA website.

8.17 Shapiro, S.S and Wilk, M.B '*An Analysis of Variance Test for Normality*', Biometrika 52, 1965

8.18 Science Report SC050021/SR2 '*Human health toxicological assessment of contaminants in soil*' Environment Agency, 2009

8.19 CLR 7, '*Assessment of risks to human health from land contamination: an overview of the development of soil guideline values and related research*'. DEFRA/EA, March 2002.

8.20 CLR 10, '*The Contaminated Land Exposure Assessment Model (CLEA): Technical basis and algorithms*'. DEFRA/EA, March 2002.

8.21 UK Water Industry Research Ltd, Report 10/WM/03/21, '*Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites*', 2010.

8.22 HazWasteOnline[tm], http://www.hazwasteonline.co.uk

8.23 CLR 11, '*Model Procedures for the Management of Contaminated Land*', DEFRA and Environment Agency, 2004.

8.24 CLR 2, '*Guidance on preliminary site inspection of contaminated land*', Report by Applied Environmental, DoE 1994.

8.25 CLR 3 '*Documentary Research on Industrial Sites*', Report by RPS Consultants Ltd., DOE, 1994

8.26 CLR 8, '*Potential contaminants for the assessment of contaminated land*'. DEFRA/EA, March 2002.

8.27 Environment Agency, 2003, '*Review of the Fate and Transport of Selected Contaminants in the Soil Environment*'. Draft Technical Report P5-079/TR1. Bristol: Environment Agency

For and on behalf of Ian Farmer Associates (1998) Limited

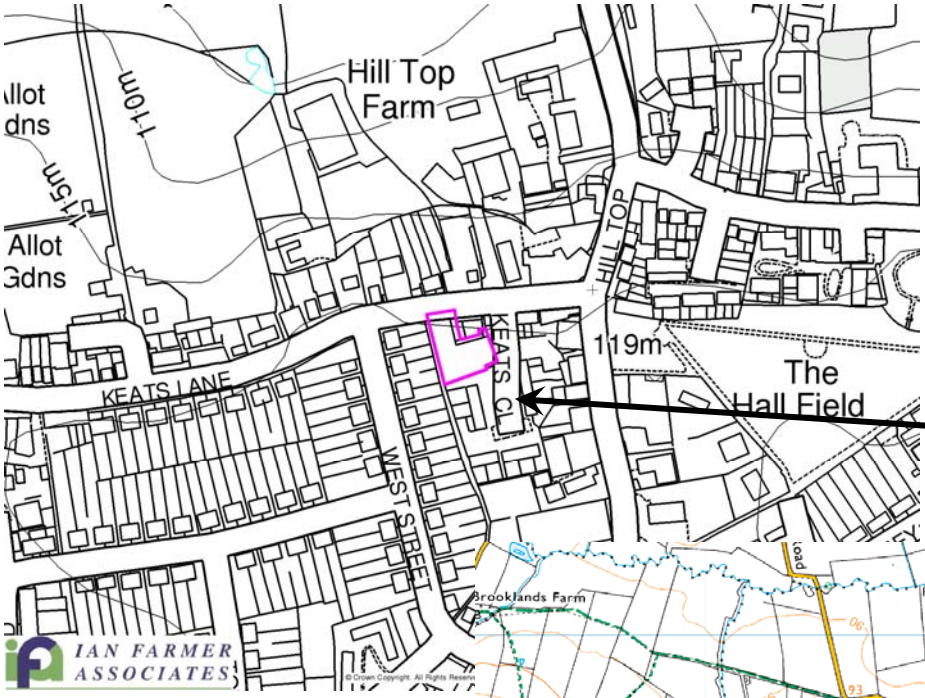
A.C Owen
MESci(Hons) MRes FGS
Principal Environmental Geologist

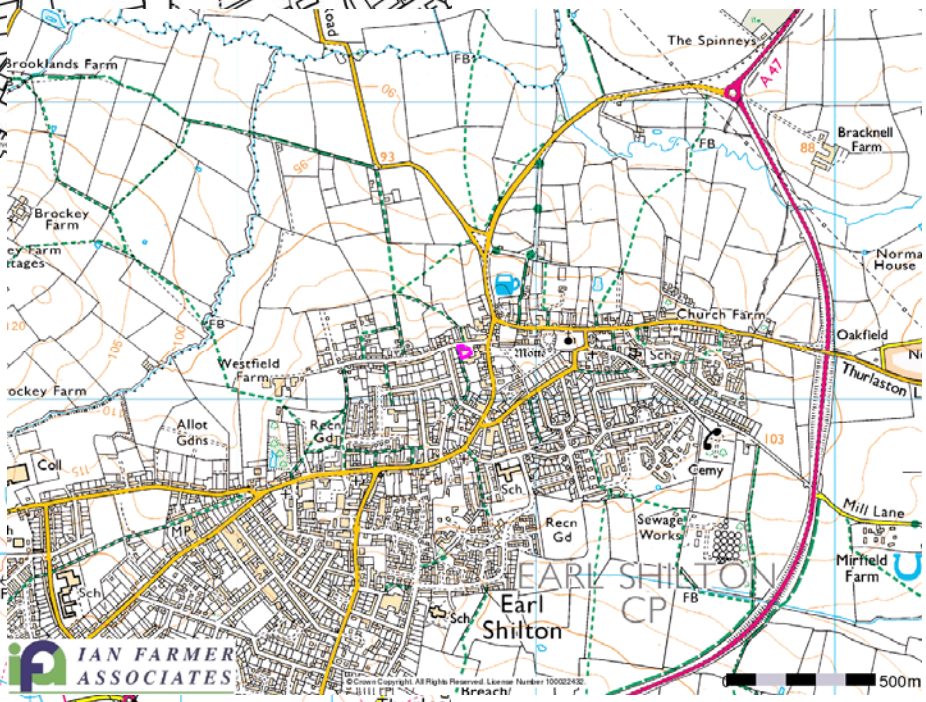
P.C.G Bailey
BEng(Hons) MSc ACSM FGS
Principal Engineering Geologist

