Preliminary Waste Classification Assessment

Twickenham Station Car Park, St Marys Terrace, Twickenham

December 2015

Waterman Infrastructure & Environment Limited
Pickfords Wharf, Clink Street, London SE1 9DG, United Kingdom
www.watermangroup.com

Preliminary Waste Classification Assessment

Twickenham Station Car Park, St Marys Terrace, Twickenham

Client Name: Waterman Structures
Document Reference: WIE11251-101-R-3-1-2-BG
Project Number: WIE11251

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
3-1-2	December 2015	Ben Greenfield	Kerstin Hagenhoff	Carl Slater

Comments

Our Markets

Property & Buildings

Transport & Infrastructure

Energy & Utilities

Environment

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

Tables

Appendices

1. Introduction

1.1 Objectives

Waterman Structures instructed Waterman Infrastructure & Environment Limited ("Waterman") to undertake a Preliminary Waste Classification Assessment (PWCA) for the proposed redevelopment of Twickenham Station Car Park, St Marys Terrace, Twickenham, London (hereafter termed "the Site").

This assessment follows on from the Desk Study and Specification (EED11251-101-S-2-1-4-BG, dated August 2015).

1.2 Proposed Development and Current Site Use

The Site's current use comprises a car park, located to the south of the railway line and to the west of Twickenham Station. The Site is surfaced with bituminous material with the exception of small areas of concrete, and a brick path. The bituminous surfacing was observed to be in poor condition with a number of cracks and gravel filled potholes. No visual evidence of hydrocarbon contamination was identified at the time of the walkover.

The proposed redevelopment, comprises renovation of the existing car park to the standards set out in Level 3: The Design of Car Parks, for Railway Stations and Depots, Network Rail. At the time of this report, a detailed design for the proposed development was not available. However, it is considered likely that material will be excavated and disposed off-site during the redevelopment works.

1.3 Constraints

The assessment was undertaken in accordance with the scope agreed between Waterman and Waterman Structures as documented in Waterman's fee letter (EED11251-101.F.003.KH, dated July 2015), and with Waterman's standard Terms of Appointment.

The information contained in this report is based on the findings of the Desk Study and Specification (Report Ref. EED11251-S-2-1-4-BG, dated August 2015), and the factual report produced by RSK (Report Ref. 28006.02(00), dated November 2015).

Constraints to the investigation include:

The site investigation differed markedly from the Site Investigation Specification. As a result the waste classification assessment is less robust. The PWCA detailed within this report should be used as an indication of Site conditions only, and is not intended to be relied upon to classify material disposed off-site.

The ground conditions reported relate only to the point of excavation and do not necessarily guarantee a continuation of the ground conditions throughout the non-inspected area of the site. Whilst such exploratory holes would usually provide a reasonable indication as to the general ground conditions, these cannot be determined with complete certainty.

Waterman has endeavoured to assess all information provided to them during this investigation, but makes no guarantees or warranties as to the accuracy or completeness of this information.

The scope of this site investigation includes an assessment of the presence of asbestos containing materials in the ground at the Site but not within buildings or structures or below ground structures (basements, buried service ducts and the like).

The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the Site.

2. Procedures

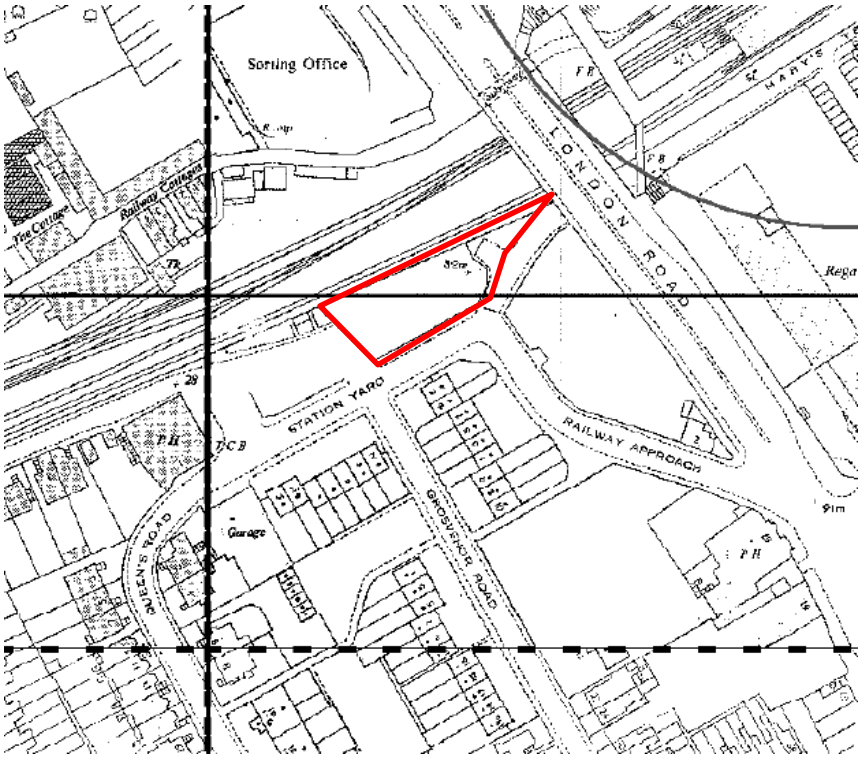
This PWCA and Geotechnical Assessment includes the following;

- Results of the intrusive ground investigation;
- The results of a PWCA undertaken on the soil results;
- Assessment of the geotechnical testing carried out; and
- Recommendations for further action if required.

3. Site Setting

3.1 Site History

Figure 1: Historical Site Use



Source: Additional SIMS 1977 (1:1,250)

A review of historical maps obtained from the Landmark Information Group has been undertaken, and a summary of the relevant information is shown in chronological order in Table 1.

Table 1: History of the subject Site

Source	Site	Surrounding area
Middlesex 1880 1:2,500	Part of a railway station	Railway lines bordered the Site to the north, with a brewery beyond. Residential developments bordered the Site to the south and east. An orchard was present 100-150m to the west and south west A public house bordered the Site directly to the south east.
Surrey 1891 1:2,500	No significant change	No significant change

Source	Site	Surrounding area
London 1896 1:2,500	The station was denoted as Twickenham Junction	Albany Hotel, 25m to the south west An engine shed was present on the northern side of the railway lines. Timber Yard, 350m to the east Disused cemetery 300m to the east St John's Hospital, 350m to the east
Middlesex 1914 1,2,500	No significant change	Motor Works, 375m to the south east
Middlesex 1934 - 1935 1,2,500	No significant change	Timber yard 350m to the east no longer present. Brewery to the north of the railway lines has been replaced by a corporation depot.
Historical Aerial Photography 1946 1,2,500	Car park for the main station building located directly to the north	No significant change.
Ordnance Survey Plan 1959 1,2,500	Car park	Unidentified works and garage 50m to the south west. Twickenham Station present, 100m to the north east.
Additional SIMs 1980 1,2,500	No significant change	Unidentified works, 50m to the south west no longer present. Corporation depot to the north of the railway lines has been replaced by a sorting office.
Large Scale National Grid Data 1991 1,2,500	No significant change	No significant change.
Large Scale National Grid Data 1996 1,2,500	No significant change	No significant change.

Historically the Site has been part of a railway station denoted as Twickenham Junction. From the historical maps the Site has been the car park, and part of the access way for the station since 1891. By 1959 Twickenham Station was built 100m to the north east replacing Twickenham Junction, which was demolished pre 1960. From 1960 up until the present day the Site has been denoted as a car park.

3.2 Geology

The Site's geology has been established from the British Geological Survey (BGS) 1:50,000 scale geological map, BGS boreholes, and intrusive investigations in the surrounding area. A summary of the geology is provided in Table 2.

Table 2: Site geology

Stratum	Area Covered	Estimated Thickness	Typical Description
Bituminous Surfacing	Whole Site	0.05m	
Car Park Construction	Whole Site	0.3 – 0.5m	Sub-base, typically comprising a gravel, dominated by concrete and brick fragments
Made ground	Whole Site	0.5 – 1.0m	Likely to comprise a brown to light brown gravelley, slightly silty sand, with fragments of brick, concrete and clinker.
Langley Silt Member	Potentially on southern part of the Site	0.60 – 1.00m	Dark brown sandy slightly gravelley clay.
Kempton Park Gravel	Whole Site	2.1-7.1m	Orange brown silty, clayey sand gravel.
London Clay Formation	Whole Site	53m	Dark grey silty sandy clay

An outcropping of the Langley Silt Member (superficial deposit) lies close to the Site's southern border. Given the relatively high scale of the geological maps, and lack of historical boreholes undertaken on-site, it is considered possible that the Langley Silt Member deposits may be encountered overlying the Kempton Park Gravels.

4. Potential Contaminative Sources

Given the history of the Site and surrounding area, the following potential contaminant sources and associated potential contaminants were considered present on-site, Table 3.

Table 3: Potential sources and associated contaminants

Potential Sources	Location	Associated Potential Contaminants
Railway station and railway tracks	Off-site	TPH, PAHs, ash, metals, herbicides, asbestos.
Car park	On-site	TPH, PAHs, VOCs, and SVOCs
Bituminous surfacing	On-site	TPH and PAHs
Made ground	On-site	Metals, PAHs, TPH, asbestos, VOCs and SVOCs

The Site's history is dominated by its use as a car park, pre and post demolition of the railway station Twickenham Junction. Therefore, the primary contaminants of concern are considered to be hotspots of TPH, and PAH contamination, arising from cars parked on-site having minor leaks. Made ground is likely to be found at limited depths on-site, given the Site's limited development history.

The Site is predominantly covered in bituminous surfacing which was potentially manufactured using coal tar binder. Coal tar contains high levels of PAH, which as a consequence may result in the bituminous surfacing being classified as hazardous waste.

A garage and unidentified works have been identified to the south of the Site. Given the anticipated groundwater level at 3.88-5.01m and the groundwater flow to the south, it is considered unlikely that contaminants originating from the garage and works to the south of the Site will be encountered within the top 1.0m of on-site material.

5. Rationale and Specific Objectives

The scope of works undertaken reflects the objectives of the intrusive investigation to characterise the ground conditions for PWCA purposes, and assess the density of the underlying soil. Further environmental and geotechnical testing may be required should the development differ from that assessed within this report.

The Site's proposed redevelopment, comprises the renovation of the existing car park to the standards set out in Level 3: The Design of Car Parks, for Railway Stations and Depots, Network Rail. As part of the works, material will be excavated and disposed off-site. This investigation will provide a preliminary assessment of the likely classification of materials to be excavated during the upgrading of the car park.

6. Methodology

The intrusive investigation work was undertaken in general accordance with BS 10175:2011, Investigation of Potentially Contaminated Sites – Code of Practice, BS 5930:1999, Code of Practice for Site Investigations, and WM3, Guidance on the Classification and Assessment of Waste.

The investigation objectives are to characterise the ground conditions for the purpose of a PWCA, and assess the density of the underlying strata, given the future redevelopment into a car park.

6.1 Design of Investigation

The investigation was designed in accordance with the guidelines provided within WM3; Guidance on the Classification and Assessment of Waste, so as to allow tendering contractors sufficient information to allow an appropriate indicative cost to be given for the required works.

The scope of works included;

- Three trial pits to a maximum depth of 1.20mbgl;
- Recovery of soil samples in accordance with the guidelines given in the Specification (EED11251-101-S-1-4, July 2015); and
- Three in-situ CBR test in accordance with the methodology provided within BS1377:1990 Part 9.

6.1.1 Exploratory Hole Location Strategy

The position of the exploratory holes were selected in order to provide good coverage of the Site. No contaminant point sources have been identified during the preliminary research.

Sampling Strategy

Within the proposed development, material will be removed as part of the renovation works. Therefore, the soil sampling strategy was to characterise the underlying ground conditions for waste classification purposes.

During the excavation works, strata thicknesses are unlikely to be segregated successfully, due to the practicalities in using heavy machinery. Therefore, the strata assessed during the intrusive investigation aimed to characterise the material associated with the car park construction, made ground, and Kempton Park Gravel Formation. It was considered likely that clear visual distinctions would be observable between the three identified strata, aiding successful segregation.

The Site area has been calculated as being approximately 2000m^2. At the time of the investigation and this report, details of the final design are not available. However based on a 0.50m Site strip, and an approximate soil weight of 1.7 tonnes/m^3, 1700 tonnes will be disposed off-site as waste. Therefore, at each trial pit location and for each identified stratum, two soil samples were taken, to ensure that each identified stratum is appropriately represented.

The bituminous surfacing present across the majority of the Site, may be constructed using a coal tar binder. Coal tar is classified as carcinogenic given the high concentrations of PAHs. As a consequence coal tar bound bituminous surfacing containing coal tar at a level of >0.1% w/w (1000mg/kg) should be classified as hazardous waste under waste code 17 03 01*. Coal tar is a complex mixture of hydrocarbon compounds and guidance within WM3 states that for road surface waste, the concentration of benzo-a-pyrene is the

relevant measure for coal tar presence. Three samples of the bituminous surfacing were taken. and tested for PAH within a laboratory.

6.2 Quality Control

The samples were despatched by RSK to Envirolab who are a UKAS accredited laboratory, for subsequent chemical analysis.

6.3 Site Activities

The intrusive investigation was undertaken by RSK Group Limited. Work undertaken included the following;

- Service scanning
- Excavation of three exploratory holes using hand digging techniques to a maximum depth of 1.2mbgl; and
- Three in-situ CBR determinations using Clegg Impact Hammer apparatus

6.4 Ground Investigation

The exploratory holes were excavated to a maximum depth of 1.2mbgl using hand digging techniques. Upon completion, excavations were backfilled as far as possible with arisings.

The sample recovery strategy is outlined in RSK's factual report included at Appendix B and was summarised by RSK as follows:

"Soil was extracted from the trial pits and placed onto an adjacent tarpaulin. The extracted material was then separated into the strata as identified by the RSK engineer on-site, and these strata were repeatedly mixed and divided so to homogenise the soil for sampling. Samples were then collected in the appropriate containers for environmental testing: plastic tubs, glass jars and glass vials."

The trial pits were excavated to 0.5m whereupon a CBR test was undertaken, using a Clegg Impact Soil Tester. The test in TP2 at 0.5m encountered an unexpected error, and so the pit was advanced to 0.6m, and the test repeated. This was to avoid re-testing the same soil.

All the trial pits and exploratory holes were logged and sampled for waste classification purposes by RSK Group Limited.

7. Results

Samples taken during trial pitting, are provided in RSK's factual report included in Appendix B. A summary of the geological strata encountered is presented below.

7.1 Geological Strata

The exploratory holes generally confirmed the anticipated geology as identified with the Desk Study and Specification. The Site was underlain be visually identifiable layers of the material used in the car park construction, made ground, and the Kempton Park Gravel Formation.

A summary of the geological strata encountered is shown in Table 4.

Table 4: Geological strata encountered

Soil Type	Depth of Top of Stratum (m bgl)	Thickness (m)	Typical Description
Hardstanding	0	0.10	Bituminous surfacing
Material used in the car park construction	0.10	0.15 – 0.25	Light brown/dark brown slightly clayey cobbly sandy GRAVEL. Very gravelley cobbly fine to coarse SAND. Gravel of subangular to rounded fine to coarse flint, asphalt, brick, and concrete.
Made Ground	0.25 – 0.35	0.45 – 0.55	Orangish Brown/grey slightly gravelley to very gravelley cobbley coarse SAND. Gravel of angular to rounded fine to coarse brick, asphalt, flint, and concrete. Becoming a yellowish brown/grey sandy slightly gravelley CLAY. Gravel angular to rounded fine to medium flint and asphalt.
Kempton Park Gravel Formation	0.60 – 0.80	>0.60	Brown to orangish brown slightly clayey gravelley cobbley fine to coarse SAND. Gravel of angular to rounded fine to coarse flint.

7.2 Chemical Analysis

The laboratory test results are presented in Appendix C.

8. Materials Management

A preliminary waste classification assessment was undertaken on the samples recovered from the trial pits.

The preliminary waste classification assessment detailed below, should be used as an indication of costs for disposal of soils off-site, and is not intended to be relied upon to classify waste for disposal.

8.1 Bituminous Surfacing

Three samples of bituminous surfacing were recovered during the investigation from TP1 at 0.00 to 0.05mbgl, TP2 at 0.00 to 0.10mbgl, and TP3 0.20 to 0.25mbgl, and were assessed using HazWasteOnline. The results of the hazard assessment are detailed within Table 5. Certificates for the relevant samples are presented in Appendix C.

Laboratory data was not assessed when the determinant concentration was below the laboratory limit of detection.