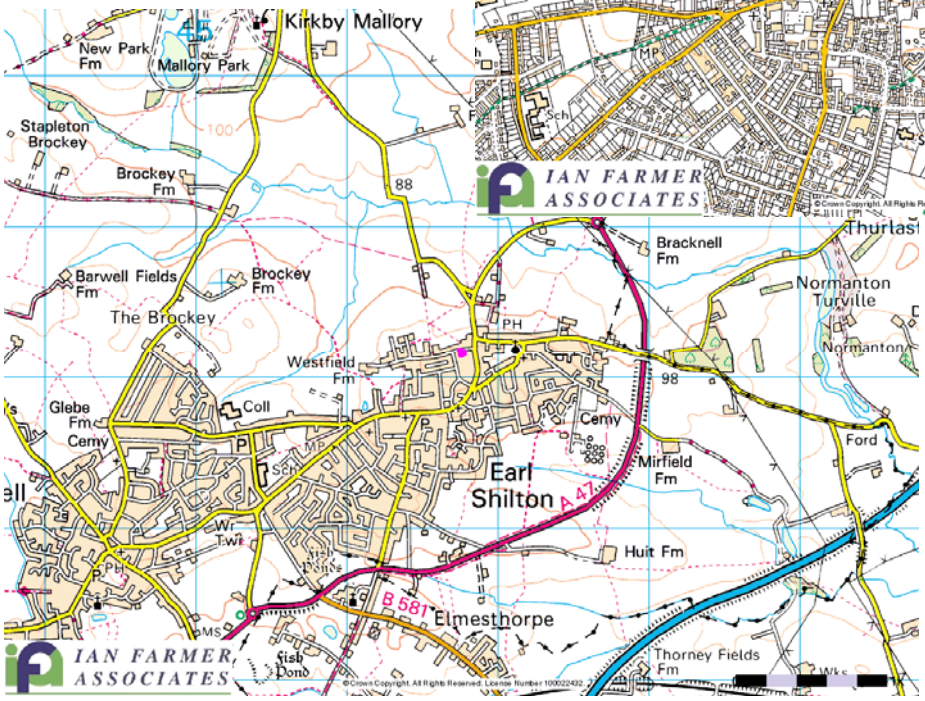
APPENDIX 1

DRAWINGS

21175
27 Keats Lane, Earl Shilton







N

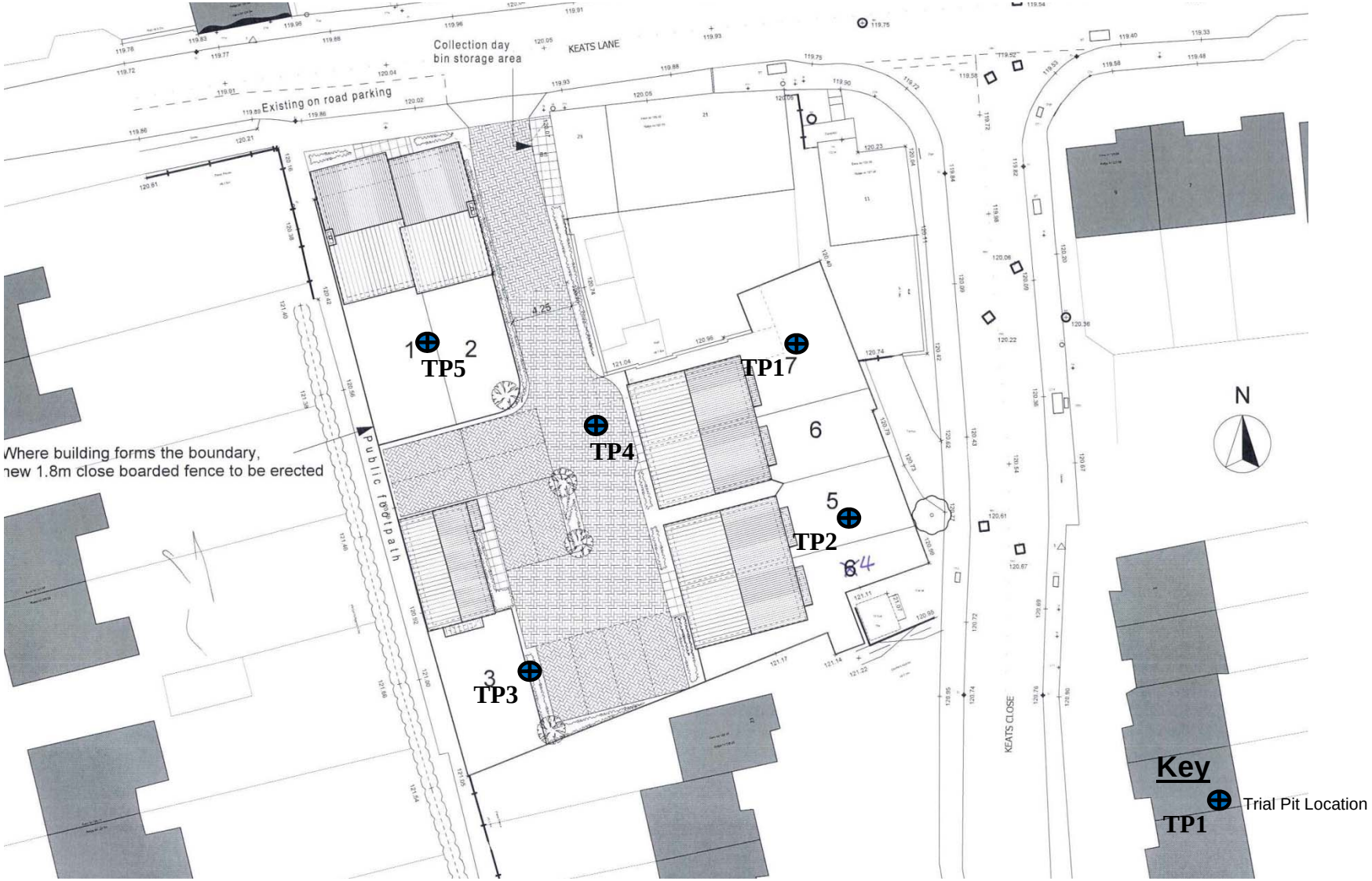
Site Location Plan

Scale: NTS

Figure A1.1

21175

27 Keats Lane, Earl Shilton



Background drawing provided by Client

Exploratory Hole Plan

Scale: NTS

Figure A1.2

APPENDIX 2

SITE WORK

APPENDIX 2

GENERAL NOTES ON SITE WORKS

A2.1 SITE WORK

A2.1.1 General

Site work is carried out in general accordance with the guidelines given in BS EN 1997, 8.3 and BS 5930, ref 8.2, and BS 10175, ref.8.1.

A2.1.2 Trial Pits

Shallow trial pits are generally dug by mechanical excavator, however, in difficult access locations or adjacent to structures, such pits may be hand dug. Pits are best used where the ground will stand unsupported and generally, the maximum depth of machine dug pits is 4m to 5m. Where personnel are required to enter pits, it is essential that side support is provided. Entry by personnel into unsupported pits deeper than 1.2m is not allowed for health and safety reasons.

Trial pits allow the in-situ condition of the ground to be examined both laterally and vertically and also allow discontinuities to be recorded. The field record should give the orientation of the pit with details of which face was logged, assessment of stability of sides of pit and groundwater as well as the strata encountered. Photographs of the pit may also be taken.

In-situ testing, such as hand penetrometer, hand vane, Macintosh probe, or similar, can be undertaken in the sides or base of pits while both disturbed and undisturbed samples may be recovered.

It is generally advisable to backfill the pits as soon as possible, open pits should not be left unattended.

A2.2 SAMPLES / TESTS

B represents large bulk disturbed samples

D represents small disturbed sample

E represents environmental sample, consisting of amber jar, vial and plastic tub

$\underline{\nabla}$ represents water strike

$\underline{\blacktriangledown}$ represents level to which water rose

A2.3 DESCRIPTION OF SOILS

A2.3.1 General

The procedures and principles given in BS EN ISO 14688 Parts 1 and 2, ref 8.5, supplemented by section 6 of BS 5930, ref. 8.2 have been used in the soil descriptions contained within this report.

IAN FARMER ASSOCIATES

Site	Trial Pit Number
27 Keats Lane	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.40m x 0.60m		Mr E Grove	21175
	Location	**Dates** 31/01/2014	**Engineer** Ian Farmer Associates (1998) Ltd	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	MADE GROUND: Brown, silty, very gravelly fine to coarse sand with cobbles. Gravel is fine to coarse, angular to rounded quartzite, mainly brick and occasional concrete. Cobbles are subangular brick and concrete.		
0.20	E1				0.25			
					(0.55)	MADE GROUND: Brown, very gravelly, clayey sand. Gravel is fine to coarse, subangular to rounded, quartzite and brick fragments.		
0.60	E2				0.80			
						Red, gravelly, silty, fine to coarse SAND. Gravel is fine to coarse, rounded quartzite. (Wigston Member)		
1.20	D1				(0.90)			
					1.70			
					(0.10)	Brown, sandy fine to coarse, subrounded to rounded GRAVEL. (Wigston Member)		
					1.80			
						Complete at 1.80m		

Plan

Remarks

Pit was dry and stable

Scale (approx)	Logged By	Figure No.
1:20	AO	21175.TP1

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

IAN FARMER ASSOCIATES

Site	Trial Pit Number
27 Keats Lane	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	1.70m x 0.60m		Mr E Grove	21175
	Location	**Dates** 31/01/2014	**Engineer** Ian Farmer Associates (1998) Ltd	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.60)	MADE GROUND: Brown, silty, ashy, gravelly, fine to coarse sand with occasional cobbles. Gravel is fine to coarse, angular to subangular mainly brick and concrete. Cobbles are brick and concrete.		
0.40	E1					At 0.40m: Concrete slab		
					0.60			
					(0.80)	Red brown, gravelly, fine to coarse SAND. Gravel is fine to coarse, subrounded to rounded quartzite, Occasional pockets of cemented brown sand. (Wigston Member)		
1.00	E2							
					1.40 (0.10) 1.50	Brown, sandy, fine to coarse, subrounded to rounded GRAVEL. (Wigston Member)		
						Complete at 1.50m		

Plan

Remarks

Pit was dry and stable.