Table 5: Indicative waste classification for the bituminous surfacing samples

Location	Depth of Sample (mbgl)	EWC 2002 Catalogue Entry Code	Description (Page A20) of EWC 2002 Catalogue	Hazardous[1]	Anticipated Landfill Classification[2]	WAC Test Completed[3]
TP1	0.00 – 0.10	17 03 01*	Bituminous mixtures containing coal tar 17 03 01*	Yes	**Hazardous**	**No**
TP2	0.00 – 0.10	17 03 02	Bituminous mixtures other than those mentioned in 17 03 02	No	**Non-Hazardous**	**No**
TP3	0.20 – 0.25	17 03 01*	Bituminous mixtures containing coal tar 17 03 01*	Yes	**Hazardous**	**Yes**

The results of the HazWasteOnline assessment for bituminous surfacing recorded that the bituminous surfacing at TP1 and TP3 were hazardous waste and were likely to contain significant proportions of coal tar. The sample recovered from TP2 was classified as non-hazardous waste following the HazWasteOnline assessment. It should be noted that the trial pit log of TP2 records inclusions of coarse gravel-sized and cobble-sized concrete. It is considered possible that the inclusion of concrete in the sample resulted in a laboratory sub-sample not being representative of the bituminous surfacing. The resulting classification should therefore be interpreted with care.

In general, it is considered that the bituminous surfacing encountered during the excavation works should be classified as hazardous waste. However given, the limitations in the intrusive investigation and data reported, further sampling and testing by the contractor will be required to support this conclusion.

8.2 Preliminary Waste Classification Assessment

The results of the chemical analysis on the 6No. soil samples have been assessed using the HazWasteOnline tool. The results of the hazard assessment are presented in Table 6. Made ground samples are shaded grey, and samples of the sub-base material are shaded in light purple.

The sample collected within TP1 at 0.50-0.65mbgl is considered to be typical of reworked natural material, and has been classified as natural material for the purposes of this PWCA (shaded light green). A similar layer identified as a grey very clayey gravelley sand, or grey slightly sandy slightly gravelley clay is present at 0.70-0.80mbgl within TP2.

Samples taken within the natural material are shaded white.

Certificates for the relevant samples are presented in Appendix C.

Laboratory data was not assessed when the determinant concentration was below the laboratory limit of detection.

Table 6: Indicative Waste Classification for Recovered Soil Samples (reworked natural – light green, made ground – grey, sub-base – light purple, natural - white)

Location	Depth of Sample (mbgl)	EWC 2002 Catalogue Entry Code	Description (Page A20) of EWC 2002 Catalogue	Hazardous[1]	Anticipated Landfill Classification[2]	WAC Test Completed[3]
TP1	0.50 – 0.65	17 05 04	Soil and stones other than those mentioned in 17 04 03	No	**Non-Hazardous**	**Yes**
TP1	0.80 – 1.00	17 05 04	Soil and stones other than those mentioned in 17 04 03	No	**Non-Hazardous**	**Yes**
TP2	0.20 – 0.30	17 05 04	Soil and stones other than those mentioned in 17 04 03	No	**Non-Hazardous**	**Yes**
TP2	0.50 – 0.60	17 05 03*	Soil and stones containing hazardous substances	Yes	**Hazardous**	**Yes**
TP3	0.25 – 0.40	17 05 03*	Soil and stones containing hazardous substances	Yes	**Hazardous**	**Yes**
TP3	0.80 – 0.90	17 05 04	Soil and stones other than those mentioned in 17 04 03	No	**Non-Hazardous**	**No**

As part of the assessment 6No. soil samples were submitted for WAC analysis. The results of the WAC analysis are presented in Table 7.

Table 7: WAC Results Analysis

Location	Depth of Sample (mbgl)	Failed Criteria	Anticipated Landfill Classification[2]
TP1	0.50 – 0.65	N/A	**Inert**
TP1	0.80 – 1.00	N/A	**Inert**
TP2	0.20 – 0.30	N/A	**Inert**
TP2	0.50 – 0.60	N/A	**Hazardous**
TP3	0.25 – 0.40	N/A	**Hazardous**
TP3	0.80 – 0.90	N/A	**Inert**

WAC testing was undertaken on one sample of the reworked natural material, recovered from TP1 at 0.50-0.65mbgl. The results identified the sample to have passed the inert waste criteria. Therefore, it is considered that the natural reworked material identifiable as a grey very clayey gravelley sand, or grey slightly sandy slightly gravelley clay present below the made ground should be classed as inert waste.

One sample of sub-base material was subject to WAC testing. The WAC results recorded that the sample recovered passed the inert waste criteria. Therefore it is considered that the sub-base material underlying the hardstanding, identifiable as a light brown/dark brown cobbley slightly clayey very gravelley sand, with flint, brick, asphalt and concrete present, should be classed as inert waste.

WAC testing undertaken on made ground defined as an orangish brown slightly clayey very gravelly sand on the southern half of the Site (TP2), and light brown and dark brown slightly clayey very sandy gravel, passed the hazardous waste criteria. Therefore, it is considered that the made ground identified as sitting in-between the sub-base material and the reworked natural material, should be classed as hazardous waste.

Given, the limitations in the intrusive investigation and data reported, further sampling and testing by the contractor will be required to support these conclusions.

Two natural soils samples were assessed by the HazWasteOnline tool, which classified them as non-hazardous waste. WAC testing was subsequently undertaken on the natural material recovered from TP1 at 0.80-1.00mbgl, and TP3 at 0.80-0.90mbgl. The natural material passed the inert waste criteria. In addition, no visual or olfactory evidence of contamination was encountered during the intrusive investigation. Therefore, it is considered likely that natural material be excavated as part of the construction works it should be offered as inert waste without further testing. Subject to successful segregation from made ground or other potentially contaminative substances.

It should be noted that acceptance of the material, would be at the discretion of the landfill operator.

8.3 Summary of Findings

The findings of the Preliminary Waste Classification Assessment (PWCA) are summarised as follows;

- Excavations carried out as part of the Site re-grading works will likely encounter bituminous surfacing underlain by a made ground. It is anticipated that natural material is unlikely to be encountered should the excavations not extend beyond 0.50mbgl.
- Bituminous surfacing on-site was generally found to be hazardous. EWC code 17 03 01* is considered relevant for bituminous surfacing containing hazardous properties.

- The sub-base material and reworked natural material should be disposed of as inert;
- The made ground sitting between the sub-base material and reworked natural material should be disposed of as hazardous.
- Made ground was generally found to be hazardous. However, the inert made ground identified at TP1 should be delineated and removed separately, due its inert classification.
- Natural soils were generally found to be inert, with no olfactory or visual evidence of contamination identified.
- EWC code 17 05 04 is considered relevant for soils containing no hazardous properties. EWC code 17 05 03* is considered relevant for soils containing hazardous properties.
- Subject to appropriate segregation of natural soils during excavation and agreement with the land fill operator the natural material excavated should be classified as inert without testing and transferred under EWC code 17 05 04

9. Geotechnical Results

An assessment of the on-site's material resistance to deformation when under load was undertaken, through the use of a Clegg Impact Hammer, which records the California Bearing Ratio (CBR). A single CBR test was undertaken within all three trial pits at a depth of 0.50mbgl. The CBR results are presented in Table 8.

Table 8: CBR results

Exploratory Hole	Depth (mbgl)	CBR results
TP1	0.5	36%
TP2	0.6	23%
TP3	0.5	17%

The material present at 0.50-0.60mbgl was recorded to have CBR values in the range of 17% to 36%. It should be noted that the CBR values measured were produced using a relatively insensitive technique, Clegg Impact Hammer, and were not in compliance with BS1377:1990 Part 9 as specified in the Specification (WIE11251-2-1-4-BG). Further compaction and CBR testing should be undertaken across the Site, once the overlying material has been removed to confirm the suitability of the underlying material.

During construction, the in-situ CBR value must be checked against the Design CBR value, to confirm design requirements are being met.

10. Summary

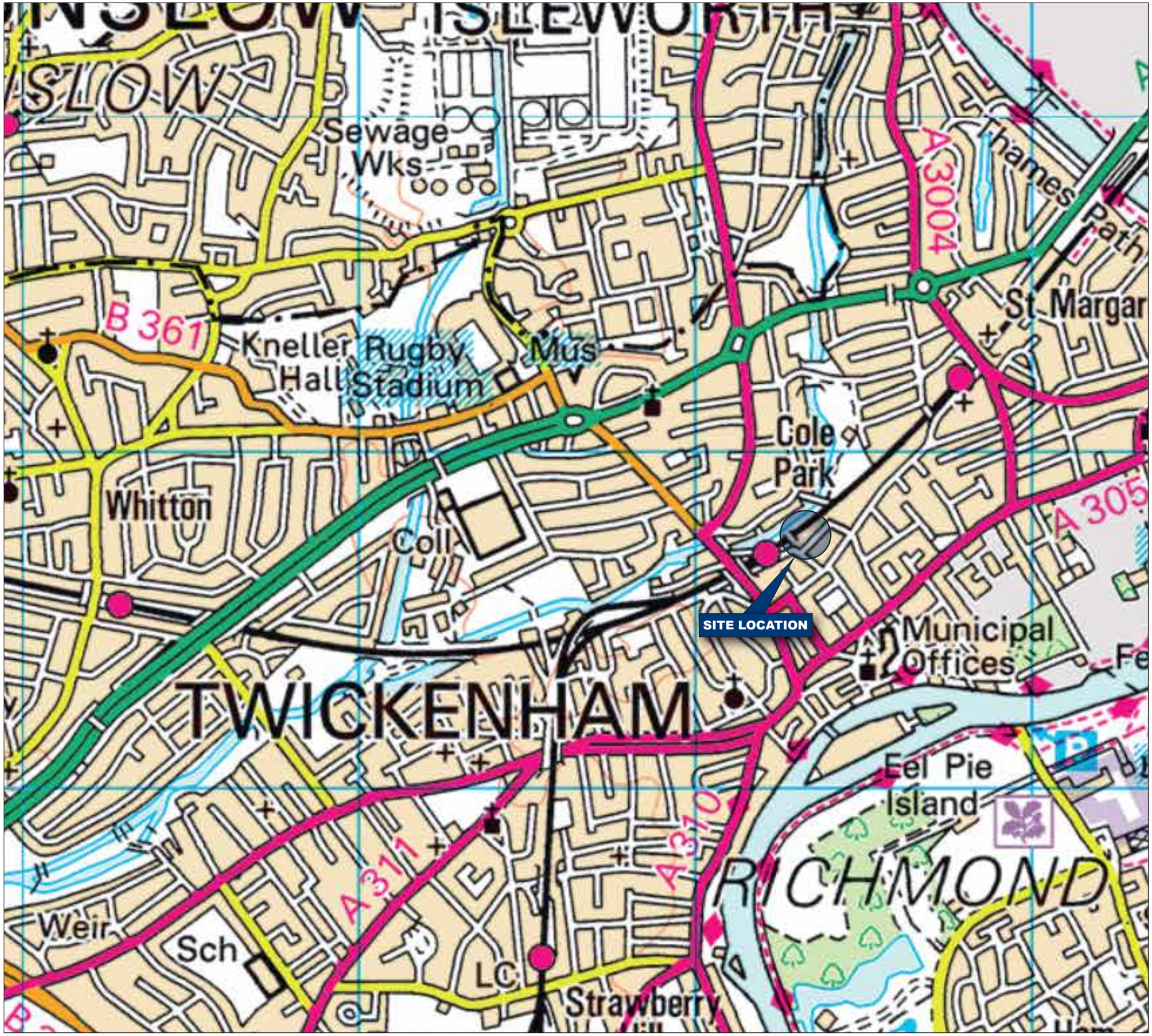
The Site investigation was largely compliant with Waterman's specification. However, variations on the strategy were noted in key areas. As a consequence, the results are not as robust as they could have been but are considered nonetheless to provide useful information.

Indicative waste classification of soils showed the bituminous surfacing to be hazardous waste based on the concentrations of PAHs and in particular benzo(a)pyrene. Made ground was classed as hazardous, and inert material.

The CBR testing results varied between 17% and 36%.

Appendix A Site Plans

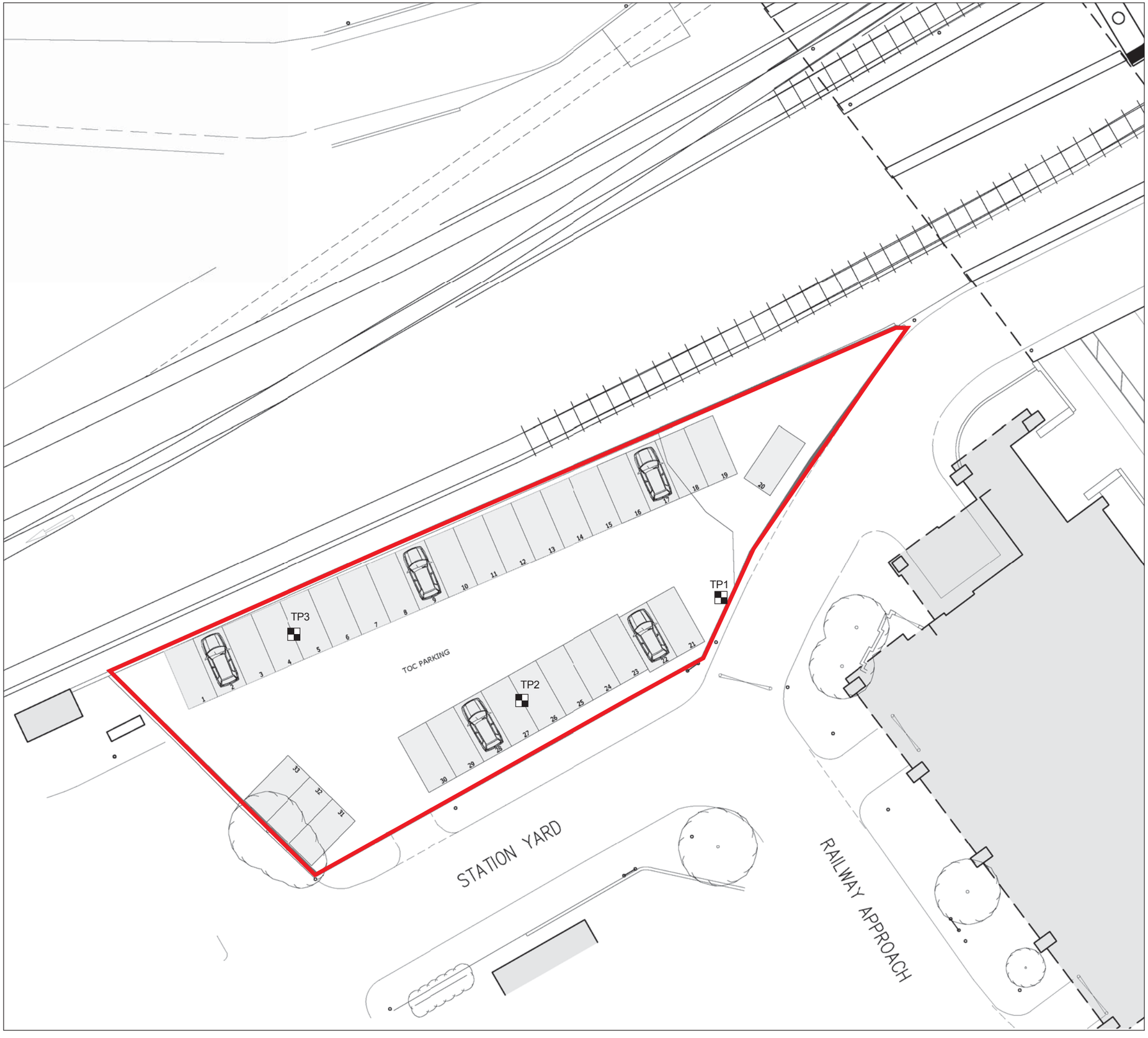
- **Site Location Plan (Fig. A1)**
- **Exploratory Hole Location Plan (Fig. A2)**



N

Project Details	WIB11251-101: Twickenham Station Road Car Park, Twickenham, London
Figure Title	Figure A1: Site Location Plan
Figure Ref	WIB11251-101_GR_GQRA_A1A
Date	December 2015
File Location	\\nt-lncs\weedl\projects\eed11251\100\graphics\pera\issued figures

www.watermangroup.com



Site Boundary

Trial Pit

N

Project Details	WIB11251-101: Twickenham Railway Station Car Park
Figure Title	Figure A2: Exploratory Hole Location
Figure Ref	WIB11251-101_GR_GQRA_A2A
Date	December 2015
File Location	\\s-lncs\weedl\projects\e11251\101\graphics\gqra\issued figures

www.watermangroup.com

Appendix B RSK Factual Report

Solum Regeneration LLP

Land off Station Yard, Twickenham, TW1 1BD

Factual Report on Ground Investigation

Project No. 28006-02(00)

DECEMBER 2015

RSK GENERAL NOTES

Project No.: 28006-02 (00)

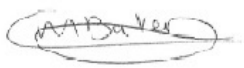
Title: Factual Report on Ground Investigation : Land off Station Yard, Twickenham, TW1 1BD.

Client: Solum Regeneration LLP

Date: 10th December 2015

Office: 18 Frogmore Road, Hemel Hempstead, HP3 9RT.

Status: Final

Author	Ziaul Hoque	**Technical reviewer**	Dave Anchor
Signature		Signature	
Date:	10th December 2015	Date:	10th December 2015
Project manager	Edward Hughes	**Quality reviewer**	Carys Baker
Signature		Signature	
Date:	10th December 2015	Date:	10th December 2015

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

RSK Environment Limited (RSK) was commissioned by Solum Regeneration LLP to carry out a ground investigation of the land north of Station Yard in Twickenham, London. The project was commissioned specifically to provide factual ground information.

This report is subject to the RSK service constraints given in **Appendix A**.

1.1 Scope

The project was carried out to an agreed brief set out by Mace Group. The works undertaken included the following tasks:

- Forming of the exploratory holes at locations determined by Waterman Group;
- Excavation of three trial pits to maximum depths of 1.0m;
- Three in-situ CBR determination using Clegg Impact Hammer apparatus;
- Collection of soil samples as per the Waterman specification;
- Factual reporting.

Details of these works are given in Section 3 of this report.

1.2 Limitations

The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable.

2 THE SITE

2.1 Site Details

2.1.1 Description & Geographic Setting

The site, which may be located by National Grid reference 516064E, 173597N, is situated on the north-east edge of Twickenham. An extract of the 1:25,000 Scale Ordnance Survey map showing the location of the site is presented in **Figure 1**.

The site, covering an approximate area of 860m^2, comprises a linear car park, bounded by a 2m high concrete fence to the north and 0.75m high wire fence running along the southern, eastern and western boundaries. The site is surfaced with bituminous material, with the exception of a number of gravel filled potholes, small areas of concrete, and a brick path. A site layout plan is presented within **Figure 2**.

The area surrounding the site is summarised in Table 1.

Table 1: Site environs

To the north:	Railway lines, with a multi-storey residential development partway through construction beyond at the time of this report;
To the east:	St Mary's Terrace and a road bridge which runs from south east to north west over the railway lines;
To the south:	Station Yard (road), beyond which lies residential housing and associated soft landscaping; and
To the west:	Disused land, beyond which lies The Albany (pub).

2.1.2 Geology

Published records for the area indicates the geology beneath the site is likely to be characterised by the succession recorded in Table 2.

Table 2: Conjectural Geological Succession beneath the Site

Geological unit	Description	Estimated thickness (m)
Kempton Park Gravel	Orange brown silty, clayey sand gravel.	Several metres
London Clay Formation	Dark grey/blue silty clay	Up to 60m
Source: BGS Website http://www.bgs.ac.uk/opengeoscience/		

In addition to the above, Langley Silt Member (superficial deposit) is noted to lie close to the site's southern border. As such, it is considered possible that the Langley Silt Member deposits may be encountered overlying the Kempton Park Gravels.

3 SITE INVESTIGATION METHODOLOGY

3.1 Rationale

The purpose of the intrusive investigation is to aid confirmation of the ground conditions underlying the area of proposed development. The techniques adopted for the investigation have been chosen in accordance with Waterman specifications.

3.2 General

The ground investigation comprised trial pits, sampling, in-situ testing and laboratory testing.

The results of the ground investigation are presented in **Appendices B and C**, which cover fieldwork and environmental laboratory testing respectively. The factual results of laboratory tests are covered by UKAS accreditation, but opinions and interpretations expressed in the report and on the fieldwork records are outside the scope of UKAS accreditation.

3.3 Fieldwork

The site work was carried out on 28th October 2013 and comprised the activities summarised in Table 3. The investigation and the soil descriptions were carried out in general accordance with BS5930:2015 - Code of Practice for Site Investigations.

Table 3: Summary of Ground Investigation Activities

Investigation Type	Number	Designation	Rationale
Trial Pits – excavated by hand	3	TP1 – TP3	To accurately log the upper strata and collect samples from the shallow made ground and natural soils.
CBR tests	3	TP1 – TP3	To measure the sub-grade strength

The investigation points were provisionally determined by Waterman Group and finalised on site by RSK, prior to the intrusive works.

The trial pits were excavated to 0.5m whereupon a CBR test was undertaken, using a Clegg Impact Soil Tester. The test in TP2 at 0.5m encountered an unexpected error, and so the pit was advanced to 0.6m, and the test repeated. This was to avoid re-testing the

same soil. The reported values are as follows: TP1 at 0.5m is 36%; TP2 at 0.6m is 23%; TP3 at 0.5m is 17%.

Soil was extracted from the trial pits and placed onto an adjacent tarpaulin. The extracted material was then separated into the strata as identified by the RSK engineer on-site, and these strata were repeatedly mixed and divided so to homogenise the soil for sampling. Samples were then collected in the appropriate containers for environmental testing: plastic tubs, glass jars and glass vials.

The trial pits were backfilled with arisings and reinstated as close to their original appearances as possible.

3.4 Laboratory Testing

A programme of chemical laboratory testing, scheduled by Waterman Group, is presented in Table 4. Testing was undertaken by a UKAS accredited laboratory (Envirolab). MCERTS accredited test methods were specified where applicable.

Table 4: Summary of Chemical Testing Programme

Strata	Tests undertaken	Number of tests
Made Ground (TP1 to TP3)	Chloride	4
	Nitrate	4
	Sulphate, sulphide and sulphur	4
	Cyanide (total)	4
	Loss of ignition and TOC	4
	Calorific value	4
	Metal suite	4
	Asbestos screen	4
	Semi-volatile organic compounds including polycyclic aromatic hydrocarbons	4
	Volatile organic compounds	4
	Speciated total petroleum hydrocarbons	4
Kempton Park Gravel (TP1 and TP3)	Chloride	2
	Nitrate	2
	Sulphate, sulphide and sulphur	2
	Cyanide (total)	2
	Loss of ignition and TOC	2
	Calorific value	2
	Metal suite	2
	Asbestos screen	2

	Semi-volatile organic compounds including polycyclic aromatic hydrocarbons	2
	Volatile organic compounds	2
	Speciated total petroleum hydrocarbons	2

4 PHYSICAL GROUND CONDITIONS

The descriptions of the strata encountered, notes regarding visual or olfactory evidence of contamination, list of samples taken, field observations of soil, in-situ testing and details of monitoring well installations are included on the exploratory hole records presented in **Appendix B.**

4.1 General succession of strata

The exploratory holes revealed that the site is underlain by a thin veneer of made ground overlying the Kempton Park Gravel. This appears to generally concur with the stratigraphical succession described within Section 2.1.2. For the purpose of discussion, the ground conditions are summarised in Table 5 and the strata discussed in subsequent subsections.

Table 5: summary of ground conditions

Strata	Exploratory holes encountered	Depth to top of stratum m bgl	Thickness (m)
Made Ground	TP1 to TP3	0.00 (GL)	0.60 – 0.80
Kempton Park Gravel	TP1 to TP3	0.60 – 0.80	Proven to 1.2m bgl.

4.1.1 Made Ground

The exploratory holes revealed a variable thickness of made ground ranging between 0.60 and 0.80m bgl. The made ground recovered was variable in nature and reference should be made to the individual records. In general, it comprised an initial surface layer of bituminous hardstanding overlying a sub-base layer typically consisting of locally clayey gravelly SAND with occasional cobble sized flint. The gravel fraction comprised asphalt, flint and concrete. Beneath this variable proportions of anthropogenic material were noted in a gravelly SAND matrix, grading into a gravelly CLAY/very clayey SAND.

4.1.2 Kempton Park Gravel

Beneath the Made Ground, where present, the Kempton Park Gravel was encountered and typically comprised brown locally mottled orange clayey gravelly SAND. Gravel fraction comprised fine to coarse subangular to rounded flint. The base of the stratum was not proven.

4.2 Groundwater

Groundwater was not encountered during the course of the investigation.

It should be noted that groundwater levels might fluctuate for a number of reasons including seasonal variations. On-going monitoring would be required to establish both the full range of conditions and any trends in groundwater levels.

BIBLIOGRAPHY

British Standards Institution (BSI) (1990), 'BS 1377:1990. Methods of test for soils for civil engineering purposes'.

British Standards Institution (1999), 'BS 5930:1999. Code of practice for site investigations'.

British Standards Institution (2011), 'BS 10175:2011. Investigation of potentially contaminated sites: Code of practice'.

Environment Agency (2004a), *Model Procedures for the Management of Contaminated Land. Contaminated Land Report Number 11 (CLR11),* September (Bristol: Environment Agency).

Environment Agency (2004b), 'Policy Number 199_04, dated 9 March 2004, Part IIA – Detailed Quantitative Assessment of Chronic Risks to Human Health from Contaminated Soils'.

Environment Agency (2010a), 'GPLC1 – Guiding Principles of Land Contamination', 'GPLC2 – Frequency Asked Questions, Technical Information, Detailed Advice and References', and 'GPLC3 – Reporting Checklists', all March.

Environment Agency www.environment-agency.gov.uk/.

Environmental Permitting (England and Wales) Regulations 2010 (London: HMSO).

Hartless, R. (1991), 'BRE Report 212: Construction of new buildings on gas-contaminated land', Building Research Establishment.

Hazardous Waste Regulations 2005 (London: HMSO).

Norbury, D. (2010), *Soil and Rock Description in Engineering Practice* (Caithness: Whittles).

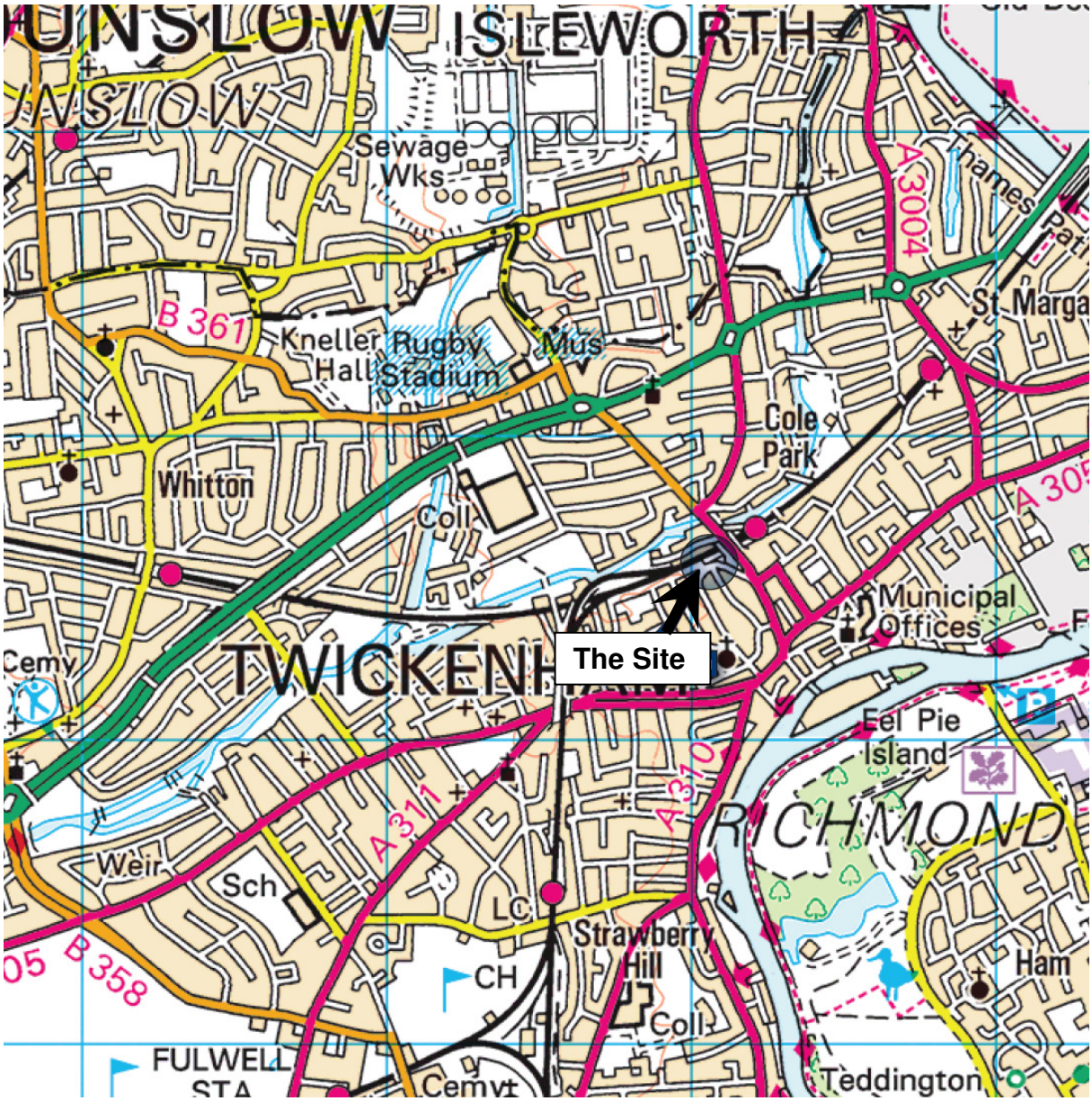
Office of the Deputy Prime Minister (2004), *Planning Policy Statement 23: Planning and Pollution Control* (London: The Stationery Office).

Part IIA of the Environmental Protection Act (Contaminated Land Regulations (England) 2002 (London: HMSO).

The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (London: HMSO).

Wilson, S. A. and Card, G. B. (1999), 'Reliability and risk in gas protection design', *Ground Engineering*, February: 33–6.

FIGURES



RSK	**SITE LOCATION PLAN**	**Client: Solum Regeneration LLP**	**Figure No: 1**
		Site: Station Yard, Twickenham	**Job No: 28006-R02(00)**
		Scale:	**Source: OS Map**

RSK	**TRIAL PIT LOCATION PLAN**	**Client:**	Solum Regeneration LLP	**Figure No:**	2
		Site:	Station Yard, Twickenham	**Job No:**	28006-R02(00)
		Scale:	NTS	**Source:**	Waterman

APPENDIX A
SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Solum Regeneration LLP (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be** well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.

8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.