Scale (approx)	Logged By	Figure No.
1:20	AO	21175.TP2

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

IAN FARMER ASSOCIATES

Site	Trial Pit Number
27 Keats Lane	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.10m x 0.60m		Mr E Grove	21175
	Location	**Dates** 31/01/2014	**Engineer** Ian Farmer Associates (1998) Ltd	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Brown, gravelly, fine to coarse sand with cobbles. Gravel is fine to coarse, angular to subrounded, quartzite and brick. Cobbles are part and whole brick.		
0.30	E1				0.40			
					(0.40)	Brown, gravelly, fine to coarse SAND. Gravel is fine to coarse, subrounded to rounded quartzite. (Wigston Member)		
0.70	E2				0.80			
					(0.80)	Red, gravelly fine to coarse SAND. Gravel is fine to coarse, subrounded to rounded quartzite. (Wigston Member)		
1.40	D1				1.60			
						Complete at 1.60m		

Plan

Remarks

Pit was dry and stable.

Scale (approx)	Logged By	Figure No.
1:20	AO	21175.TP3

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

IAN FARMER ASSOCIATES

Site	Trial Pit Number
27 Keats Lane	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.50m x 0.60m		Mr E Grove	21175
	Location	**Dates** 31/01/2014	**Engineer** Ian Farmer Associates (1998) Ltd	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.70)	MADE GROUND: Dark brown, gravelly fine to coarse sand with cobbles. Gravel is fine to coarse, subangular to subrounded, quartzite and brick. Whole bricks in north end of the pit.		
0.50	E1				0.70			
						Orange brown, fine to medium sandy, silty, gravelly CLAY. Gravel is fine to coarse, subrounded to rounded quartzite. (Wigston Member)		
1.00	E2				(0.90)			
1.20	D1							
					1.60			
1.70	D2				(0.20)	Red brown, clayey, gravelly, fine to coarse SAND. Gravel is fine to coarse, subrounded to rounded quartzite. (Wigston Member)		
					1.80	Complete at 1.80m		

Plan

Remarks

Pit was dry and stable.

Scale (approx)	Logged By	Figure No.
1:20	AO	21175.TP4

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

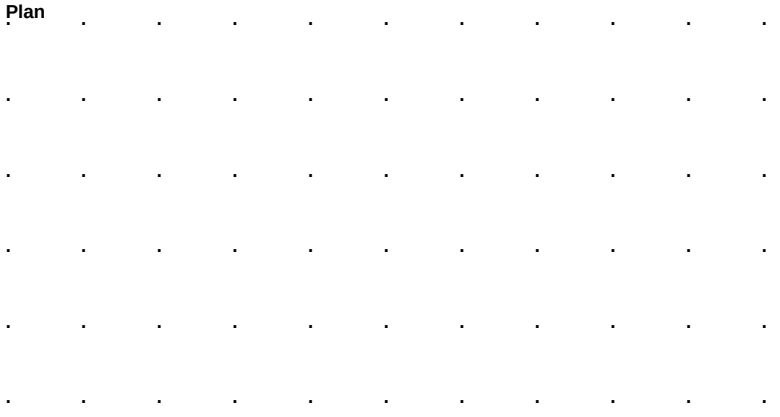
IAN FARMER ASSOCIATES

Site	Trial Pit Number
27 Keats Lane	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.30m x 0.60m		Mr E Grove	21175
	Location	**Dates** 31/01/2014	**Engineer** Ian Farmer Associates (1998) Ltd	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.60)	MADE GROUND: Brown grey, clayey, gravelly fine to coarse sand. Gravel is fine to coarse, subangular to rounded quartzite and brick.		
0.30	E1				0.60			
					(1.30)	MADE GROUND: Brown, very gravelly, sand with cobbles. Gravel is fine to coarse, angular to subrounded quartzite and brick, Cobbles are whole, part and cemented wall sections.		
0.90	E2				1.90 (0.10) 2.00	Red brown, slightly gravelly, fine to coarse SAND. Gravel is fine to coarse, subrounded to rounded quartzite. (Wigston Member)		
						Complete at 2.00m		

Plan



Remarks

Pit was dry and stable.

Scale (approx)	Logged By	Figure No.
1:20	AO	21175.TP05

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

APPENDIX 3

GEOENVIRONMENTAL TESTS

APPENDIX 3

GENERAL NOTES ON GEOENVIRONMENTAL TESTS

A3.1 ACCREDITATION

A3.1.1 Testing has been carried out to either UKAS or MCERTS accreditation, as specified in the results tables.

A3.1.2 The unique reference for each sample is as stated on the relevant engineering log. Each sample is logged on a chain of custody, and can be traced from exploratory hole to laboratory. The date of soil samples taken is as per the date shown on the engineering log.

A3.1.3 Subcontracted results are presented directly on headed paper from the subcontracting laboratory.

Derwentside Environmental Testing Services

Certificate of Analysis

Certificate Number 14-98038-1

21-Feb-14

Client	Ian Farmer Associates Unit 1 Fairfield Court Seven Stars Industrial Estate Wheler Road Coventry West Midlands CV3 4LJ
Our Reference	14-98038-1
Client Reference	21175
Contract Title	Keats Lane, Earl Shilton
Description	8 Soil samples.
Date Received	03-Feb-14
Date Started	04-Feb-14
Date Completed	21-Feb-14
Test Procedures	Identified by prefix DETSn (details on request), Asbestos Analysis DETSC 1101.
Notes	**This report supersedes 14-98038, Asbestos Quantification added**

Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING
2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

Sample ID	Depth	Lab No	Completed	Matrix Description
TP1	0.8	603286	21/02/2014	Brown gravelly SAND
TP2	0.4	603287	21/02/2014	Brown gravelly silty SAND (made ground includes brick)
TP2	1	603288	21/02/2014	Brown gravelly SAND
TP3	0.3	603289	21/02/2014	Light brown gravelly SAND
TP4	0.5	603290	21/02/2014	Dark brown silty SAND (made ground includes brick)
TP4	1	603291	21/02/2014	Light brown sandy CLAY
TP5	0.3	603292	21/02/2014	Dark brown clayey SAND (made ground includes brick)
TP5	0.9	603293	21/02/2014	Brown cream gravelly SAND

Summary of Chemical Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

			Lab No	603286	603287	603288	603289	603290	603291
			Sample ID	TP1	TP2	TP2	TP3	TP4	TP4
			Depth	0.80	0.40	1.00	0.30	0.50	1.00
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	31/01/14	31/01/14	31/01/14	31/01/14	31/01/14	31/01/14
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Metals									
Arsenic	DETSC2301#	0.2	mg/kg	7.0	8.1	11	6.5	13	5.9
Cadmium	DETSC2301#	0.1	mg/kg	0.5	0.6	0.4	1.2	0.9	0.5
Chromium	DETSC2301#	0.15	mg/kg	19	25	14	15	35	27
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC2301#	0.2	mg/kg	28	32	17	14	140	23
Lead	DETSC2301#	0.3	mg/kg	80	89	11	12	150	18
Mercury	DETSC 2325#	0.05	mg/kg	0.23	0.22	< 0.05	< 0.05	1.1	< 0.05
Nickel	DETSC2301#	1	mg/kg	12	13	11	13	24	25
Selenium	DETSC2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	2.5	< 0.5	< 0.5
Zinc	DETSC2301#	1	mg/kg	130	240	38	37	340	64
Inorganics									
pH	DETSC 2008#			7.8	8.0	6.4	7.3	7.4	7.4
Organic matter	DETSC 2002#	0.1	%	1.4	1.5	0.3	0.4	5.7	0.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	220	770	200		320	160
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	6.6	< 1.5		< 1.5	< 1.5	
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	27	< 1.2		< 1.2	7.2	
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	28	< 1.5		< 1.5	13	
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	17	< 3.4		< 3.4	110	
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	78	< 10		< 10	130	
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	2.6	< 0.9		< 0.9	< 0.9	
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	16	< 0.5		< 0.5	4.5	
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	21	< 0.6		< 0.6	17	
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	26	< 1.4		< 1.4	84	
Aromatic C5-C35	DETSC 3072*	10	mg/kg	66	< 10		< 10	110	
TPH Ali/Aro	DETSC 3072*	10	mg/kg	140	< 10		< 10	230	
PAHs									
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.9	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.4	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.7	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.8	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only implied if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

			Lab No	603286	603287	603288	603289	603290	603291
			Sample ID	TP1	TP2	TP2	TP3	TP4	TP4
			Depth	0.80	0.40	1.00	0.30	0.50	1.00
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	31/01/14	31/01/14	31/01/14	31/01/14	31/01/14	31/01/14
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.7	< 0.1
Dibenzo(a,h)anthracene	DESTC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.6	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.1
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	1.6	< 0.1
PAH	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	11	< 1.6
PCBs									
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	

Summary of Chemical Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

			Lab No	603292	603293
			Sample ID	TP5	TP5
			Depth	0.30	0.90
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	31/01/14	31/01/14
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Metals					
Arsenic	DETSC2301#	0.2	mg/kg	10	8.9
Cadmium	DETSC2301#	0.1	mg/kg	1.1	0.5
Chromium	DETSC2301#	0.15	mg/kg	38	19
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC2301#	0.2	mg/kg	75	45
Lead	DETSC2301#	0.3	mg/kg	120	59
Mercury	DETSC 2325#	0.05	mg/kg	0.31	0.17
Nickel	DETSC2301#	1	mg/kg	20	15
Selenium	DETSC2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC2301#	1	mg/kg	290	89
Inorganics					
pH	DETSC 2008#			9.7	9.7
Organic matter	DETSC 2002#	0.1	%	3.9	1.7
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	2000	250
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	0.08	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	3.9	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	20	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	32	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	150	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	200	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	0.17	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	14
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	13	2.2
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	64	0.7
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	440	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	520	17
TPH Ali/Aro	DETSC 3072*	10	mg/kg	720	17
PAHs					
Acenaphthene	DETSC 3301	0.1	mg/kg	0.2	0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	1.0	0.2
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	4.2	0.6
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	3.8	1.2
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	2.8	0.6
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.9	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	1.6	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only implied if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

			Lab No	603292	603293
			Sample ID	TP5	TP5
			Depth	0.30	0.90
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	31/01/14	31/01/14
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Chrysene	DETSC 3301	0.1	mg/kg	5.5	0.5
Dibenzo(a,h)anthracene	DESTC 3301	0.1	mg/kg	2.0	1.8
Fluoranthene	DETSC 3301	0.1	mg/kg	5.9	1.2
Fluorene	DETSC 3301	0.1	mg/kg	0.2	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	2.2	1.3
Naphthalene	DETSC 3301	0.1	mg/kg	0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	2.9	0.6
Pyrene	DETSC 3301	0.1	mg/kg	5.7	1.3
PAH	DETSC 3301	1.6	mg/kg	39	9.6
PCBs					
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
603286	TP1 0.80	SOIL	NAD	none	Andrew Little
603287	TP2 0.40	SOIL	Chrysotile	Loose Chrysotile fibres present	Andrew Little
603289	TP3 0.30	SOIL	NAD	none	Andrew Little
603290	TP4 0.50	SOIL	NAD	none	Andrew Little
603292	TP5 0.30	SOIL	Chrysotile	loose free chrysotile fibres	J Woodmansey
603293	TP5 0.90	SOIL	Chrysotile	loose free chrysotile fibres	J Woodmansey

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 14-98038-1
Client Ref 21175
Contract Title Keats Lane, Earl Shilton

		Lab No	603287	603292	603293
		Sample ID	TP2	TP5	TP5
		Depth	0.40	0.30	0.90
		Other ID			
		Sample Type	SOIL	SOIL	SOIL
		Sampling Date	31/01/14	31/01/14	31/01/14
		Sampling Time			
Test	**Method**	**Units**			
Total Mass% Asbestos (i+ii)		Mass %	**<0.001**	**<0.001**	**<0.001**
Quantification by Phase Contrast Optical Microscopy (i)	DETSC 1102	Mass %	<0.001	<0.001	<0.001
Gravimetric Quantification (ii)	DETSC 1102	Mass %	na	na	na
Breakdown of Gravimetric Analysis					
Mass of Sample		g	641.54	453.24	315.17
ACMs present*					
Mass of ACM in sample		g			
% ACM by mass		%			
% asbestos in ACM		%			
% asbestos in sample		%			
Potentially Respirable Fibres	DETSC 1102	Fibres/g	not requested	not requested	not requested

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 14-98038
Client Ref 21175
Contract Keats Lane, Earl Shilton

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
603286	TP1 0.80 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603287	TP2 0.40 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603288	TP2 1.00 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603289	TP3 0.30 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603290	TP4 0.50 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603291	TP4 1.00 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603292	TP5 0.30 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		
603293	TP5 0.90 SOIL	31/01/14	GJ 250ml (250ml), GV (40ml), PT 1L (1kg)		

Key: G-Glass P-Plastic J-Jar V-Vial T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic Matter	%	0.01	Air Dried	No	Yes	Yes
DETSC 2003	Loss on Ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2004	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETSC 2004	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETSC 2076	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETSC 2006	Chloride	mg/kg	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	0.10	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.50	Air Dried	No	Yes	Yes
DETSC 2119	Ammonia	mg/kg	0.02	Air Dried	No	Yes	Yes
DETSC 2123	Boron (Water Soluble)	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10.00	Air Dried	No	Yes	Yes
DETSC 2301	Antimony	mg/kg	1.00	Air Dried	No	No	No
DETSC 2301	Arsenic	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.50	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.10	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.70	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Iron	mg/kg	1.00	Air Dried	No	Yes	No
DETSC 2301	Lead	mg/kg	0.30	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20.00	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.40	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2301	Thallium	mg/kg	1.00	Air Dried	No	No	No
DETSC 2301	Vanadium	mg/kg	0.80	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1.00	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (Free)	mg/kg	0.50	As Received	No	Yes	Yes
DETSC 3301	PAH by GC-FID	mg/kg	0.10	As Received	No	Yes	No
DETSC 3311	TPH (C10 - C40)	mg/kg	20.00	As Received	No	Yes	Yes
DETSC 3401	PCB	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzne	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Easily Liberatable Cyanide	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Complex Cyanide	mg/kg	0.30	Air Dried	No	Yes	No
DETSC 2130	Total Cyanide	mg/kg	0.40	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 3431	VOC	mg/kg	0.01	As Received	No	No	No
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Anthracene	mg/kg	0.03	As Received	No	Yes	No
DETSC 3303	Chrysene	mg/kg	0.03	As Received	No	Yes	No
DETSC 3303	Fluorene	mg/kg	0.03	As Received	No	Yes	No

PAH by GCMS

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Job name

21175 Keats Lane

Waste stream

Default Contaminated Land

Comments

Report

Created by: Owen, Tony
Created date: 24/02/2014 11:13

Job summary

#	Sample name	Depth	Classification result	Hazardous properties
1	TP1	0.8	Non Hazardous	
2	TP2	0.4	Non Hazardous	
3	TP2[1]	1	Non Hazardous	
4	TP3	0.3	Non Hazardous	
5	TP4	0.5	Non Hazardous	
6	TP4[1]	1	Non Hazardous	
7	TP5	0.3	Non Hazardous	
8	TP5[1]	0.9	Non Hazardous	

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:11
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP1
Site:

Project:

Sample Depth:
0.8 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.0125%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Arsenic trioxide: (Cation conc. entered: 7 mg/kg, converted to compound conc.:9.242 mg/kg or 0.000924%)
Benzo[a]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[b]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Cadmium sulphide: (Cation conc. entered: 0.5 mg/kg, converted to compound conc.:0.643 mg/kg or 0.0000643%, "Note 1" conc.: 0.00005%)

Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
Chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Copper (I) oxide: (Cation conc. entered: 28 mg/kg, converted to compound conc.:31.525 mg/kg or 0.00315%)
Dibenz[a,h]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Lead chromate: (Cation conc. entered: 80 mg/kg, converted to compound conc.:124.785 mg/kg or 0.0125%, "Note 1" conc.: 0.008%)
Mercury dichloride: (Cation conc. entered: 0.23 mg/kg, converted to compound conc.:0.311 mg/kg or 0.0000311%)
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 12 mg/kg, converted to compound conc.:18.954 mg/kg or 0.0019%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 7.8 pH or 7.8 pH)
Phenanthrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: 140 mg/kg or 0.014%)
Zinc chromate: (Cation conc. entered: 130 mg/kg, converted to compound conc.:360.639 mg/kg or 0.0361%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: R36, R37, R38, N; R50/53, N; R51/53

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: R36, R37, R38, R43, N; R50/53

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R36, R37, R38, R40, R43, N; R50/53

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: R23, N; R50/53

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R51/53, R63, R65

Test settings

H3-B on R10: Force this test to non hazardous because: "Not deemed hazardous at concentrations encountered"

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Mercury dichloride"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