9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B
EXPLORATORY FIELD RECORDS

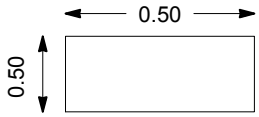
FINAL
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Station Yard, Twickenham	**Solum Regeneration LLP**	**TP1**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
28006	**28.10.15** End: **28.10.15**	**8.21**	**E:516075.6 N:173599.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.05	1	ES	J			MADE GROUND: Bituminous hardstanding.	0.10	
0.10-0.20	2	D				MADE GROUND: Light brown/dark brown slightly clayey very gravelly SAND. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint and rare fragments of asphalt. Weak hydrocarbon odour. (Sub-Base Material)	0.20	
						MADE GROUND: Orangish brown/black/dark grey clayey very gravelly SAND with a low cobble content. Sand is fine to coarse. Gravel is angular to well rounded fine to coarse abundant flint, occasional asphalt fragments, and rare brick fragments. Moderate hydrocarbon odour.	(0.30) 0.50	
0.50-0.65	3	ES	2x(T+J+V)			MADE GROUND: Grey very clayey gravelly SAND. Sand is fine. Gravel is rounded fine to coarse flint. Occasional pockets of soft light brown sandy clay. No odour.	(0.20) 0.70	
0.80-1.00	4	ES	2x(T+J+V)			Brown locally mottled orange slightly clayey gravelly SAND with a low cobble content and occasional lenses of sandy clay. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint. No odour. (Kempton Park Gravel)	(0.50) 1.20	

Plan (Not to Scale)



General Remarks

1. Trial pit sides stable throughout.
2. CBR test at 0.5m is 36%

All dimensions in metres | Scale: **1:11**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**EHughes**	

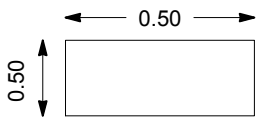
FINAL
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Station Yard, Twickenham	**Solum Regeneration LLP**	**TP2**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
28006	**28.10.15** End: **28.10.15**	**8.22**	**E:516065.0 N:173593.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.10	1	ES	2x(T+J+V)			MADE GROUND: Bituminous hardstanding.	0.10	
0.20-0.30	2	ES	2x(T+J+V)			MADE GROUND: Light brown and dark brown slightly clayey very gravelly SAND with a low cobble content. Sand is coarse. Gravel is angular to rounded fine to coarse flint, brick, asphalt and concrete. Weak hydrocarbon odour. (Sub-base Material)	(0.25) 0.35	
0.50-0.60	3	ES	2x(T+J+V)			MADE GROUND: Orangish brown slightly clayey very gravelly SAND with a low cobble content. Sand is coarse. Gravel is angular to well rounded fine to coarse flint and occasional asphalt. Weak hydrocarbon odour.	(0.35) 0.70	
						MADE GROUND: Grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is rounded fine to medium flint.	0.80	
1.10-1.20	4	D				Brown locally mottled orange slightly clayey gravelly SAND with a low cobble content and occasional lenses of sandy clay. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint. No odour. (Kempton Park Gravel)	(0.40) 1.20	

Plan (Not to Scale)



General Remarks

1. Trial pit sides stable throughout.
2. CBR test at 0.6m is 23%.

All dimensions in metres | Scale: **1:11**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**EHughes**	

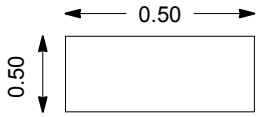
FINAL
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Station Yard, Twickenham	**Solum Regeneration LLP**	**TP3**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
28006	**28.10.15** End: **28.10.15**	**8.06**	**E:516045.2 N:173599.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.05	1	ES	J+V			MADE GROUND: Bituminous hardstanding overlying a thin layer of concrete.	0.10	
0.10-0.15	2	ES	J+V			MADE GROUND: Light brown and black slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint and asphalt. Weak hydrocarbon odour.	(0.15)	
0.20-0.25	3	ES	J				0.25	
0.25-0.40	4	ES	2x(T+J+V)			MADE GROUND: Light brown and dark brown slightly clayey very sandy GRAVEL with a low cobble content. Sand is coarse. Gravel is angular to rounded fine to coarse asphalt, brick, flint and concrete. Weak hydrocarbon odour. . . . at 0.3 Cobble of brick 150mm wide x 30mm thick	(0.25)	
							0.50	
0.50-0.60	5	ES	2x(T+J+V)			MADE GROUND: Yellowish brown mottled dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to well rounded fine to medium flint and rare fragments of asphalt. No odour.	0.60	
0.80-0.90	6	ES	2x(T+J+V)			Orangish brown and slightly clayey SAND and GRAVEL with a low cobble content and rare lenses of sandy clay. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint. No odour. (Kempton Park Gravel)	(0.60)	
							1.20	

Plan (Not to Scale)



General Remarks

1. Trial pit sides stable throughout.
2. CBR test at 0.5m is 17%.

All dimensions in metres | Scale: **1:11**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**EHughes**	

APPENDIX C
CERTIFICATES OF LABORATORY ANALYSIS

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	15/07148		
Issue Number:	1	Date:	18-Nov-15
Client:	RSK Environment Ltd Hemel 18 Frogmore Road Hemel Hempstead Hertfordshire UK HP3 9RT		
Project Manager:	Edward Hughes/Nigel Austin		
Project Name:	Station Yard, Twickenham		
Project Ref:	28006		
Order No:	N/A		
Date Samples Received:	5-Nov-15		
Date Instructions Received:	5-Nov-15		
Date Analysis Completed:	18-Nov-15		

Notes - Soil analysis

All results are reported as dry weight (<40℃).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER.

Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

John Gustafson
Director

UKAS TESTING
No. 1247

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/2						
Client Sample Number				3				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP1						
Depth to Top				0.5						
Depth to Bottom				0.65						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**7.44**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.01**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.5**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.42**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**11**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**13**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.004	0.002	0.008	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.169	0.023	0.335	**0.350**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.002	<0.001	0.004	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.014	0.002	0.028	**0.030**	2	50	100
Mercury	A-T-025	Y	N	0.0002	<0.0001	0.0004	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	Y	N	0.003	<0.001	0.006	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.031	0.005	0.061	**0.070**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.021	0.005	0.041	**0.060**	4	50	200
Chloride	A-T-026	Y	N	5	<1.00	10	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.3	0.2	0.6	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	53	3	105	**75**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	28	<20	56	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	6.4	6.2					
Conductivity (µS/cm)	A-T-037	N	N	56	22					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	92.2						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.470						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/3						
Client Sample Number				4				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP1						
Depth to Top				0.8						
Depth to Bottom				1.00						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**7.32**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**<0.01**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.3**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.19**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**19**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.003	0.001	0.005	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.086	0.018	0.166	**0.230**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.007	0.002	0.014	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.014	0.004	0.026	**0.040**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.010	0.002	0.019	**0.030**	4	50	200
Chloride	A-T-026	Y	N	2	<1.00	4	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.3	0.2	0.5	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	19	3	37	**41**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	24	<20	46	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	6.3	6.3					
Conductivity (µS/cm)	A-T-037	N	N	48	17					
Mass Sample (kg)				0.199						
Dry Matter (%)	A-T-044	N	N	94.1						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.500						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/5						
Client Sample Number				2				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP2						
Depth to Top				0.2						
Depth to Bottom				0.30						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.53**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.7**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.15**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**2.3**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.83**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**80.1**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**11**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.005	0.004	0.011	**0.040**	0.5	2	25
Barium	A-T-025	Y	N	0.027	0.014	0.052	**0.150**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.007	0.001	0.014	**0.020**	0.5	10	70
Copper	A-T-025	Y	N	0.004	0.002	0.009	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.003	0.001	0.007	**0.010**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.032	0.022	0.062	**0.230**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.017	0.009	0.033	**0.100**	4	50	200
Chloride	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.4	0.1	0.8	**1.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	2	<1.00	4	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	64	29	125	**317**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.5					
Conductivity (µS/cm)	A-T-037	N	N	127	57					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	93.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.490						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/6						
Client Sample Number				3				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP2						
Depth to Top				0.5						
Depth to Bottom				0.60						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.37**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.08**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.8**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.14**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**667**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**197**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.002	0.004	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.014	0.007	0.027	**0.070**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.006	0.002	0.011	**0.020**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.004	0.005	0.007	**0.050**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.004	0.002	0.008	**0.030**	4	50	200
Chloride	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.6	0.2	1.1	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	1	<1.00	2	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	49	23	94	**249**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.2					
Conductivity (µS/cm)	A-T-037	N	N	98	46					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	94.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.510						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/8						
Client Sample Number				4				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP3						
Depth to Top				0.25						
Depth to Bottom				0.40						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.33**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.15**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.08**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**3.4**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**1.21**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**317**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.003	0.005	**0.030**	0.5	2	25
Barium	A-T-025	Y	N	0.008	0.015	0.015	**0.140**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	0.002	0.003	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.009	0.003	0.019	**0.040**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	<0.001	0.011	<0.002	**<0.01**	0.5	10	50
Antimony	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	<0.001	0.004	<0.002	**<0.01**	4	50	200
Chloride	A-T-026	Y	N	1	<1.00	2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	1.1	0.4	2.1	**4.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	8	<1.00	15	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	73	31	142	**342**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.3	7.3					
Conductivity (µS/cm)	A-T-037	N	N	145	62					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	93.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.490						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/9						
Client Sample Number				6				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP3						
Depth to Top				0.8						
Depth to Bottom				0.90						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				1A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.14**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.02**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.6**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.16**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**36.5**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.002	0.004	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.011	0.011	0.022	**0.110**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.007	0.002	0.013	**0.020**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.002	0.006	0.004	**0.050**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.004	0.003	0.008	**0.030**	4	50	200
Chloride	A-T-026	Y	N	1	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.8	0.3	1.6	**3.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	45	<20	86	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.0	6.7					
Conductivity (µS/cm)	A-T-037	N	N	91	29					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	94.1						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.510						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 15/07148
Issue Number: 1 **Date:** 18 November, 2015

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Edward Hughes/Nigel Austin
Project Name: Station Yard, Twickenham
Project Ref: 28006
Order No: N/A
Date Samples Received: 05/11/15
Date Instructions Received: 05/11/15
Date Analysis Completed: 18/11/15

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

John Gustafson
Director

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
% Moisture$_A$	-	7.8	5.9	-	6.6	5.6	-	6.9	% w/w	A-T-044
% Stones >10mm$_A^{\#}$	<0.1	14.1	23.2	<0.1	12.0	7.7	<0.1	6.1	% w/w	A-T-044
pH$_D^{M\#}$	-	7.44	7.32	-	8.53	8.37	-	8.33	pH	A-T-031s
Ammonium NH4 (exchangeable/water soluble)$_D$	-	0.90	0.73	-	1.46	1.45	-	1.89	mg/kg	A-T-033s
Chloride (water sol 2:1)$_D^{M\#}$	-	<10	<10	-	<10	<10	-	<10	mg/kg	A-T-026s
Nitrate (water sol 2:1)$_D$	-	3	7	-	<1	<1	-	3	mg/kg	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	-	290	260	-	430	<200	-	360	mg/kg	A-T-028s
Cyanide (total)$_A^{M\#}$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-042sTCN
Sulphide$_A$	-	<15	<15	-	<15	<15	-	<15	mg/kg	A-T-S2-s
Sulphur (elemental)$_D^{M\#}$	-	<5	10	-	<5	29	-	<5	mg/kg	A-T-029s
Loss on ignition (550degC)$_D$	-	1.5	1.3	-	2.3	1.8	-	3.4	% w/w	A-T-030s
Organic matter$_D^{M\#}$	-	0.7	0.3	-	1.4	0.3	-	2.1	% w/w	A-T-032 OM
Total Organic Carbon$_D^{M\#}$	-	0.42	0.19	-	0.83	0.14	-	1.21	% w/w	A-T-032s
Calorific Value (Gross/Total)$_A$	-	186	104	-	1630	1410	-	<100	kJ/kg	Subcon
Arsenic$_D^{M\#}$	-	8	8	-	10	13	-	9	mg/kg	A-T-024s
Barium$_D$	-	29	21	-	37	27	-	46	mg/kg	A-T-024s
Beryllium$_D^{\#}$	-	<1	<1	-	<1	1	-	1	mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	-	<1.0	<1.0	-	<1.0	<1.0	-	<1.0	mg/kg	A-T-027s
Cadmium$_D^{M\#}$	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	mg/kg	A-T-024s
Copper$_D^{M\#}$	-	6	4	-	11	6	-	13	mg/kg	A-T-024s
Cobalt$_D^{M\#}$	-	6	5	-	5	7	-	6	mg/kg	A-T-024s
Chromium$_D^{M\#}$	-	15	14	-	12	20	-	15	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-040s
Iron$_D$	-	15600	15800	-	16600	26900	-	17700	mg/kg	A-T-024s
Lead$_D^{M\#}$	-	14	10	-	86	30	-	66	mg/kg	A-T-024s
Mercury$_D$	-	<0.17	<0.17	-	0.31	<0.17	-	<0.17	mg/kg	A-T-024s
Molybdenum$_D^{M\#}$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-024s
Nickel$_D^{M\#}$	-	12	12	-	13	21	-	13	mg/kg	A-T-024s
Selenium$_D$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-024s
Vanadium$_D^{M\#}$	-	26	25	-	23	38	-	29	mg/kg	A-T-024s
Zinc$_D^{M\#}$	-	22	18	-	68	34	-	37	mg/kg	A-T-024s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A^{\#}$	-	NAD	NAD	-	NAD	NAD	-	NAD		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	-	N/A	N/A	-	N/A	N/A	-	N/A		Gravimetry

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
PAH-16 plus Coronene										
Acenaphthene$_A^{M\#}$	32.1	0.07	0.07	0.07	0.41	5.16	25.4	0.73	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	40.1	0.12	0.14	0.11	0.41	3.65	27.8	2.46	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	156	0.36	0.58	0.28	1.75	21.3	97.8	8.41	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	294	0.78	1.47	1.73	6.41	85.2	358	43.9	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	250	0.88	1.47	2.57	8.57	63.4	136	34.5	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	256	0.99	1.69	3.07	9.21	55.5	140	34.4	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	121	0.52	0.77	1.64	4.81	49.4	71.8	14.3	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	94	0.33	0.55	0.96	3.57	38.1	83	16.4	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	242	0.79	1.50	1.94	6.67	53.5	211	29.9	mg/kg	A-T-019s
Coronene$_A$	24.7	0.15	0.19	0.41	1.02	8.60	13.5	2.39	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	29.7	0.14	0.22	0.44	1.16	15.1	47	5.21	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	421	1.91	3.71	2.32	11.4	53.9	180	42.6	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	92.3	0.21	0.24	0.15	0.97	10.7	48	2.36	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	156	0.61	0.94	1.87	5.82	76.3	133	19.1	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	83.4	0.15	0.07	0.05	0.31	5.09	10.3	0.93	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	403	1.44	2.30	1.04	6.63	44.3	340	20.8	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	391	1.53	3.10	2.35	10.9	77.6	177	39	mg/kg	A-T-019s
PAH (total 17)$_A$	3090	11	19	21	80.1	667	2100	317	mg/kg	A-T-019s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
SVOC										
2,4-Dinitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4,6-Dinitro-2-methylphenol $_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachlorobenzene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Diethyl phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Dimethyl phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Dibenzofuran$_A$	-	<100	158	-	650	4380	-	1810	µg/kg	A-T-052s
Carbazole$_A$	-	<100	<100	-	706	3070	-	1180	µg/kg	A-T-052s
Butylbenzyl phthalate $_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4-Nitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4-Methylphenol$_A$	-	<100	<100	-	<100	197	-	<100	µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Nitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Methylphenol$_A$	-	<100	<100	-	<100	112	-	<100	µg/kg	A-T-052s
2-Chlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	-	<100	<100	-	<100	263	-	<100	µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Chloronaphthalene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Methylnaphthalene$_A$	-	<100	<100	-	222	1740	-	288	µg/kg	A-T-052s
Acenaphthylene $_A$	-	108	107	-	893	4700	-	2820	µg/kg	A-T-052s
Acenaphthene $_A$	-	<100	<100	-	525	3730	-	791	µg/kg	A-T-052s
Anthracene$_A$	-	302	413	-	2720	9250	-	5550	µg/kg	A-T-052s
Benzo(a)anthracene$_A$	-	1180	949	-	8740	38600	-	15600	µg/kg	A-T-052s
Benzo(b)fluoranthene$_A$	-	1620	1210	-	17500	110000	-	32900	µg/kg	A-T-052s
Benzo(k)fluoranthene$_A$	-	642	482	-	5780	48100	-	10700	µg/kg	A-T-052s
Benzo(a)pyrene $_A$	-	1440	1210	-	16400	92200	-	24400	µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Benzo(ghi)perylene$_A$	-	914	728	-	9040	122000	-	8870	µg/kg	A-T-052s
Chrysene $_A$	-	1080	851	-	7970	41600	-	15700	µg/kg	A-T-052s
Fluoranthene $_A$	-	2210	1810	-	12700	45200	-	17900	µg/kg	A-T-052s
Fluorene $_A$	-	123	254	-	1010	6430	-	2030	µg/kg	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	937	713	-	9360	111000	-	12400	µg/kg	A-T-052s
Phenanthrene $_A$	-	958	1530	-	7810	19700	-	11100	µg/kg	A-T-052s
Pyrene $_A$	-	2020	1490	-	12600	44600	-	15800	µg/kg	A-T-052s
Naphthalene $_A$	-	<100	<100	-	383	2790	-	335	µg/kg	A-T-052s
Dibenzo(ah)anthracene $_A$	-	228	189	-	2160	32700	-	4150	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Phenol $_A$	-	<100	<100	-	<100	145	-	<100	µg/kg	A-T-052s
Pentachlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Dioctylphthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Dibutylphthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Nitrobenzene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Isophorone$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachloroethane$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachlorocyclopentadiene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Perylene$_A$	-	379	281	-	4620	54000	-	8550	µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
VOC										
Dichlorodifluoromethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Chloromethane$_A^\#$	-	<10	<10	-	<10	<10	-	<10	µg/kg	A-T-006s
Vinyl Chloride$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromomethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Chloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Trichlorofluoromethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Carbon Disulphide$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dichloromethane $_A$	-	<5	<5	-	<5	<5	-	<5	µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
2,2-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromochloromethane$_A^\#$	-	<5	<5	-	<5	<5	-	<5	µg/kg	A-T-006s
Chloroform$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Carbon Tetrachloride$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichloroethane$_A^\#$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
Benzene $_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Trichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dibromomethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromodichloromethane$_A^\#$	-	<10	<10	-	<10	<10	-	<10	µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Toluene $_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Tetrachloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dibromochloromethane$_A^\#$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s
1,2-Dibromoethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Chlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Ethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
m & p Xylene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
o-Xylene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Styrene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromoform$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Isopropylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
n-Propylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
2-Chlorotoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
4-Chlorotoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
tert-Butylbenzene$_A^\#$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
sec-Butylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
4-Isopropyltoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
n-Butylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s
Hexachlorobutadiene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
TPH CWG										
Ali >C5-C6$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	-	*<0.01*	*<0.01*	-	*<0.01*	*<0.01*	-	*<0.01*	mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	-	<0.1	<0.1	-	<0.1	1.1	-	<0.1	mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	-	0.5	0.3	-	<0.1	21.2	-	<0.1	mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	-	1.8	0.7	-	1.0	47.5	-	0.3	mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	-	13.9	2.0	-	0.9	102	-	1.9	mg/kg	A-T-023s
Total Aliphatics$_A$	-	16.0	2.9	-	2.0	172	-	2.3	mg/kg	A-T-022+23s
Aro >C5-C7$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	-	*<0.01*	*<0.01*	-	*<0.01*	*0.02*	-	*<0.01*	mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	-	<0.1	<0.1	-	<0.1	2.0	-	0.4	mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	-	<0.1	<0.1	-	<0.1	31.9	-	8.7	mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	-	1.9	0.9	-	5.1	230	-	46.7	mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	-	7.1	1.1	-	8.7	684	-	92.5	mg/kg	A-T-023s
Total Aromatics$_A$	-	8.9	2.0	-	13.9	948	-	148	mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	-	24.9	4.9	-	15.8	1120	-	150	mg/kg	A-T-022+23s
BTEX - Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
MTBE$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
% Moisture$_A$	5.9								% w/w	A-T-044
% Stones >10mm$_A^{\#}$	5.9								% w/w	A-T-044
pH$_D^{M\#}$	8.14								pH	A-T-031s
Ammonium NH4 (exchangeable/water soluble)$_D$	0.77								mg/kg	A-T-033s
Chloride (water sol 2:1)$_D^{M\#}$	<10								mg/kg	A-T-026s
Nitrate (water sol 2:1)$_D$	3								mg/kg	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	<200								mg/kg	A-T-028s
Cyanide (total)$_A^{M\#}$	<1								mg/kg	A-T-042sTCN
Sulphide$_A$	<15								mg/kg	A-T-S2-s
Sulphur (elemental)$_D^{M\#}$	28								mg/kg	A-T-029s
Loss on ignition (550degC)$_D$	1.6								% w/w	A-T-030s
Organic matter$_D^{M\#}$	0.3								% w/w	A-T-032 OM
Total Organic Carbon$_D^{M\#}$	0.16								% w/w	A-T-032s
Calorific Value (Gross/Total)$_A$	495								kJ/kg	Subcon
Arsenic$_D^{M\#}$	14								mg/kg	A-T-024s
Barium$_D$	20								mg/kg	A-T-024s
Beryllium$_D^{\#}$	1								mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0								mg/kg	A-T-027s
Cadmium$_D^{M\#}$	<0.5								mg/kg	A-T-024s
Copper$_D^{M\#}$	6								mg/kg	A-T-024s
Cobalt$_D^{M\#}$	8								mg/kg	A-T-024s
Chromium$_D^{M\#}$	13								mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1								mg/kg	A-T-040s
Iron$_D$	23500								mg/kg	A-T-024s
Lead$_D^{M\#}$	11								mg/kg	A-T-024s
Mercury$_D$	<0.17								mg/kg	A-T-024s
Molybdenum$_D^{M\#}$	<1								mg/kg	A-T-024s
Nickel$_D^{M\#}$	19								mg/kg	A-T-024s
Selenium$_D$	<1								mg/kg	A-T-024s
Vanadium$_D^{M\#}$	32								mg/kg	A-T-024s
Zinc$_D^{M\#}$	23								mg/kg	A-T-024s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A^\#$	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A									Gravimetry