Test: "H5 on R20, R21, R22, R65" for determinand: "Cadmium sulphide"
Test: "H6 on R23, R24, R25" for determinand: "Cadmium sulphide"
Test: "H7 on R45" for determinand: "Lead chromate"
Test: "H10 on R60, R61" for determinand: "Lead chromate"
Test: "H10 on R62, R63" for determinand: "Lead chromate"
Test: "H11 on R68" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Substance notes

3.4.2
from section: 3.4.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

Note used on:

determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Lead chromate"
determinand: "Cadmium sulphide"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Nickel dihydroxide"
determinand: "Arsenic trioxide"
determinand: "Zinc chromate"
determinand: "Cadmium sulphide"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:10
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP2
Site:

Project:

Sample Depth:
0.4 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.0139%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Arsenic trioxide: (Cation conc. entered: 8.1 mg/kg, converted to compound conc.:10.695 mg/kg or 0.00107%)
Benzo[a]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[b]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Cadmium sulphide: (Cation conc. entered: 0.6 mg/kg, converted to compound conc.:0.771 mg/kg or 0.0000771%, "Note 1" conc.: 0.00006%)

Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
Chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Copper (I) oxide: (Cation conc. entered: 32 mg/kg, converted to compound conc.:36.028 mg/kg or 0.0036%)
Dibenz[a,h]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Lead chromate: (Cation conc. entered: 89 mg/kg, converted to compound conc.:138.824 mg/kg or 0.0139%, "Note 1" conc.: 0.0089%)
Mercury dichloride: (Cation conc. entered: 0.22 mg/kg, converted to compound conc.:0.298 mg/kg or 0.0000298%)
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:20.533 mg/kg or 0.00205%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 8 pH or 8 pH)
Phenanthrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: <10 mg/kg or <0.001%) IGNORED Because: "<LOD"
Zinc chromate: (Cation conc. entered: 240 mg/kg, converted to compound conc.:665.795 mg/kg or 0.0666%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, N; R51/53, R36, R37, R38

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: N; R50/53, R36, R37, R38, R43

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R22, R36, R37, R38, R40, R43

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R23

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R63, R65, R51/53

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Mercury dichloride"

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"

Substance notes

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Cadmium sulphide"
determinand: "Lead chromate"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Arsenic trioxide"
determinand: "Cadmium sulphide"
determinand: "Nickel dihydroxide"
determinand: "Zinc chromate"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:10
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP2[1]
Site:

Project:

Sample Depth:
1 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.00172%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Arsenic trioxide: (Cation conc. entered: 11 mg/kg, converted to compound conc.:14.524 mg/kg or 0.00145%)
Benzo[a]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[b]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Cadmium sulphide: (Cation conc. entered: 0.4 mg/kg, converted to compound conc.:0.514 mg/kg or 0.0000514%, "Note 1" conc.: 0.00004%)

Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
Chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Copper (I) oxide: (Cation conc. entered: 17 mg/kg, converted to compound conc.:19.14 mg/kg or 0.00191%)
Dibenz[a,h]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Lead chromate: (Cation conc. entered: 11 mg/kg, converted to compound conc.:17.158 mg/kg or 0.00172%, "Note 1" conc.: 0.0011%)
Mercury dichloride: (Cation conc. entered: <0.05 mg/kg, converted to compound conc.:<0.0677 mg/kg or <0.00000677%) IGNORED Because: "<LOD"
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 11 mg/kg, converted to compound conc.:17.374 mg/kg or 0.00174%)
pH: (Whole concentration entered as: 6.4 pH or 6.4 pH)
Phenanthrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
Zinc chromate: (Cation conc. entered: 38 mg/kg, converted to compound conc.:105.418 mg/kg or 0.0105%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, N; R51/53, R36, R37, R38

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: N; R50/53, R36, R37, R38, R43

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R22, R36, R37, R38, R40, R43

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R23

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"

"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

Test: "H5 on R20, R21, R22, R65" for determinand: "Cadmium sulphide"
Test: "H6 on R23, R24, R25" for determinand: "Cadmium sulphide"
Test: "H7 on R45" for determinand: "Cadmium sulphide"
Test: "H10 on R60, R61" for determinand: "Lead chromate"
Test: "H10 on R62, R63" for determinand: "Cadmium sulphide"
Test: "H11 on R68" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Substance notes

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Cadmium sulphide"
determinand: "Lead chromate"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Arsenic trioxide"
determinand: "Cadmium sulphide"
determinand: "Nickel dihydroxide"
determinand: "Zinc chromate"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:10
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP3
Site:

Project:

Sample Depth:
0.3 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinands:

Lead chromate: (compound conc.:0.00187%)
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (compound conc.:0.000375%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Arsenic trioxide: (Cation conc. entered: 6.5 mg/kg, converted to compound conc.:8.582 mg/kg or 0.000858%)
Benzo[a]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[b]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"

Cadmium sulphide: (Cation conc. entered: 1.2 mg/kg, converted to compound conc.:1.542 mg/kg or 0.000154%, "Note 1" conc.: 0.00012%)
Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
Chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Copper (I) oxide: (Cation conc. entered: 14 mg/kg, converted to compound conc.:15.762 mg/kg or 0.00158%)
Dibenz[a,h]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Lead chromate: (Cation conc. entered: 12 mg/kg, converted to compound conc.:18.718 mg/kg or 0.00187%, "Note 1" conc.: 0.0012%)
Mercury dichloride: (Cation conc. entered: <0.05 mg/kg, converted to compound conc.:<0.0677 mg/kg or <0.00000677%) IGNORED Because: "<LOD"
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:20.533 mg/kg or 0.00205%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 7.3 pH or 7.3 pH)
Phenanthrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: 2.5 mg/kg, converted to compound conc.:3.75 mg/kg or 0.000375%)
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: <10 mg/kg or <0.001%) IGNORED Because: "<LOD"
Zinc chromate: (Cation conc. entered: 37 mg/kg, converted to compound conc.:102.643 mg/kg or 0.0103%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, N; R51/53, R36, R37, R38

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: N; R50/53, R36, R37, R38, R43

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R22, R36, R37, R38, R40, R43

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R23

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R63, R65, R51/53

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite)"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"

Substance notes

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Cadmium sulphide"
determinand: "Lead chromate"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite)"
determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Arsenic trioxide"
determinand: "Cadmium sulphide"
determinand: "Nickel dihydroxide"
determinand: "Zinc chromate"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:12
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP4
Site:

Project:

Sample Depth:
0.5 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.0234%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: 0.1 mg/kg or 0.00001%)
Arsenic trioxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:17.164 mg/kg or 0.00172%)
Benzo[a]anthracene: (Whole concentration entered as: 0.9 mg/kg or 0.00009%)
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: 1.4 mg/kg or 0.00014%)
Benzo[b]fluoranthene: (Whole concentration entered as: 0.7 mg/kg or 0.00007%)
Benzo[ghi]perylene: (Whole concentration entered as: 1.8 mg/kg or 0.00018%)
Benzo[k]fluoranthene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Cadmium sulphide: (Cation conc. entered: 0.9 mg/kg, converted to compound conc.:1.157 mg/kg or 0.000116%, "Note 1" conc.: 0.00009%)
Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"

Chrysene: (Whole concentration entered as: 0.7 mg/kg or 0.00007%)
Copper (I) oxide: (Cation conc. entered: 140 mg/kg, converted to compound conc.:157.624 mg/kg or 0.0158%)
Dibenz[a,h]anthracene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Fluoranthene: (Whole concentration entered as: 1.6 mg/kg or 0.00016%)
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: 1.2 mg/kg or 0.00012%)
Lead chromate: (Cation conc. entered: 150 mg/kg, converted to compound conc.:233.972 mg/kg or 0.0234%, "Note 1" conc.: 0.015%)
Mercury dichloride: (Cation conc. entered: 1.1 mg/kg, converted to compound conc.:1.489 mg/kg or 0.000149%)
Naphthalene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Nickel dihydroxide: (Cation conc. entered: 24 mg/kg, converted to compound conc.:37.908 mg/kg or 0.00379%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 7.4 pH or 7.4 pH)
Phenanthrene: (Whole concentration entered as: 0.4 mg/kg or 0.00004%)
Pyrene: (Whole concentration entered as: 1.6 mg/kg or 0.00016%)
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: 230 mg/kg or 0.023%)
Zinc chromate: (Cation conc. entered: 340 mg/kg, converted to compound conc.:943.21 mg/kg or 0.0943%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: R36, R37, R38, N; R50/53, N; R51/53

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: R36, R37, R38, R43, N; R50/53

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R36, R37, R38, R40, R43, N; R50/53

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: R23, N; R50/53

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R51/53, R63, R65

Test settings

H3-B on R10: Force this test to non hazardous because: "Not deemed hazardous at concentrations encountered"

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Acenaphthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Pyrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Naphthalene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Dibenz[a,h]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Mercury dichloride"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]pyrene; benzo[def]chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[b]fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[ghi]perylene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[k]fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Phenanthrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

Test: "H5 on R20, R21, R22, R65" for determinand: "Cadmium sulphide"
Test: "H6 on R23, R24, R25" for determinand: "Cadmium sulphide"
Test: "H7 on R45" for determinand: "Lead chromate"
Test: "H10 on R60, R61" for determinand: "Lead chromate"
Test: "H10 on R62, R63" for determinand: "Lead chromate"
Test: "H11 on R68" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Substance notes

3.4.2
from section: 3.4.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

Note used on:

determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Lead chromate"

determinand: "Cadmium sulphide"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Arsenic trioxide"
determinand: "Zinc chromate"
determinand: "Nickel dihydroxide"
determinand: "Cadmium sulphide"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:10
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP4[1]
Site:

Project:

Sample Depth:
1 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.00281%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Arsenic trioxide: (Cation conc. entered: 5.9 mg/kg, converted to compound conc.:7.79 mg/kg or 0.000779%)
Benzo[a]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[b]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Cadmium sulphide: (Cation conc. entered: 0.5 mg/kg, converted to compound conc.:0.643 mg/kg or 0.0000643%, "Note 1" conc.: 0.00005%)

Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
Chrysene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Copper (I) oxide: (Cation conc. entered: 23 mg/kg, converted to compound conc.:25.895 mg/kg or 0.00259%)
Dibenz[a,h]anthracene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Lead chromate: (Cation conc. entered: 18 mg/kg, converted to compound conc.:28.077 mg/kg or 0.00281%, "Note 1" conc.: 0.0018%)
Mercury dichloride: (Cation conc. entered: <0.05 mg/kg, converted to compound conc.:<0.0677 mg/kg or <0.00000677%) IGNORED Because: "<LOD"
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 25 mg/kg, converted to compound conc.:39.487 mg/kg or 0.00395%)
pH: (Whole concentration entered as: 7.4 pH or 7.4 pH)
Phenanthrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Pyrene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
Zinc chromate: (Cation conc. entered: 64 mg/kg, converted to compound conc.:177.545 mg/kg or 0.0178%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, N; R51/53, R36, R37, R38

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: N; R50/53, R36, R37, R38, R43

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R22, R36, R37, R38, R40, R43

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R23

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"

Substance notes

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"

"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Cadmium sulphide"
determinand: "Lead chromate"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Arsenic trioxide"
determinand: "Cadmium sulphide"
determinand: "Nickel dihydroxide"
determinand: "Zinc chromate"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:13
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP5
Site:

Project:

Sample Depth:
0.3 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.0187%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Acenaphthylene: (Whole concentration entered as: 0.1 mg/kg or 0.00001%)
Anthracene: (Whole concentration entered as: 1 mg/kg or 0.0001%)
Arsenic trioxide: (Cation conc. entered: 10 mg/kg, converted to compound conc.:13.203 mg/kg or 0.00132%)
Benzo[a]anthracene: (Whole concentration entered as: 4.2 mg/kg or 0.00042%)
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: 3.8 mg/kg or 0.00038%)
Benzo[b]fluoranthene: (Whole concentration entered as: 2.8 mg/kg or 0.00028%)
Benzo[ghi]perylene: (Whole concentration entered as: 1.6 mg/kg or 0.00016%)
Benzo[k]fluoranthene: (Whole concentration entered as: 0.9 mg/kg or 0.00009%)
Cadmium sulphide: (Cation conc. entered: 1.1 mg/kg, converted to compound conc.:1.414 mg/kg or 0.000141%, "Note 1" conc.: 0.00011%)
Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%)
IGNORED Because: "<LOD"

Chrysene: (Whole concentration entered as: 5.5 mg/kg or 0.00055%)
Copper (I) oxide: (Cation conc. entered: 75 mg/kg, converted to compound conc.:84.442 mg/kg or 0.00844%)
Dibenz[a,h]anthracene: (Whole concentration entered as: 2 mg/kg or 0.0002%)
Fluoranthene: (Whole concentration entered as: 5.9 mg/kg or 0.00059%)
Fluorene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Indeno[123-cd]pyrene: (Whole concentration entered as: 2.2 mg/kg or 0.00022%)
Lead chromate: (Cation conc. entered: 120 mg/kg, converted to compound conc.:187.178 mg/kg or 0.0187%, "Note 1" conc.: 0.012%)
Mercury dichloride: (Cation conc. entered: 0.31 mg/kg, converted to compound conc.:0.42 mg/kg or 0.000042%)
Naphthalene: (Whole concentration entered as: 0.1 mg/kg or 0.00001%)
Nickel dihydroxide: (Cation conc. entered: 20 mg/kg, converted to compound conc.:31.59 mg/kg or 0.00316%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 9.7 pH or 9.7 pH)
Phenanthrene: (Whole concentration entered as: 2.9 mg/kg or 0.00029%)
Pyrene: (Whole concentration entered as: 5.7 mg/kg or 0.00057%)
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: 720 mg/kg or 0.072%)
Zinc chromate: (Cation conc. entered: 290 mg/kg, converted to compound conc.:804.502 mg/kg or 0.0805%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: R36, R37, R38, N; R50/53, N; R51/53

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: R36, R37, R38, R43, N; R50/53

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R22, R36, R37, R38, R40, R43

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: R23, N; R50/53

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R51/53, R63, R65

Test settings

H3-B on R10: Force this test to non hazardous because: "Not deemed hazardous at concentrations encountered"

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Fluorene"

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Phenanthrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Mercury dichloride"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Acenaphthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Pyrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[b]fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]pyrene; benzo[def]chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[k]fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[ghi]perylene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Dibenz[a,h]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Naphthalene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

Test: "H5 on R20, R21, R22, R65" for determinand: "Cadmium sulphide"
Test: "H6 on R23, R24, R25" for determinand: "Cadmium sulphide"
Test: "H7 on R45" for determinand: "Lead chromate"
Test: "H10 on R60, R61" for determinand: "Lead chromate"
Test: "H10 on R62, R63" for determinand: "Lead chromate"
Test: "H11 on R68" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Substance notes

3.4.2
from section: 3.4.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

Note used on:

determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Lead chromate"
determinand: "Cadmium sulphide"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Nickel dihydroxide"
determinand: "Arsenic trioxide"
determinand: "Zinc chromate"
determinand: "Cadmium sulphide"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

Classification

Non Hazardous Waste
Classified as **17 05 04**
in the European Waste Catalogue 2002

Classified by

Name:
Owen, Tony
Date:
24/02/2014 11:13
Telephone:
024 7630 3422

Company:
Ian Farmer Associates
1 Fairfield Court, Seven Stars Industrial Estate
Wheler Road
Coventry
CV3 4LJ

Sample details

Sample Name:
TP5[1]
Site:

Project:

Sample Depth:
0.9 m
Dry Weight Moisture Content:
0%
Comments:

EWC 2002 code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Additional: Additional Risk Phrases "This is an additional risk phrase and such a risk phrases alone will not cause a waste to be hazardous."