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
PAH-16 plus Coronene										
Acenaphthene$_A^{M\#}$	0.05								mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	0.16								mg/kg	A-T-019s
Anthracene$_A^{M\#}$	0.74								mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	3.56								mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	3.39								mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	4.03								mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	1.63								mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	1.43								mg/kg	A-T-019s
Chrysene$_A^{M\#}$	3.38								mg/kg	A-T-019s
Coronene$_A$	0.39								mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.51								mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	7.05								mg/kg	A-T-019s
Fluorene$_A^{M\#}$	0.11								mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	2.05								mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03								mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	2.15								mg/kg	A-T-019s
Pyrene$_A^{M\#}$	5.89								mg/kg	A-T-019s
PAH (total 17)$_A$	36.5								mg/kg	A-T-019s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
SVOC										
2,4-Dinitrophenol$_A$	<100								µg/kg	A-T-052s
4,6-Dinitro-2-methylphenol $_A$	<100								µg/kg	A-T-052s
Hexachlorobenzene$_A$	<100								µg/kg	A-T-052s
Diethyl phthalate$_A$	<100								µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100								µg/kg	A-T-052s
Dibenzofuran$_A$	<100								µg/kg	A-T-052s
Carbazole$_A$	<100								µg/kg	A-T-052s
Butylbenzyl phthalate $_A$	<100								µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<100								µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100								µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100								µg/kg	A-T-052s
4-Nitrophenol$_A$	<100								µg/kg	A-T-052s
4-Methylphenol$_A$	<100								µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100								µg/kg	A-T-052s
2-Nitrophenol$_A$	<100								µg/kg	A-T-052s
2-Methylphenol$_A$	<100								µg/kg	A-T-052s
2-Chlorophenol$_A$	<100								µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100								µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100								µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100								µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100								µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100								µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100								µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100								µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100								µg/kg	A-T-052s
Acenaphthylene $_A$	186								µg/kg	A-T-052s
Acenaphthene $_A$	<100								µg/kg	A-T-052s
Anthracene$_A$	389								µg/kg	A-T-052s
Benzo(a)anthracene$_A$	2050								µg/kg	A-T-052s
Benzo(b)fluoranthene$_A$	2480								µg/kg	A-T-052s
Benzo(k)fluoranthene$_A$	916								µg/kg	A-T-052s
Benzo(a)pyrene $_A$	2150								µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Benzo(ghi)perylene$_A$	1110								µg/kg	A-T-052s
Chrysene $_A$	1800								µg/kg	A-T-052s
Fluoranthene $_A$	2800								µg/kg	A-T-052s
Fluorene $_A$	126								µg/kg	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	1190								µg/kg	A-T-052s
Phenanthrene $_A$	927								µg/kg	A-T-052s
Pyrene $_A$	2390								µg/kg	A-T-052s
Naphthalene $_A$	<100								µg/kg	A-T-052s
Dibenzo(ah)anthracene $_A$	403								µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100								µg/kg	A-T-052s
Phenol $_A$	<100								µg/kg	A-T-052s
Pentachlorophenol$_A$	<100								µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100								µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<100								µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100								µg/kg	A-T-052s
Nitrobenzene$_A$	<100								µg/kg	A-T-052s
Isophorone$_A$	<100								µg/kg	A-T-052s
Hexachloroethane$_A$	<100								µg/kg	A-T-052s
Hexachlorocyclopentadiene$_A$	<100								µg/kg	A-T-052s
Perylene$_A$	553								µg/kg	A-T-052s

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
VOC										
Dichlorodifluoromethane$_A^\#$	<1								µg/kg	A-T-006s
Chloromethane$_A^\#$	<10								µg/kg	A-T-006s
Vinyl Chloride$_A^\#$	<1								µg/kg	A-T-006s
Bromomethane$_A^\#$	<1								µg/kg	A-T-006s
Chloroethane$_A^\#$	<1								µg/kg	A-T-006s
Trichlorofluoromethane$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
Carbon Disulphide$_A^\#$	<1								µg/kg	A-T-006s
Dichloromethane $_A$	<5								µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloroethane$_A^\#$	<1								µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
2,2-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Bromochloromethane$_A^\#$	<5								µg/kg	A-T-006s
Chloroform$_A^\#$	<1								µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
Carbon Tetrachloride$_A^\#$	<1								µg/kg	A-T-006s
1,2-Dichloroethane$_A^\#$	<2								µg/kg	A-T-006s
Benzene $_A^\#$	<1								µg/kg	A-T-006s
Trichloroethene$_A^\#$	<1								µg/kg	A-T-006s
1,2-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Dibromomethane$_A^\#$	<1								µg/kg	A-T-006s
Bromodichloromethane$_A^\#$	<10								µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
Toluene $_A^\#$	<1								µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^\#$	<1								µg/kg	A-T-006s
1,3-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Tetrachloroethene$_A^\#$	<1								µg/kg	A-T-006s
Dibromochloromethane$_A^\#$	<3								µg/kg	A-T-006s
1,2-Dibromoethane$_A^\#$	<1								µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Chlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1								µg/kg	A-T-006s
Ethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
m & p Xylene$_{A}^{\#}$	<1								µg/kg	A-T-006s
o-Xylene$_{A}^{\#}$	<1								µg/kg	A-T-006s
Styrene$_{A}^{\#}$	<1								µg/kg	A-T-006s
Bromoform$_{A}^{\#}$	<1								µg/kg	A-T-006s
Isopropylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1								µg/kg	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1								µg/kg	A-T-006s
Bromobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
n-Propylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2								µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1								µg/kg	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_{A}$	<2								µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3								µg/kg	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3								µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
TPH CWG										
Ali >C5-C6$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C6-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C8-C10$_A^\#$	*<0.01*								mg/kg	A-T-022s
Ali >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C16-C21$_A^\#$	2.1								mg/kg	A-T-023s
Ali >C21-C35$_A^\#$	12.4								mg/kg	A-T-023s
Total Aliphatics$_A$	14.5								mg/kg	A-T-022+23s
Aro >C5-C7$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C7-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C8-C9$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C9-C10$_A^\#$	*<0.01*								mg/kg	A-T-022s
Aro >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C16-C21$_A^\#$	1.6								mg/kg	A-T-023s
Aro >C21-C35$_A^\#$	8.7								mg/kg	A-T-023s
Total Aromatics$_A$	10.3								mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	24.8								mg/kg	A-T-022+23s
BTEX - Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Toluene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - m & p Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - o Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
MTBE$_A^\#$	<0.01								mg/kg	A-T-022s

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones and brick and concrete fragments >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General
This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Appendix C Laboratory test Results

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 15/07148
Issue Number: 1 **Date:** 18 November, 2015

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Edward Hughes/Nigel Austin
Project Name: Station Yard, Twickenham
Project Ref: 28006
Order No: N/A
Date Samples Received: 05/11/15
Date Instructions Received: 05/11/15
Date Analysis Completed: 18/11/15

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

John Gustafson
Director

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
% Moisture$_A$	-	7.8	5.9	-	6.6	5.6	-	6.9	% w/w	A-T-044
% Stones >10mm$_A^{\#}$	<0.1	14.1	23.2	<0.1	12.0	7.7	<0.1	6.1	% w/w	A-T-044
pH$_D^{M\#}$	-	7.44	7.32	-	8.53	8.37	-	8.33	pH	A-T-031s
Ammonium NH4 (exchangeable/water soluble)$_D$	-	0.90	0.73	-	1.46	1.45	-	1.89	mg/kg	A-T-033s
Chloride (water sol 2:1)$_D^{M\#}$	-	<10	<10	-	<10	<10	-	<10	mg/kg	A-T-026s
Nitrate (water sol 2:1)$_D$	-	3	7	-	<1	<1	-	3	mg/kg	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	-	290	260	-	430	<200	-	360	mg/kg	A-T-028s
Cyanide (total)$_A^{M\#}$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-042sTCN
Sulphide$_A$	-	<15	<15	-	<15	<15	-	<15	mg/kg	A-T-S2-s
Sulphur (elemental)$_D^{M\#}$	-	<5	10	-	<5	29	-	<5	mg/kg	A-T-029s
Loss on ignition (550degC)$_D$	-	1.5	1.3	-	2.3	1.8	-	3.4	% w/w	A-T-030s
Organic matter$_D^{M\#}$	-	0.7	0.3	-	1.4	0.3	-	2.1	% w/w	A-T-032 OM
Total Organic Carbon$_D^{M\#}$	-	0.42	0.19	-	0.83	0.14	-	1.21	% w/w	A-T-032s
Calorific Value (Gross/Total)$_A$	-	186	104	-	1630	1410	-	<100	kJ/kg	Subcon
Arsenic$_D^{M\#}$	-	8	8	-	10	13	-	9	mg/kg	A-T-024s
Barium$_D$	-	29	21	-	37	27	-	46	mg/kg	A-T-024s
Beryllium$_D^{\#}$	-	<1	<1	-	<1	1	-	1	mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	-	<1.0	<1.0	-	<1.0	<1.0	-	<1.0	mg/kg	A-T-027s
Cadmium$_D^{M\#}$	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	mg/kg	A-T-024s
Copper$_D^{M\#}$	-	6	4	-	11	6	-	13	mg/kg	A-T-024s
Cobalt$_D^{M\#}$	-	6	5	-	5	7	-	6	mg/kg	A-T-024s
Chromium$_D^{M\#}$	-	15	14	-	12	20	-	15	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-040s
Iron$_D$	-	15600	15800	-	16600	26900	-	17700	mg/kg	A-T-024s
Lead$_D^{M\#}$	-	14	10	-	86	30	-	66	mg/kg	A-T-024s
Mercury$_D$	-	<0.17	<0.17	-	0.31	<0.17	-	<0.17	mg/kg	A-T-024s
Molybdenum$_D^{M\#}$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-024s
Nickel$_D^{M\#}$	-	12	12	-	13	21	-	13	mg/kg	A-T-024s
Selenium$_D$	-	<1	<1	-	<1	<1	-	<1	mg/kg	A-T-024s
Vanadium$_D^{M\#}$	-	26	25	-	23	38	-	29	mg/kg	A-T-024s
Zinc$_D^{M\#}$	-	22	18	-	68	34	-	37	mg/kg	A-T-024s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A^{\#}$	-	NAD	NAD	-	NAD	NAD	-	NAD		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	-	N/A	N/A	-	N/A	N/A	-	N/A		Gravimetry