Risk phrases hit:

R33 "Danger of cumulative effects"

Because of determinand:

Lead chromate: (compound conc.:0.0092%)

Determinands (Dry Weight Moisture Content: 0%)

Acenaphthene: (Whole concentration entered as: 0.1 mg/kg or 0.00001%)
Acenaphthylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Anthracene: (Whole concentration entered as: 0.2 mg/kg or 0.00002%)
Arsenic trioxide: (Cation conc. entered: 8.9 mg/kg, converted to compound conc.:11.751 mg/kg or 0.00118%)
Benzo[a]anthracene: (Whole concentration entered as: 0.6 mg/kg or 0.00006%)
Benzo[a]pyrene; benzo[def]chrysene: (Whole concentration entered as: 1.2 mg/kg or 0.00012%)
Benzo[b]fluoranthene: (Whole concentration entered as: 0.6 mg/kg or 0.00006%)
Benzo[ghi]perylene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Benzo[k]fluoranthene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Cadmium sulphide: (Cation conc. entered: 0.5 mg/kg, converted to compound conc.:0.643 mg/kg or 0.0000643%, "Note 1" conc.: 0.00005%)
Chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"

Chrysene: (Whole concentration entered as: 0.5 mg/kg or 0.00005%)
Copper (I) oxide: (Cation conc. entered: 45 mg/kg, converted to compound conc.:50.665 mg/kg or 0.00507%)
Dibenz[a,h]anthracene: (Whole concentration entered as: 1.8 mg/kg or 0.00018%)
Fluoranthene: (Whole concentration entered as: 1.2 mg/kg or 0.00012%)
Fluorene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Indeno[123-cd]pyrene: (Whole concentration entered as: 1.3 mg/kg or 0.00013%)
Lead chromate: (Cation conc. entered: 59 mg/kg, converted to compound conc.:92.029 mg/kg or 0.0092%, "Note 1" conc.: 0.0059%)
Mercury dichloride: (Cation conc. entered: 0.17 mg/kg, converted to compound conc.:0.23 mg/kg or 0.000023%)
Naphthalene: (Whole concentration entered as: <0.1 mg/kg or <0.00001%) IGNORED Because: "<LOD"
Nickel dihydroxide: (Cation conc. entered: 15 mg/kg, converted to compound conc.:23.692 mg/kg or 0.00237%)
PCBs/PCTs: (Whole concentration entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
pH: (Whole concentration entered as: 9.7 pH or 9.7 pH)
Phenanthrene: (Whole concentration entered as: 0.6 mg/kg or 0.00006%)
Pyrene: (Whole concentration entered as: 1.3 mg/kg or 0.00013%)
Selenium compounds (with the exception of cadmium sulphoselenide and sodium selenite): (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.75 mg/kg or <0.000075%) IGNORED Because: "<LOD"
TPH (C6 to C40) Petroleum Group: (Whole concentration entered as: 17 mg/kg or 0.0017%)
Zinc chromate: (Cation conc. entered: 89 mg/kg, converted to compound conc.:246.899 mg/kg or 0.0247%)

User Defined and non CLP Substances

Acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no
Data source date: 16/07/2012
Classification: R36, R37, R38, N; R50/53, N; R51/53

Acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R26, R27, R36, R37, R38

Anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no
Data source date: 08/03/2013
Classification: R36, R37, R38, R43, N; R50/53

Benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53

Fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R20, R22, R36

Fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no
Data source date: 16/07/2012
Classification: N; R50/53, R53

Indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no
Data source date: 08/03/2013
Classification: R40

pH

Comments: Appendix C, C4.5
Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency
Data source date: 30/05/2008
Classification: pH; pH

Phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no
Data source date: 16/07/2012
Classification: R22, R36, R37, R38, R40, R43, N; R50/53

Pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no
Data source date: 16/07/2012
Classification: R23, N; R50/53

TPH (C6 to C40) Petroleum Group

Comments: Risk phrase data given on page A41
Data source: WM2 3rd edition, 2013
Data source date: 01/08/2013
Classification: R10, R45, R46, R51/53, R63, R65

Test settings

H3-B on R10: Force this test to non hazardous because: "Not deemed hazardous at concentrations encountered"

Notes utilised in assessment

Additional Risk Phrase Comments
from section: Table 2.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous."

Note used on:

Test: "Additional on R33" for determinand: "Lead chromate"

C14.3: Step 4
from section: C14.3 in the document: "WM2 - Hazardous Waste Technical Guidance"
"identify whether any individual ecotoxic substance is present below a cut-off value shown in Table C14.1"

Note used on:

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Nickel dihydroxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Lead chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Mercury dichloride"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Arsenic trioxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Zinc chromate"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Acenaphthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Pyrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[b]fluoranthene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Benzo[a]pyrene; benzo[def]chrysene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Phenanthrene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Dibenz[a,h]anthracene"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Copper (I) oxide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

Test: "H5 on R20, R21, R22, R65" for determinand: "Cadmium sulphide"
Test: "H6 on R23, R24, R25" for determinand: "Cadmium sulphide"
Test: "H7 on R45" for determinand: "Lead chromate"
Test: "H10 on R60, R61" for determinand: "Lead chromate"
Test: "H10 on R62, R63" for determinand: "Lead chromate"
Test: "H11 on R68" for determinand: "Cadmium sulphide"
Test: "H14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "Cadmium sulphide"

Substance notes

3.4.2
from section: 3.4.2 in the document: "WM2 - Hazardous Waste Technical Guidance"
"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

Note used on:

determinand: "TPH (C6 to C40) Petroleum Group"

Note 1
from section: 1.1.3.2, Annex VI in the document: "CLP Regulations"
"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note used on:

determinand: "Lead chromate"
determinand: "Cadmium sulphide"

Note A
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

Note used on:

determinand: "Zinc chromate"

Note E (Table 3.2)
from section: 1.1.3.1, Annex VI in the document: "CLP Regulations"
"Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'."

Note used on:

determinand: "Nickel dihydroxide"
determinand: "Arsenic trioxide"
determinand: "Zinc chromate"
determinand: "Cadmium sulphide"

Version

Classification utilises the following:
WM2 - Hazardous Waste Technical Guidance, 3rd Edition, August 2013
CLP Regulations - Regulation (EC) No 1272/2008 of the European Parliament and of the Council: 16 December 2008
1st ATP - 1st Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 26 September 2009; binding date 1 Dec 2010
2nd ATP - 2nd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 30 March 2011; binding date 1 Dec 2012 in respect of substances and 1 June 2015 in respect of mixtures
3rd ATP - 3rd Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 31 July 2012; binding date 1 Dec 2013
4th ATP - 4th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 20 June 2013; binding date 1 Jun 2015
5th ATP - 5th Adaptation to Technical Progress for European Regulation 1272/2008: Date entered into force 13 August 2013; binding date 13 Aug 2013

HazWasteOnline Engine: WM2 version 3 (Aug 2013)
HazWasteOnline Engine Version: 1.0.2399.5226 (19 Feb 2014)
HazWasteOnline Database: 1.0.2399.5226 (19 Feb 2014)

APPENDIX 4

GEOENVIRONMENTAL ASSESSMENT

APPENDIX 4

GENERAL NOTES ON GEOENVIRONMENTAL ASSESSMENT

A4.1 STATUTORY FRAMEWORK AND DEFINITIONS

A4.1.1 The statutory definition of contaminated land is defined in the Environmental Protection Act 1990, ref 8.8, which was introduced by the Environment Act 1995, ref 8.9;

'Land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) pollution of controlled waters is being, or is likely to be, caused.'

A4.1.2 The UK guidance on the assessment of contaminated has developed as a direct result of the introduction of these two Acts. The technical guidance supporting the legislation was originally summarised in a number of key documents collectively known as the Contaminated Land Reports (CLRs), a proposed series of twelve documents. Seven were originally published in March 1994, four more were published in April 2002, while the final guidance document, CLR 11, ref 8.23 was published in 2004. CLR7 to 10 were withdrawn in 2008, with CLR 9 and 10 effectively replaced by the Environment Agency in the form of Science Reports SR2, ref 8.18 and SR3, ref 8.11. CLR11 remains valid and sets out the framework of the investigation process.

A4.1.3 In establishing whether a site fulfils the statutory definition of 'contaminated land' it is necessary to identify, whether a pollutant linkage exists in respect of the land in question and whether the pollutant linkage:

- is resulting in significant harm being caused to the receptor in the pollutant linkage,
- presents a significant possibility of significant harm being caused to that receptor,
- is resulting in the pollution of the controlled waters which constitute the receptor, or
- is likely to result in such pollution.

A4.1.4 A *'pollutant linkage'* may be defined as the link between a contaminant *'source'* and a *'receptor'* by means of a *'pathway'*.

A4.2 ASSESSMENT METHODOLOGY

A4.2.1 The guidance proposes a four-stage assessment process for identifying potential pollutant linkages on a site. These stages are set out in the table below:

No.	Process	Description
1	Hazard Identification	Establishing contaminant sources, pathways and receptors (the conceptual model).
2	Hazard Assessment	Analysing the potential for unacceptable risks (what linkages could be present, what could be the effects).
3	Risk Estimation	Trying to establish the magnitude and probability of the possible consequences (what degree of harm might result and to what receptors, and how likely is it).
4	Risk Evaluation	Deciding whether the risk is unacceptable.