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
PAH-16 plus Coronene										
Acenaphthene$_A^{M\#}$	32.1	0.07	0.07	0.07	0.41	5.16	25.4	0.73	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	40.1	0.12	0.14	0.11	0.41	3.65	27.8	2.46	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	156	0.36	0.58	0.28	1.75	21.3	97.8	8.41	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	294	0.78	1.47	1.73	6.41	85.2	358	43.9	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	250	0.88	1.47	2.57	8.57	63.4	136	34.5	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	256	0.99	1.69	3.07	9.21	55.5	140	34.4	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	121	0.52	0.77	1.64	4.81	49.4	71.8	14.3	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	94	0.33	0.55	0.96	3.57	38.1	83	16.4	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	242	0.79	1.50	1.94	6.67	53.5	211	29.9	mg/kg	A-T-019s
Coronene$_A$	24.7	0.15	0.19	0.41	1.02	8.60	13.5	2.39	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	29.7	0.14	0.22	0.44	1.16	15.1	47	5.21	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	421	1.91	3.71	2.32	11.4	53.9	180	42.6	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	92.3	0.21	0.24	0.15	0.97	10.7	48	2.36	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	156	0.61	0.94	1.87	5.82	76.3	133	19.1	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	83.4	0.15	0.07	0.05	0.31	5.09	10.3	0.93	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	403	1.44	2.30	1.04	6.63	44.3	340	20.8	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	391	1.53	3.10	2.35	10.9	77.6	177	39	mg/kg	A-T-019s
PAH (total 17)$_A$	3090	11	19	21	80.1	667	2100	317	mg/kg	A-T-019s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
SVOC										
2,4-Dinitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4,6-Dinitro-2-methylphenol $_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachlorobenzene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Diethyl phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Dimethyl phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Dibenzofuran$_A$	-	<100	158	-	650	4380	-	1810	µg/kg	A-T-052s
Carbazole$_A$	-	<100	<100	-	706	3070	-	1180	µg/kg	A-T-052s
Butylbenzyl phthalate $_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4-Nitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
4-Methylphenol$_A$	-	<100	<100	-	<100	197	-	<100	µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Nitrophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Methylphenol$_A$	-	<100	<100	-	<100	112	-	<100	µg/kg	A-T-052s
2-Chlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	-	<100	<100	-	<100	263	-	<100	µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Chloronaphthalene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
2-Methylnaphthalene$_A$	-	<100	<100	-	222	1740	-	288	µg/kg	A-T-052s
Acenaphthylene $_A$	-	108	107	-	893	4700	-	2820	µg/kg	A-T-052s
Acenaphthene $_A$	-	<100	<100	-	525	3730	-	791	µg/kg	A-T-052s
Anthracene$_A$	-	302	413	-	2720	9250	-	5550	µg/kg	A-T-052s
Benzo(a)anthracene$_A$	-	1180	949	-	8740	38600	-	15600	µg/kg	A-T-052s
Benzo(b)fluoranthene$_A$	-	1620	1210	-	17500	110000	-	32900	µg/kg	A-T-052s
Benzo(k)fluoranthene$_A$	-	642	482	-	5780	48100	-	10700	µg/kg	A-T-052s
Benzo(a)pyrene $_A$	-	1440	1210	-	16400	92200	-	24400	µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Benzo(ghi)perylene$_A$	-	914	728	-	9040	122000	-	8870	µg/kg	A-T-052s
Chrysene $_A$	-	1080	851	-	7970	41600	-	15700	µg/kg	A-T-052s
Fluoranthene $_A$	-	2210	1810	-	12700	45200	-	17900	µg/kg	A-T-052s
Fluorene $_A$	-	123	254	-	1010	6430	-	2030	µg/kg	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	937	713	-	9360	111000	-	12400	µg/kg	A-T-052s
Phenanthrene $_A$	-	958	1530	-	7810	19700	-	11100	µg/kg	A-T-052s
Pyrene $_A$	-	2020	1490	-	12600	44600	-	15800	µg/kg	A-T-052s
Naphthalene $_A$	-	<100	<100	-	383	2790	-	335	µg/kg	A-T-052s
Dibenzo(ah)anthracene $_A$	-	228	189	-	2160	32700	-	4150	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Phenol $_A$	-	<100	<100	-	<100	145	-	<100	µg/kg	A-T-052s
Pentachlorophenol$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Dioctylphthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
n-Dibutylphthalate$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Nitrobenzene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Isophorone$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachloroethane$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Hexachlorocyclopentadiene$_A$	-	<100	<100	-	<100	<100	-	<100	µg/kg	A-T-052s
Perylene$_A$	-	379	281	-	4620	54000	-	8550	µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
VOC										
Dichlorodifluoromethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Chloromethane$_A^\#$	-	<10	<10	-	<10	<10	-	<10	µg/kg	A-T-006s
Vinyl Chloride$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromomethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Chloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Trichlorofluoromethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Carbon Disulphide$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dichloromethane $_A$	-	<5	<5	-	<5	<5	-	<5	µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
2,2-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromochloromethane$_A^\#$	-	<5	<5	-	<5	<5	-	<5	µg/kg	A-T-006s
Chloroform$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Carbon Tetrachloride$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichloroethane$_A^\#$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
Benzene $_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Trichloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dibromomethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromodichloromethane$_A^\#$	-	<10	<10	-	<10	<10	-	<10	µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Toluene $_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3-Dichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Tetrachloroethene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Dibromochloromethane$_A^\#$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s
1,2-Dibromoethane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
Chlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Ethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
m & p Xylene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
o-Xylene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Styrene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromoform$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Isopropylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
Bromobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
n-Propylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
2-Chlorotoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
4-Chlorotoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
tert-Butylbenzene$_A^\#$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
sec-Butylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
4-Isopropyltoluene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
n-Butylbenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	-	<2	<2	-	<2	<2	-	<2	µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s
Hexachlorobutadiene$_A^\#$	-	<1	<1	-	<1	<1	-	<1	µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	-	<3	<3	-	<3	<3	-	<3	µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/1	15/07148/2	15/07148/3	15/07148/4	15/07148/5	15/07148/6	15/07148/7	15/07148/8	Units	Method ref
Client Sample No	1	3	4	1	2	3	3	4		
Client Sample ID	TP1	TP1	TP1	TP2	TP2	TP2	TP3	TP3		
Depth to Top	0.00	0.50	0.80	0.00	0.20	0.50	0.20	0.25		
Depth To Bottom	0.05	0.65	1.00	0.10	0.30	0.60	0.25	0.40		
Date Sampled	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15	28-Oct-15		
Sample Type	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES		
Sample Matrix Code	7	4A	4A	7	4A	4A	7	4A		
TPH CWG										
Ali >C5-C6$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	-	*<0.01*	*<0.01*	-	*<0.01*	*<0.01*	-	*<0.01*	mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	-	<0.1	<0.1	-	<0.1	1.1	-	<0.1	mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	-	0.5	0.3	-	<0.1	21.2	-	<0.1	mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	-	1.8	0.7	-	1.0	47.5	-	0.3	mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	-	13.9	2.0	-	0.9	102	-	1.9	mg/kg	A-T-023s
Total Aliphatics$_A$	-	16.0	2.9	-	2.0	172	-	2.3	mg/kg	A-T-022+23s
Aro >C5-C7$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	-	*<0.01*	*<0.01*	-	*<0.01*	*0.02*	-	*<0.01*	mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	-	<0.1	<0.1	-	<0.1	2.0	-	0.4	mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	-	<0.1	<0.1	-	<0.1	31.9	-	8.7	mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	-	1.9	0.9	-	5.1	230	-	46.7	mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	-	7.1	1.1	-	8.7	684	-	92.5	mg/kg	A-T-023s
Total Aromatics$_A$	-	8.9	2.0	-	13.9	948	-	148	mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	-	24.9	4.9	-	15.8	1120	-	150	mg/kg	A-T-022+23s
BTEX - Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s
MTBE$_A^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
% Moisture$_A$	5.9								% w/w	A-T-044
% Stones >10mm$_A^{\#}$	5.9								% w/w	A-T-044
pH$_D^{M\#}$	8.14								pH	A-T-031s
Ammonium NH4 (exchangeable/water soluble)$_D$	0.77								mg/kg	A-T-033s
Chloride (water sol 2:1)$_D^{M\#}$	<10								mg/kg	A-T-026s
Nitrate (water sol 2:1)$_D$	3								mg/kg	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	<200								mg/kg	A-T-028s
Cyanide (total)$_A^{M\#}$	<1								mg/kg	A-T-042sTCN
Sulphide$_A$	<15								mg/kg	A-T-S2-s
Sulphur (elemental)$_D^{M\#}$	28								mg/kg	A-T-029s
Loss on ignition (550degC)$_D$	1.6								% w/w	A-T-030s
Organic matter$_D^{M\#}$	0.3								% w/w	A-T-032 OM
Total Organic Carbon$_D^{M\#}$	0.16								% w/w	A-T-032s
Calorific Value (Gross/Total)$_A$	495								kJ/kg	Subcon
Arsenic$_D^{M\#}$	14								mg/kg	A-T-024s
Barium$_D$	20								mg/kg	A-T-024s
Beryllium$_D^{\#}$	1								mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0								mg/kg	A-T-027s
Cadmium$_D^{M\#}$	<0.5								mg/kg	A-T-024s
Copper$_D^{M\#}$	6								mg/kg	A-T-024s
Cobalt$_D^{M\#}$	8								mg/kg	A-T-024s
Chromium$_D^{M\#}$	13								mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1								mg/kg	A-T-040s
Iron$_D$	23500								mg/kg	A-T-024s
Lead$_D^{M\#}$	11								mg/kg	A-T-024s
Mercury$_D$	<0.17								mg/kg	A-T-024s
Molybdenum$_D^{M\#}$	<1								mg/kg	A-T-024s
Nickel$_D^{M\#}$	19								mg/kg	A-T-024s
Selenium$_D$	<1								mg/kg	A-T-024s
Vanadium$_D^{M\#}$	32								mg/kg	A-T-024s
Zinc$_D^{M\#}$	23								mg/kg	A-T-024s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A^\#$	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A									Gravimetry

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
PAH-16 plus Coronene										
Acenaphthene$_A^{M\#}$	0.05								mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	0.16								mg/kg	A-T-019s
Anthracene$_A^{M\#}$	0.74								mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	3.56								mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	3.39								mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	4.03								mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	1.63								mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	1.43								mg/kg	A-T-019s
Chrysene$_A^{M\#}$	3.38								mg/kg	A-T-019s
Coronene$_A$	0.39								mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.51								mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	7.05								mg/kg	A-T-019s
Fluorene$_A^{M\#}$	0.11								mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	2.05								mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03								mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	2.15								mg/kg	A-T-019s
Pyrene$_A^{M\#}$	5.89								mg/kg	A-T-019s
PAH (total 17)$_A$	36.5								mg/kg	A-T-019s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
SVOC										
2,4-Dinitrophenol$_A$	<100								µg/kg	A-T-052s
4,6-Dinitro-2-methylphenol $_A$	<100								µg/kg	A-T-052s
Hexachlorobenzene$_A$	<100								µg/kg	A-T-052s
Diethyl phthalate$_A$	<100								µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100								µg/kg	A-T-052s
Dibenzofuran$_A$	<100								µg/kg	A-T-052s
Carbazole$_A$	<100								µg/kg	A-T-052s
Butylbenzyl phthalate $_A$	<100								µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<100								µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100								µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100								µg/kg	A-T-052s
4-Nitrophenol$_A$	<100								µg/kg	A-T-052s
4-Methylphenol$_A$	<100								µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100								µg/kg	A-T-052s
2-Nitrophenol$_A$	<100								µg/kg	A-T-052s
2-Methylphenol$_A$	<100								µg/kg	A-T-052s
2-Chlorophenol$_A$	<100								µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100								µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100								µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100								µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100								µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100								µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100								µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100								µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100								µg/kg	A-T-052s
Acenaphthylene $_A$	186								µg/kg	A-T-052s
Acenaphthene $_A$	<100								µg/kg	A-T-052s
Anthracene$_A$	389								µg/kg	A-T-052s
Benzo(a)anthracene$_A$	2050								µg/kg	A-T-052s
Benzo(b)fluoranthene$_A$	2480								µg/kg	A-T-052s
Benzo(k)fluoranthene$_A$	916								µg/kg	A-T-052s
Benzo(a)pyrene $_A$	2150								µg/kg	A-T-052s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Benzo(ghi)perylene$_A$	1110								µg/kg	A-T-052s
Chrysene $_A$	1800								µg/kg	A-T-052s
Fluoranthene $_A$	2800								µg/kg	A-T-052s
Fluorene $_A$	126								µg/kg	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	1190								µg/kg	A-T-052s
Phenanthrene $_A$	927								µg/kg	A-T-052s
Pyrene $_A$	2390								µg/kg	A-T-052s
Naphthalene $_A$	<100								µg/kg	A-T-052s
Dibenzo(ah)anthracene $_A$	403								µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100								µg/kg	A-T-052s
Phenol $_A$	<100								µg/kg	A-T-052s
Pentachlorophenol$_A$	<100								µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100								µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<100								µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100								µg/kg	A-T-052s
Nitrobenzene$_A$	<100								µg/kg	A-T-052s
Isophorone$_A$	<100								µg/kg	A-T-052s
Hexachloroethane$_A$	<100								µg/kg	A-T-052s
Hexachlorocyclopentadiene$_A$	<100								µg/kg	A-T-052s
Perylene$_A$	553								µg/kg	A-T-052s

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
VOC										
Dichlorodifluoromethane$_A^\#$	<1								µg/kg	A-T-006s
Chloromethane$_A^\#$	<10								µg/kg	A-T-006s
Vinyl Chloride$_A^\#$	<1								µg/kg	A-T-006s
Bromomethane$_A^\#$	<1								µg/kg	A-T-006s
Chloroethane$_A^\#$	<1								µg/kg	A-T-006s
Trichlorofluoromethane$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
Carbon Disulphide$_A^\#$	<1								µg/kg	A-T-006s
Dichloromethane $_A$	<5								µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloroethane$_A^\#$	<1								µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	<1								µg/kg	A-T-006s
2,2-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Bromochloromethane$_A^\#$	<5								µg/kg	A-T-006s
Chloroform$_A^\#$	<1								µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^\#$	<1								µg/kg	A-T-006s
1,1-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
Carbon Tetrachloride$_A^\#$	<1								µg/kg	A-T-006s
1,2-Dichloroethane$_A^\#$	<2								µg/kg	A-T-006s
Benzene $_A^\#$	<1								µg/kg	A-T-006s
Trichloroethene$_A^\#$	<1								µg/kg	A-T-006s
1,2-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Dibromomethane$_A^\#$	<1								µg/kg	A-T-006s
Bromodichloromethane$_A^\#$	<10								µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
Toluene $_A^\#$	<1								µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	<1								µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^\#$	<1								µg/kg	A-T-006s
1,3-Dichloropropane$_A^\#$	<1								µg/kg	A-T-006s
Tetrachloroethene$_A^\#$	<1								µg/kg	A-T-006s
Dibromochloromethane$_A^\#$	<3								µg/kg	A-T-006s
1,2-Dibromoethane$_A^\#$	<1								µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Chlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1								µg/kg	A-T-006s
Ethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
m & p Xylene$_{A}^{\#}$	<1								µg/kg	A-T-006s
o-Xylene$_{A}^{\#}$	<1								µg/kg	A-T-006s
Styrene$_{A}^{\#}$	<1								µg/kg	A-T-006s
Bromoform$_{A}^{\#}$	<1								µg/kg	A-T-006s
Isopropylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1								µg/kg	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1								µg/kg	A-T-006s
Bromobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
n-Propylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2								µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1								µg/kg	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_{A}$	<2								µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3								µg/kg	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1								µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3								µg/kg	A-T-006s

Envirolab Job Number: 15/07148

Client Project Name: Station Yard, Twickenham

Client Project Ref: 28006

Lab Sample ID	15/07148/9								Units	Method ref
Client Sample No	6									
Client Sample ID	TP3									
Depth to Top	0.80									
Depth To Bottom	0.90									
Date Sampled	28-Oct-15									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
TPH CWG										
Ali >C5-C6$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C6-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C8-C10$_A^\#$	*<0.01*								mg/kg	A-T-022s
Ali >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C16-C21$_A^\#$	2.1								mg/kg	A-T-023s
Ali >C21-C35$_A^\#$	12.4								mg/kg	A-T-023s
Total Aliphatics$_A$	14.5								mg/kg	A-T-022+23s
Aro >C5-C7$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C7-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C8-C9$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C9-C10$_A^\#$	*<0.01*								mg/kg	A-T-022s
Aro >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C16-C21$_A^\#$	1.6								mg/kg	A-T-023s
Aro >C21-C35$_A^\#$	8.7								mg/kg	A-T-023s
Total Aromatics$_A$	10.3								mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	24.8								mg/kg	A-T-022+23s
BTEX - Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Toluene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - m & p Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - o Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
MTBE$_A^\#$	<0.01								mg/kg	A-T-022s

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones and brick and concrete fragments >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General
This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	15/07148		
Issue Number:	1	Date:	18-Nov-15
Client:	RSK Environment Ltd Hemel 18 Frogmore Road Hemel Hempstead Hertfordshire UK HP3 9RT		
Project Manager:	Edward Hughes/Nigel Austin		
Project Name:	Station Yard, Twickenham		
Project Ref:	28006		
Order No:	N/A		
Date Samples Received:	5-Nov-15		
Date Instructions Received:	5-Nov-15		
Date Analysis Completed:	18-Nov-15		

Notes - Soil analysis

All results are reported as dry weight (<40℃).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER.

Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

John Gustafson
Director

UKAS TESTING
No. 1247

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/2						
Client Sample Number				3				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP1						
Depth to Top				0.5						
Depth to Bottom				0.65						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**7.44**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.01**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.5**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.42**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**11**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**13**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.004	0.002	0.008	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.169	0.023	0.335	**0.350**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.002	<0.001	0.004	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.014	0.002	0.028	**0.030**	2	50	100
Mercury	A-T-025	Y	N	0.0002	<0.0001	0.0004	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	Y	N	0.003	<0.001	0.006	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.031	0.005	0.061	**0.070**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.021	0.005	0.041	**0.060**	4	50	200
Chloride	A-T-026	Y	N	5	<1.00	10	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.3	0.2	0.6	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	53	3	105	**75**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	28	<20	56	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	6.4	6.2					
Conductivity (µS/cm)	A-T-037	N	N	56	22					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	92.2						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.470						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/3						
Client Sample Number				4				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP1						
Depth to Top				0.8						
Depth to Bottom				1.00						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**7.32**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**<0.01**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.3**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.19**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**19**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.003	0.001	0.005	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.086	0.018	0.166	**0.230**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.007	0.002	0.014	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.014	0.004	0.026	**0.040**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.010	0.002	0.019	**0.030**	4	50	200
Chloride	A-T-026	Y	N	2	<1.00	4	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.3	0.2	0.5	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	19	3	37	**41**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	24	<20	46	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	6.3	6.3					
Conductivity (µS/cm)	A-T-037	N	N	48	17					
Mass Sample (kg)				0.199						
Dry Matter (%)	A-T-044	N	N	94.1						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.500						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/5						
Client Sample Number				2				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP2						
Depth to Top				0.2						
Depth to Bottom				0.30						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.53**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.7**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.15**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**2.3**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.83**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**80.1**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**11**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.005	0.004	0.011	**0.040**	0.5	2	25
Barium	A-T-025	Y	N	0.027	0.014	0.052	**0.150**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.007	0.001	0.014	**0.020**	0.5	10	70
Copper	A-T-025	Y	N	0.004	0.002	0.009	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.003	0.001	0.007	**0.010**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.032	0.022	0.062	**0.230**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.017	0.009	0.033	**0.100**	4	50	200
Chloride	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.4	0.1	0.8	**1.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	2	<1.00	4	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	64	29	125	**317**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.5					
Conductivity (µS/cm)	A-T-037	N	N	127	57					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	93.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.490						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/6						
Client Sample Number				3				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP2						
Depth to Top				0.5						
Depth to Bottom				0.60						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.37**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.08**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.8**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.14**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**667**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**197**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.002	0.004	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.014	0.007	0.027	**0.070**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.006	0.002	0.011	**0.020**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.004	0.005	0.007	**0.050**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.004	0.002	0.008	**0.030**	4	50	200
Chloride	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.6	0.2	1.1	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	1	<1.00	2	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	49	23	94	**249**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.2					
Conductivity (µS/cm)	A-T-037	N	N	98	46					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	94.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.510						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/8						
Client Sample Number				4				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP3						
Depth to Top				0.25						
Depth to Bottom				0.40						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.33**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.15**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.08**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**3.4**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**1.21**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**317**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.003	0.005	**0.030**	0.5	2	25
Barium	A-T-025	Y	N	0.008	0.015	0.015	**0.140**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	0.002	0.003	**0.020**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.009	0.003	0.019	**0.040**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	<0.001	0.011	<0.002	**<0.01**	0.5	10	50
Antimony	A-T-025	Y	N	0.001	<0.001	0.003	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	<0.001	0.004	<0.002	**<0.01**	4	50	200
Chloride	A-T-026	Y	N	1	<1.00	2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	1.1	0.4	2.1	**4.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	8	<1.00	15	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	73	31	142	**342**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.3	7.3					
Conductivity (µS/cm)	A-T-037	N	N	145	62					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	93.4						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.490						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

envirolab

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	15/07148/9						
Client Sample Number				6				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP3						
Depth to Top				0.8						
Depth to Bottom				0.90						
Date Sampled				28/10/2015						
Sample Type				Soil - ES						
Sample Matrix Code				1A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	Y	Y	**8.14**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.02**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	N	**1.6**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.16**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**36.5**				100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_D$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	Y	N	0.002	0.002	0.004	**0.020**	0.5	2	25
Barium	A-T-025	Y	N	0.011	0.011	0.022	**0.110**	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	0.5	10	70
Copper	A-T-025	Y	N	0.001	<0.001	0.002	**<0.01**	2	50	100
Mercury	A-T-025	Y	N	<0.0001	<0.0001	<0.0002	**<0.001**	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.007	0.002	0.013	**0.020**	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	Y	N	0.002	0.006	0.004	**0.050**	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	Y	N	0.004	0.003	0.008	**0.030**	4	50	200
Chloride	A-T-026	Y	N	1	<1.00	<2	**<10**	800	15000	25000
Fluoride	A-T-026	Y	N	0.8	0.3	1.6	**3.0**	10	150	500
Sulphate as SO_4	A-T-026	Y	N	<1.00	<1.00	<2	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	45	<20	86	**<200**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.0	6.7					
Conductivity (µS/cm)	A-T-037	N	N	91	29					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	94.1						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.510						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

Waste Classification Report

AB5DD-KTCSC-36CGP

Job name

Land to the North of Twickenham Railway Station.

Waste Stream

Soil - Hazwaste Template v2.2 (WM3 1st ed)

Comments

Preliminary Waste Assessment of laboratory analysis results for asphalt samples taken as part of a site investigation at Land to the North of Twickenham Railway Station, London Road, Twickenham.

Project

Site

Land to the North of Twickenham Railway Station, London Road, Twickenham

Classified by

Name:
Coates, Jon
Date:
01/12/2015 14:07 UTC
Telephone:
020 7928 7888

Company:
Waterman Energy Environment & Design Ltd
Pickfords Wharf
Clink Street
London
SE1 9DG

Report

Created by: Coates, Jon
Created date: 01/12/2015 14:07 UTC

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazardous properties	Page
1	TP1		Hazardous	HP 14, HP 7	2
2	TP2		Non Hazardous		4
3	TP3	0.2	Hazardous	HP 14, HP 7	6

Classification of sample: TP1

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample Name:
TP1
Sample Depth:
0 m
Moisture content: **0%**
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R51/53 "Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.0294%)

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

dibenz[a,h]anthracene: (conc.: 0.00297%)

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

Hazard Statements hit:

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

Because of determinand:

benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.025%)

Determinands (Moisture content: 0%, no correction)

naphthalene: (Whole conc. entered as: 83.4 mg/kg or 0.00834%)
acenaphthylene: (Whole conc. entered as: 40.1 mg/kg or 0.00401%)
acenaphthene: (Whole conc. entered as: 32.1 mg/kg or 0.00321%)
fluorene: (Whole conc. entered as: 92.3 mg/kg or 0.00923%)
phenanthrene: (Whole conc. entered as: 403 mg/kg or 0.0403%)
anthracene: (Whole conc. entered as: 156 mg/kg or 0.0156%)
fluoranthene: (Whole conc. entered as: 421 mg/kg or 0.0421%)
pyrene: (Whole conc. entered as: 391 mg/kg or 0.0391%)
benzo[a]anthracene: (Whole conc. entered as: 294 mg/kg or 0.0294%)
chrysene: (Whole conc. entered as: 242 mg/kg or 0.0242%)
benzo[b]fluoranthene: (Whole conc. entered as: 256 mg/kg or 0.0256%)
benzo[k]fluoranthene: (Whole conc. entered as: 94 mg/kg or 0.0094%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 250 mg/kg or 0.025%)
dibenz[a,h]anthracene: (Whole conc. entered as: 29.7 mg/kg or 0.00297%)
indeno[123-cd]pyrene: (Whole conc. entered as: 156 mg/kg or 0.0156%)
benzo[ghi]perylene: (Whole conc. entered as: 121 mg/kg or 0.0121%)
coronene: (Whole conc. entered as: 24.7 mg/kg or 0.00247%)

Notes utilised in assessment

C14: Step 4
"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"

C14: Step 5
"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"

Note 1 , used on:

Test: "HP 7 on Carc. 1A; H350" for determinand: "benzo[a]pyrene; benzo[def]chrysene"

Classification of sample: TP2

Non Hazardous Waste
Classified as **17 03 02**
in the List of Waste

Sample details

Sample Name:
TP2
Sample Depth:
0 m
Moisture content: **0%**
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 02 (Bituminous mixtures other than those mentioned in 17 03 01)

Hazard properties

None identified

Determinands (Moisture content: 0%, no correction)

naphthalene: (Whole conc. entered as: 0.05 mg/kg or 0.000005%)
acenaphthylene: (Whole conc. entered as: 0.11 mg/kg or 0.000011%)
acenaphthene: (Whole conc. entered as: 0.07 mg/kg or 0.000007%)
fluorene: (Whole conc. entered as: 0.15 mg/kg or 0.000015%)
phenanthrene: (Whole conc. entered as: 1.04 mg/kg or 0.000104%)
anthracene: (Whole conc. entered as: 0.28 mg/kg or 0.000028%)
fluoranthene: (Whole conc. entered as: 2.32 mg/kg or 0.000232%)
pyrene: (Whole conc. entered as: 2.35 mg/kg or 0.000235%)
benzo[a]anthracene: (Whole conc. entered as: 1.73 mg/kg or 0.000173%)
chrysene: (Whole conc. entered as: 1.94 mg/kg or 0.000194%)
benzo[b]fluoranthene: (Whole conc. entered as: 3.07 mg/kg or 0.000307%)
benzo[k]fluoranthene: (Whole conc. entered as: 0.96 mg/kg or 0.000096%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 2.57 mg/kg or 0.000257%)
dibenz[a,h]anthracene: (Whole conc. entered as: 0.44 mg/kg or 0.000044%)
indeno[123-cd]pyrene: (Whole conc. entered as: 1.87 mg/kg or 0.000187%)
benzo[ghi]perylene: (Whole conc. entered as: 1.64 mg/kg or 0.000164%)
coronene: (Whole conc. entered as: 0.41 mg/kg or 0.000041%)

Notes utilised in assessment

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"

Note 1 , used on:

Test: "HP 7 on Carc. 1A; H350" for determinand: "benzo[a]pyrene; benzo[def]chrysene"

Classification of sample: TP3

Hazardous Waste
Classified as **17 03 01 ***
in the List of Waste

Sample details

Sample Name:
TP3
Sample Depth:
0.2 m
Moisture content: **0%**
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 03 01 * (Bituminous mixtures containing coal tar)

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R51/53 "Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.0358%)

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

dibenz[a,h]anthracene: (conc.: 0.0047%)

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

Hazard Statements hit:

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

Because of determinand:

benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.0136%)

Determinands (Moisture content: 0%, no correction)

naphthalene: (Whole conc. entered as: 10.3 mg/kg or 0.00103%)
acenaphthylene: (Whole conc. entered as: 27.8 mg/kg or 0.00278%)
acenaphthene: (Whole conc. entered as: 25.4 mg/kg or 0.00254%)
fluorene: (Whole conc. entered as: 48 mg/kg or 0.0048%)
phenanthrene: (Whole conc. entered as: 340 mg/kg or 0.034%)
anthracene: (Whole conc. entered as: 97.8 mg/kg or 0.00978%)
fluoranthene: (Whole conc. entered as: 180 mg/kg or 0.018%)
pyrene: (Whole conc. entered as: 177 mg/kg or 0.0177%)
benzo[a]anthracene: (Whole conc. entered as: 358 mg/kg or 0.0358%)
chrysene: (Whole conc. entered as: 211 mg/kg or 0.0211%)
benzo[b]fluoranthene: (Whole conc. entered as: 140 mg/kg or 0.014%)
benzo[k]fluoranthene: (Whole conc. entered as: 83 mg/kg or 0.0083%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 136 mg/kg or 0.0136%)
dibenz[a,h]anthracene: (Whole conc. entered as: 47 mg/kg or 0.0047%)
indeno[123-cd]pyrene: (Whole conc. entered as: 133 mg/kg or 0.0133%)
benzo[ghi]perylene: (Whole conc. entered as: 71.8 mg/kg or 0.00718%)
coronene: (Whole conc. entered as: 13.5 mg/kg or 0.00135%)

Notes utilised in assessment

C14: Step 4
"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"

C14: Step 5
"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"

Note 1 , used on:

Test: "HP 7 on Carc. 1A; H350" for determinand: "benzo[a]pyrene; benzo[def]chrysene"

Appendix A: Classifier defined and non CLP determinands

acenaphthylene (CAS Number: 208-96-8)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R22, R26, R27, R36, R37, R38
Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

acenaphthene (CAS Number: 83-32-9)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36, R37, R38, N; R50/53, N; R51/53
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

fluorene (CAS Number: 86-73-7)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N; R50/53
Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

phenanthrene (CAS Number: 85-01-8)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R22, R36, R37, R38, R40, R43, N; R50/53
Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

anthracene (CAS Number: 120-12-7)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36, R37, R38, R43, N; R50/53
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

fluoranthene (CAS Number: 206-44-0)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xn; R22, N; R50/53
Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

pyrene (CAS Number: 129-00-0)

Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xi; R36/37/38, N; R50/53
Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R40
Hazard Statements: Carc. 2; H351

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

Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23/07/2015
Risk Phrases: N; R50/53
Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

coronene (CAS Number: 191-07-1)

Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16/06/2014
Risk Phrases: R68/20
Hazard Statements: STOT SE 2; H371

Appendix B: Notes

C14: Step 4

from section: WM3: C14 in the document: "WM3 - Waste Classification"

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..."

C14: Step 5

from section: WM3: C14 in the document: "WM3 - Waste Classification"

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..."

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."

Appendix C: Version

Classification utilises the following:

- CLP Regulations - Regulation 1272/2008/EC of 16 December 2008
- 1st ATP - Regulation 790/2009/EC of 10 August 2009
- 2nd ATP - Regulation 286/2011/EC of 10 March 2011
- 3rd ATP - Regulation 618/2012/EU of 10 July 2012
- 4th ATP - Regulation 487/2013/EU of 8 May 2013
- Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
- 5th ATP - Regulation 944/2013/EU of 2 October 2013
- 6th ATP - Regulation 605/2014/EU of 5 June 2014
- WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
- Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
- WM3 - Waste Classification - May 2015
- 7th ATP - Regulation 2015/1221/EU of 24 July 2015
- POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

HazWasteOnline Engine: WM3 1st Edition, May 2015
HazWasteOnline Engine Version: 2015.308.2983.5979 (04 Nov 2015)
HazWasteOnline Database: 2015.308.2983.5979 (04 Nov 2015)

Waste Classification Report

PLM3F-KH7ZH-CE7WL

Job name

Land to the North of Twickenham Railway Station

Waste Stream

Soil - Hazwaste Template v2.2 (WM3 1st ed)

Comments

Preliminary Waste Assessment of laboratory analysis results for soil samples taken as part of a site investigation at Land to the North of Twickenham Railway Station, London Road, Twickenham.

Project

E11251

Site

Land to the North of Twickenham Railway Station, London Road, Twickenham

Classified by

Name:
Coates, Jon
Date:
04/12/2015 10:51 UTC
Telephone:
020 7928 7888

Company:
Waterman Energy Environment & Design Ltd
Pickfords Wharf
Clink Street
London
SE1 9DG

Report

Created by: Coates, Jon
Created date: 04/12/2015 10:51 UTC

Job summary

Classification of sample: TP1[1]

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

Sample details

Sample Name:
TP1[1]
Sample Depth:
0.5 m
Moisture content: **7.8%**
(no correction)

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

Hazard properties

None identified

Determinands (Moisture content: 7.8%, no correction)

arsenic trioxide: (Cation conc. entered: 8 mg/kg, converted to compound conc.:10.563 mg/kg or 0.00106%)
barium oxide: (Cation conc. entered: 29 mg/kg, converted to compound conc.:32.379 mg/kg or 0.00324%)
beryllium oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.775 mg/kg or <0.000278%) IGNORED Because: "<LOD"
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 15 mg/kg, converted to compound conc.:21.923 mg/kg or 0.00219%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 6 mg/kg, converted to compound conc.:6.755 mg/kg or 0.000676%)
iron (III) oxide: (Cation conc. entered: 15600 mg/kg, converted to compound conc.:22304.019 mg/kg or 2.23%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 14 mg/kg, converted to compound conc.:14 mg/kg or 0.0014%, Note 1 conc.: 0.0014%)
mercury dichloride: (Cation conc. entered: <0.17 mg/kg, converted to compound conc.:<0.23 mg/kg or <0.000023%) IGNORED Because: "<LOD"
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 12 mg/kg, converted to compound conc.:31.64 mg/kg or 0.00316%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 26 mg/kg, converted to compound conc.:46.415 mg/kg or 0.00464%)
zinc sulphate: (Cation conc. entered: 22 mg/kg, converted to compound conc.:54.325 mg/kg or 0.00543%)
sulphur dioxide: (Cation conc. entered: <5 mg/kg, converted to compound conc.:<9.99 mg/kg or <0.000999%) IGNORED Because: "<LOD"
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 24.9 mg/kg or 0.00249%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: 0.15 mg/kg or 0.000015%)
acenaphthylene: (Whole conc. entered as: 0.12 mg/kg or 0.000012%)
acenaphthene: (Whole conc. entered as: 0.07 mg/kg or 0.000007%)

fluorene: (Whole conc. entered as: 0.21 mg/kg or 0.000021%)
phenanthrene: (Whole conc. entered as: 1.44 mg/kg or 0.000144%)
anthracene: (Whole conc. entered as: 0.36 mg/kg or 0.000036%)
fluoranthene: (Whole conc. entered as: 1.91 mg/kg or 0.000191%)
pyrene: (Whole conc. entered as: 1.53 mg/kg or 0.000153%)
benzo[a]anthracene: (Whole conc. entered as: 0.78 mg/kg or 0.000078%)
chrysene: (Whole conc. entered as: 0.79 mg/kg or 0.000079%)
benzo[b]fluoranthene: (Whole conc. entered as: 0.99 mg/kg or 0.000099%)
benzo[k]fluoranthene: (Whole conc. entered as: 0.33 mg/kg or 0.000033%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 0.88 mg/kg or 0.000088%)
dibenz[a,h]anthracene: (Whole conc. entered as: 0.14 mg/kg or 0.000014%)
indeno[123-cd]pyrene: (Whole conc. entered as: 0.61 mg/kg or 0.000061%)
benzo[ghi]perylene: (Whole conc. entered as: 0.52 mg/kg or 0.000052%)
coronene: (Whole conc. entered as: 0.15 mg/kg or 0.000015%)

Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this test to non hazardous because: "Non hazardous by HP 3(i). Appendix C of WM3 v1. Figure C3.1."