A4.2.2 Stages 1 and 2 develop a *'conceptual model'* based upon information collated from desk based studies, and frequently a walkover of the site. The walkover survey should be conducted in general accordance with CLR 2, ref 8.24. The formation of a conceptual model is an iterative process and as such, it should be updated and refined throughout each stage of the project to reflect any additional information obtained.

A4.2.3 The extent of the desk studies and enquiries to be conducted should be in general accordance with CLR 3, ref 8.10. The information from these enquiries is presented in a desk study report with recommendations, if necessary, for further work based upon the conceptual model. In the absence of specific information on contamination anticipated to be encountered, specific DoE 'Industry Profiles' provide guidance on the nature of contaminants relating to a variety of industrial processes and should be used as the basis for determining which contaminants are more likely to be present on a site.

A4.2.4 If potential pollutant linkages are identified within the conceptual model, a Phase 2 site investigation and report will be recommended. The investigation should be planned in general accordance with CLR 4. The number of exploratory holes and samples collected for analysis should be consistent with the size of the site and the level of risk envisaged. This will enable a generic quantitative risk assessment (GQRA) to be conducted, at which point the conceptual model can be updated and relevant pollutant linkages can be identified.

A4.2.5 A two-stage investigation may be more appropriate where time constraints are less of an issue. The first stage investigation being conducted as an initial assessment for the presence of potential sources, a second being a more refined investigation to delineate wherever possible the extent of the identified contamination.

A4.2.6 All site works should be in general accordance with the British Standards, BS 5930:2010, ref. 8.2, BS EN 1997, ref 8.3 and BS 10175:2011, ref 8.1.

A4.2.7 The GQRA screens the results of the chemical analysis against generic guidance values, appropriate to the end-use of the site. Soils will be compared to Soil Guideline Values (SGV) where published, Generic Assessment Criteria (GAC) developed by LQM/CIEH, ref 8.13, or internal screening values generated using the Contaminated Land Exposure Assessment (CLEA) Software, Version 1.06, ref 8.14. Toxicological and physico-chemical/fate and transport data used to generate the AC has been derived from a hierarchy of data sources as follows:

1. Environment Agency or Department of Environment Food and Rural Affairs

   (DEFRA) documents;

2. Other documents produced by UK Government or state organisations;

3. European institution documents;

4. International organisation documents;

5. Foreign government institutions.

A4.2.8 For many of the contaminants considered, input data has been drawn from the relevant SGV where available, or existing toxicological reports published by the Environment Agency which have not yet been withdrawn/replaced. Fate and transport data has been derived in the first instance from Environment Agency (2008), ref 8.27.

A4.2.9 Recommendations for tolerable intakes of lead are based on evaluation of the relationship between exposure and blood lead levels. The existing toxicological report for lead considers a health criteria value based on an uptake dose, whereas the CLEA model estimates exposure in terms of an intake dose. At present, the CLEA model is not considered appropriate for determining a screening value for lead. In the absence of a

current published assessment criterion, the SGV for lead reported in R&D Publication CLR 10 ref 8.20 have been used in this assessment. This will be updated in due course in light of any further published information.

A4.2.10 Chemical laboratory test results are processed as follows. A statistical analysis of the results may be conducted, as detailed in CIEH and CL:AIRE 'Guidance on Comparing Soil Contamination Data with a Critical Concentration', ref 8.15. Individual concentrations are compared to the selected guideline values to identify concentrations of contaminants that are above the selected screening criteria. This is only undertaken on sample populations of a suitable quantity and distribution.

A4.2.11 Initially the distribution of the data set may be tested using the Shapiro-Wilk normality test, ref 8.17 to determine if the data set is, or is not, normally distributed. Where the distribution of the data is shown to be normal, the mean value test is applied to determine whether the mean characteristics of the selected soil unit present a significant possibility of significant harm to human health. Where the data is not normally distributed a method based on the Chebychev Theorem can be applied to test the same hypothesis. The significance of the data is further tested using the maximum value test. This determines whether the highest recorded contaminant concentrations are from the same statistical distribution or whether they may represent a 'hot spot'.

A4.2.12 Where the risk estimation identifies significant concentrations of one or more contaminants, a further risk evaluation needs to be undertaken.

A4.2.13 The risk evaluation will address the potential pollutant linkages between an identified source of contamination and the likely receptors both on and off site.

A4.2.14 The potential receptors include:

1) Humans – current site occupants, construction workers, future site users and neighbouring site users.

2) Controlled Waters – surface water and groundwater resources

3) Plants – current and future site vegetation

4) Building materials

A4.2.15 The potential hazards to be considered in relation to contamination are:

a) Ingestion and inhalation.

b) Uptake of contaminants via cultivated vegetables.

c) Dermal contact

d) Phytotoxicity (the prevention or inhibition of plant growth)

e) Contamination of water resources

f) Chemical attack on building materials and services

g) Fire and explosion

A4.2.16 Dependent on the outcome of the initial, generic contamination risk assessment, further detailed assessment of the identified risks may be required.

A4.3 Generic Guidance Values Used Within Contamination Risk Assessment

Residential End Use

	Determinant	Guidance Value (mg/kg)	Guidance Value (mg/kg)	Guidance Value (mg/kg)	Primary Data Source
		1% SOM	2.5% SOM	6% SOM	
PAH	Acenaphthene	210	480	1000	LQM CIEH GAC
	Acenaphthylene	170	400	850	
	Anthracene	2300	4900	9200	
	Benz(a)anthracene	3.1	4.7	5.9	
	Benzo(a)pyrene	0.83	0.94	1	
	Benzo(b)fluoranthene	5.6	6.5	7	
	Benzo(ghi)perylene	44	46	47	
	Benzo(k)fluoranthene	8.5	9.6	10	
	Chrysene	6	8	9.3	
	Dibenzo(ah)anthracene	0.76	0.86	0.90	
	Fluoranthene	260	460	670	
	Fluorene	160	380	780	
	Indeno(123-cd)pyrene	3.2	3.9	4.2	
	Napthalene	1.5	3.7	8.7	
	Phenanthrene	92	200	380	
	Pyrene	560	1000	1600	
Metals	Arsenic	32			EA 2009
	Beryllium	51			LQM CIEH GAC
	Boron	291			LQM CIEH GAC
	Cadmium	10			EA 2009
	Chromium (III)	3000			LQM CIEH GAC
	Chromium (VI)	4.3			LQM CIEH GAC
	Copper	2330			LQM CIEH GAC
	Lead	450			CLEA SGV 10
	Inorganic Mercury	169			EA 2009
	Nickel	130			EA 2009
	Selenium	350			EA 2009
	Vanadium	75			LQM CIEH GAC
	Zinc	3750			LQM CIEH GAC

[1] SOM – Soil Organic Matter

A4.3.1 Generic Assessment Criteria for Petroleum Hydrocarbons

Residential	Guidance Value (mg/kg)	Guidance Value (mg/kg)	Guidance Value (mg/kg)	Primary Data Source
	1% SOM	2.5% SOM	6% SOM	
Aliphatic				
EC 5-6	30	55	110	LQM CIEH GAC
EC >6-8	73	160	370	
EC >8-10	19	46	110	
EC >10-12	93 (48)	230 (118)	540 (283)	
EC >12-16	740 (24)	1700 (59)	3000 (142)	
EC >16-35	45000 (8.48)	64000 (21)	76000	
EC >35-44				
Aromatic				
EC 5-7 (benzene)	65	130	280	LQM CIEH GAC
EC >7-8 (toluene)	120	270	611	
EC >8-10	27	65	151	
EC >10-12	69	160	346	
EC >12-16	140	310	593	
EC >16-21	250	480	770	
EC >21-35	890	1100	1230	
EC >35-44				
Aliphatic and Aromatic				
EC >44-70	1200	1300		LQM CIEH GAC
BTEX				
Benzene	0.08	0.18	0.33	EA 2009
Toluene	119	319	611	EA 2009
Ethylbenzene	65.2	183	354	EA 2009
Xylenes	45.2	126	230	EA 2009

SOM = Soil Organic Matter
Values in brackets indicate the solubility or vapour saturation limit where this is exceeded by the GAC
Residential xylene screening values are based on data for p-xylene