Notes utilised in assessment

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Note 1 , used on:

Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H302" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 7 on Carc. 1A; H350, Carc. 1A; H350i, Carc. 1B; H350, Carc. 1B; H350i" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Test: "HP 10 on Repr. 1A; H360, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1A; H360Df, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1B; H360Fd, Repr. 1B; H360Df" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: TP1[2]

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

Sample details

Sample Name:
TP1[2]
Sample Depth:
0.8 m
Moisture content: **5.9%**
(no correction)

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

Hazard properties

None identified

Determinands (Moisture content: 5.9%, no correction)

arsenic trioxide: (Cation conc. entered: 8 mg/kg, converted to compound conc.:10.563 mg/kg or 0.00106%)
barium oxide: (Cation conc. entered: 21 mg/kg, converted to compound conc.:23.447 mg/kg or 0.00234%)
beryllium oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.775 mg/kg or <0.000278%) IGNORED Because: "<LOD"
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 14 mg/kg, converted to compound conc.:20.462 mg/kg or 0.00205%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 4 mg/kg, converted to compound conc.:4.504 mg/kg or 0.00045%)
iron (III) oxide: (Cation conc. entered: 15800 mg/kg, converted to compound conc.:22589.968 mg/kg or 2.259%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 10 mg/kg, converted to compound conc.:10 mg/kg or 0.001%, Note 1 conc.: 0.001%)
mercury dichloride: (Cation conc. entered: <0.17 mg/kg, converted to compound conc.:<0.23 mg/kg or <0.000023%) IGNORED Because: "<LOD"
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 12 mg/kg, converted to compound conc.:31.64 mg/kg or 0.00316%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 25 mg/kg, converted to compound conc.:44.63 mg/kg or 0.00446%)
zinc sulphate: (Cation conc. entered: 18 mg/kg, converted to compound conc.:44.447 mg/kg or 0.00444%)
sulphur dioxide: (Cation conc. entered: 10 mg/kg, converted to compound conc.:19.979 mg/kg or 0.002%)
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 4.9 mg/kg or 0.00049%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: 0.07 mg/kg or 0.000007%)
acenaphthylene: (Whole conc. entered as: 0.14 mg/kg or 0.000014%)
acenaphthene: (Whole conc. entered as: 0.07 mg/kg or 0.000007%)
fluorene: (Whole conc. entered as: 0.24 mg/kg or 0.000024%)

phenanthrene: (Whole conc. entered as: 2.3 mg/kg or 0.00023%)
anthracene: (Whole conc. entered as: 0.58 mg/kg or 0.000058%)
fluoranthene: (Whole conc. entered as: 3.71 mg/kg or 0.000371%)
pyrene: (Whole conc. entered as: 3.1 mg/kg or 0.00031%)
benzo[a]anthracene: (Whole conc. entered as: 1.47 mg/kg or 0.000147%)
chrysene: (Whole conc. entered as: 1.5 mg/kg or 0.00015%)
benzo[b]fluoranthene: (Whole conc. entered as: 1.69 mg/kg or 0.000169%)
benzo[k]fluoranthene: (Whole conc. entered as: 0.55 mg/kg or 0.000055%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 1.47 mg/kg or 0.000147%)
dibenz[a,h]anthracene: (Whole conc. entered as: 0.22 mg/kg or 0.000022%)
indeno[123-cd]pyrene: (Whole conc. entered as: 0.94 mg/kg or 0.000094%)
benzo[ghi]perylene: (Whole conc. entered as: 0.77 mg/kg or 0.000077%)
coronene: (Whole conc. entered as: 0.19 mg/kg or 0.000019%)

Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this test to non hazardous because: "Non hazardous by HP 3(i). Appendix C of WM3 v1. Figure C3.1."

Notes utilised in assessment

C14: Step 5
"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note 5 , used on:

determinand: "sulphur dioxide"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: TP2[1]

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

Sample details

Sample Name:
TP2[1]
Sample Depth:
0.2 m
Moisture content: **6.6%**
(no correction)

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

Hazard properties

None identified

Determinands (Moisture content: 6.6%, no correction)

arsenic trioxide: (Cation conc. entered: 10 mg/kg, converted to compound conc.:13.203 mg/kg or 0.00132%)
barium oxide: (Cation conc. entered: 37 mg/kg, converted to compound conc.:41.311 mg/kg or 0.00413%)
beryllium oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.775 mg/kg or <0.000278%) IGNORED Because: "<LOD"
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 12 mg/kg, converted to compound conc.:17.539 mg/kg or 0.00175%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 11 mg/kg, converted to compound conc.:12.385 mg/kg or 0.00124%)
iron (III) oxide: (Cation conc. entered: 16600 mg/kg, converted to compound conc.:23733.764 mg/kg or 2.373%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 86 mg/kg, converted to compound conc.:86 mg/kg or 0.0086%, Note 1 conc.: 0.0086%)
mercury dichloride: (Cation conc. entered: 0.31 mg/kg, converted to compound conc.:0.42 mg/kg or 0.000042%)
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 13 mg/kg, converted to compound conc.:34.277 mg/kg or 0.00343%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 23 mg/kg, converted to compound conc.:41.059 mg/kg or 0.00411%)
zinc sulphate: (Cation conc. entered: 68 mg/kg, converted to compound conc.:167.912 mg/kg or 0.0168%)
sulphur dioxide: (Cation conc. entered: <5 mg/kg, converted to compound conc.:<9.99 mg/kg or <0.000999%) IGNORED Because: "<LOD"
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 15.8 mg/kg or 0.00158%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: 0.31 mg/kg or 0.000031%)
acenaphthylene: (Whole conc. entered as: 0.41 mg/kg or 0.000041%)
acenaphthene: (Whole conc. entered as: 0.41 mg/kg or 0.000041%)
fluorene: (Whole conc. entered as: 0.97 mg/kg or 0.000097%)

phenanthrene: (Whole conc. entered as: 6.63 mg/kg or 0.000663%)
anthracene: (Whole conc. entered as: 1.75 mg/kg or 0.000175%)
fluoranthene: (Whole conc. entered as: 11.4 mg/kg or 0.00114%)
pyrene: (Whole conc. entered as: 10.9 mg/kg or 0.00109%)
benzo[a]anthracene: (Whole conc. entered as: 6.41 mg/kg or 0.000641%)
chrysene: (Whole conc. entered as: 6.67 mg/kg or 0.000667%)
benzo[b]fluoranthene: (Whole conc. entered as: 9.21 mg/kg or 0.000921%)
benzo[k]fluoranthene: (Whole conc. entered as: 3.57 mg/kg or 0.000357%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 8.57 mg/kg or 0.000857%)
dibenz[a,h]anthracene: (Whole conc. entered as: 1.16 mg/kg or 0.000116%)
indeno[123-cd]pyrene: (Whole conc. entered as: 5.82 mg/kg or 0.000582%)
benzo[ghi]perylene: (Whole conc. entered as: 4.81 mg/kg or 0.000481%)
coronene: (Whole conc. entered as: 1.02 mg/kg or 0.000102%)

Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this test to non hazardous because: "Non hazardous by HP 3(i). Appendix C of WM3 v1. Figure C3.1."

Notes utilised in assessment

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "mercury dichloride"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Note 1 , used on:

Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H302" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 7 on Carc. 1A; H350, Carc. 1A; H350i, Carc. 1B; H350, Carc. 1B; H350i" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Test: "HP 10 on Repr. 1A; H360, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1A; H360Df, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1B; H360Fd, Repr. 1B; H360Df" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: TP2[2]

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

Sample details

Sample Name:
TP2[2]
Sample Depth:
0.5 m
Moisture content: **5.6%**
(no correction)

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

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.112%)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.112%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.00852%)

Hazard properties (substances considered hazardous until shown otherwise)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.112%)

Determinands (Moisture content: 5.6%, no correction)

arsenic trioxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:17.164 mg/kg or 0.00172%)
barium oxide: (Cation conc. entered: 27 mg/kg, converted to compound conc.:30.146 mg/kg or 0.00301%)

beryllium oxide: (Cation conc. entered: 1 mg/kg, converted to compound conc.:2.775 mg/kg or 0.000278%)
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 20 mg/kg, converted to compound conc.:29.231 mg/kg or 0.00292%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 6 mg/kg, converted to compound conc.:6.755 mg/kg or 0.000676%)
iron (III) oxide: (Cation conc. entered: 26900 mg/kg, converted to compound conc.:38460.136 mg/kg or 3.846%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 30 mg/kg, converted to compound conc.:30 mg/kg or 0.003%, Note 1 conc.: 0.003%)
mercury dichloride: (Cation conc. entered: <0.17 mg/kg, converted to compound conc.:<0.23 mg/kg or <0.000023%) IGNORED Because: "<LOD"
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 21 mg/kg, converted to compound conc.:55.37 mg/kg or 0.00554%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 38 mg/kg, converted to compound conc.:67.837 mg/kg or 0.00678%)
zinc sulphate: (Cation conc. entered: 34 mg/kg, converted to compound conc.:83.956 mg/kg or 0.0084%)
sulphur dioxide: (Cation conc. entered: 29 mg/kg, converted to compound conc.:57.94 mg/kg or 0.00579%)
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 1120 mg/kg or 0.112%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: 5.09 mg/kg or 0.000509%)
acenaphthylene: (Whole conc. entered as: 3.65 mg/kg or 0.000365%)
acenaphthene: (Whole conc. entered as: 5.16 mg/kg or 0.000516%)
fluorene: (Whole conc. entered as: 10.7 mg/kg or 0.00107%)
phenanthrene: (Whole conc. entered as: 44.3 mg/kg or 0.00443%)
anthracene: (Whole conc. entered as: 21.3 mg/kg or 0.00213%)
fluoranthene: (Whole conc. entered as: 53.9 mg/kg or 0.00539%)
pyrene: (Whole conc. entered as: 77.6 mg/kg or 0.00776%)
benzo[a]anthracene: (Whole conc. entered as: 85.2 mg/kg or 0.00852%)
chrysene: (Whole conc. entered as: 53.5 mg/kg or 0.00535%)
benzo[b]fluoranthene: (Whole conc. entered as: 55.5 mg/kg or 0.00555%)
benzo[k]fluoranthene: (Whole conc. entered as: 38.1 mg/kg or 0.00381%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 63.4 mg/kg or 0.00634%)
dibenz[a,h]anthracene: (Whole conc. entered as: 15.1 mg/kg or 0.00151%)
indeno[123-cd]pyrene: (Whole conc. entered as: 76.3 mg/kg or 0.00763%)
benzo[ghi]perylene: (Whole conc. entered as: 49.4 mg/kg or 0.00494%)
coronene: (Whole conc. entered as: 8.6 mg/kg or 0.00086%)

Notes utilised in assessment

C14: Step 4
"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"

C14: Step 5
"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note 5 , used on:

determinand: "sulphur dioxide"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: TP3[2]

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

Sample details

Sample Name:
TP3[2]
Sample Depth:
0.8 m
Moisture content: **5.9%**
(no correction)

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

Hazard properties

None identified

Determinands (Moisture content: 5.9%, no correction)

arsenic trioxide: (Cation conc. entered: 14 mg/kg, converted to compound conc.:18.485 mg/kg or 0.00185%)
barium oxide: (Cation conc. entered: 20 mg/kg, converted to compound conc.:22.33 mg/kg or 0.00223%)
beryllium oxide: (Cation conc. entered: 1 mg/kg, converted to compound conc.:2.775 mg/kg or 0.000278%)
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:19 mg/kg or 0.0019%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 6 mg/kg, converted to compound conc.:6.755 mg/kg or 0.000676%)
iron (III) oxide: (Cation conc. entered: 23500 mg/kg, converted to compound conc.:33599.003 mg/kg or 3.36%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 11 mg/kg, converted to compound conc.:11 mg/kg or 0.0011%, Note 1 conc.: 0.0011%)
mercury dichloride: (Cation conc. entered: <0.17 mg/kg, converted to compound conc.:<0.23 mg/kg or <0.000023%) IGNORED Because: "<LOD"
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 19 mg/kg, converted to compound conc.:50.097 mg/kg or 0.00501%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 32 mg/kg, converted to compound conc.:57.126 mg/kg or 0.00571%)
zinc sulphate: (Cation conc. entered: 23 mg/kg, converted to compound conc.:56.794 mg/kg or 0.00568%)
sulphur dioxide: (Cation conc. entered: 28 mg/kg, converted to compound conc.:55.942 mg/kg or 0.00559%)
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 24.8 mg/kg or 0.00248%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: <0.03 mg/kg or <0.000003%) IGNORED Because: "<LOD"
acenaphthylene: (Whole conc. entered as: 0.16 mg/kg or 0.000016%)
acenaphthene: (Whole conc. entered as: 0.05 mg/kg or 0.000005%)
fluorene: (Whole conc. entered as: 0.11 mg/kg or 0.000011%)
phenanthrene: (Whole conc. entered as: 2.15 mg/kg or 0.000215%)

anthracene: (Whole conc. entered as: 0.74 mg/kg or 0.000074%)
fluoranthene: (Whole conc. entered as: 7.05 mg/kg or 0.000705%)
pyrene: (Whole conc. entered as: 5.89 mg/kg or 0.000589%)
benzo[a]anthracene: (Whole conc. entered as: 3.56 mg/kg or 0.000356%)
chrysene: (Whole conc. entered as: 3.38 mg/kg or 0.000338%)
benzo[b]fluoranthene: (Whole conc. entered as: 4.03 mg/kg or 0.000403%)
benzo[k]fluoranthene: (Whole conc. entered as: 1.43 mg/kg or 0.000143%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 3.39 mg/kg or 0.000339%)
dibenz[a,h]anthracene: (Whole conc. entered as: 0.51 mg/kg or 0.000051%)
indeno[123-cd]pyrene: (Whole conc. entered as: 2.05 mg/kg or 0.000205%)
benzo[ghi]perylene: (Whole conc. entered as: 1.63 mg/kg or 0.000163%)
coronene: (Whole conc. entered as: 0.39 mg/kg or 0.000039%)

Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this test to non hazardous because: "Non hazardous by HP 3(i). Appendix C of WM3 v1. Figure C3.1."

Notes utilised in assessment

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"
Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Note 1 , used on:

Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H302" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 7 on Carc. 1A; H350, Carc. 1A; H350i, Carc. 1B; H350, Carc. 1B; H350i" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 1A; H360, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1A; H360Df, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1B; H360Fd, Repr. 1B; H360Df" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note 5 , used on:

determinand: "sulphur dioxide"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: TP3

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

Sample details

Sample Name:
TP3
Sample Depth:
0.25 m
Moisture content: **6.9%**
(no correction)

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

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.00439%)

Determinands (Moisture content: 6.9%, no correction)

barium oxide: (Cation conc. entered: 46 mg/kg, converted to compound conc.:51.359 mg/kg or 0.00514%)
beryllium oxide: (Cation conc. entered: 1 mg/kg, converted to compound conc.:2.775 mg/kg or 0.000278%)
boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<13.43 mg/kg or <0.00134%) IGNORED Because: "<LOD"
cadmium sulfate: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.927 mg/kg or <0.0000927%) IGNORED Because: "<LOD"
chromium(III) oxide: (Cation conc. entered: 15 mg/kg, converted to compound conc.:21.923 mg/kg or 0.00219%)
chromium(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.923 mg/kg or <0.000192%) IGNORED Because: "<LOD"
copper (I) oxide: (Cation conc. entered: 13 mg/kg, converted to compound conc.:14.637 mg/kg or 0.00146%)
iron (III) oxide: (Cation conc. entered: 17700 mg/kg, converted to compound conc.:25306.483 mg/kg or 2.531%)
lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Cation conc. entered: 66 mg/kg, converted to compound conc.:66 mg/kg or 0.0066%, Note 1 conc.: 0.0066%)
mercury dichloride: (Cation conc. entered: <0.17 mg/kg, converted to compound conc.:<0.23 mg/kg or <0.000023%) IGNORED Because: "<LOD"
molybdenum(VI) oxide: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) IGNORED Because: "<LOD"
nickel sulfate: (Cation conc. entered: 13 mg/kg, converted to compound conc.:34.277 mg/kg or 0.00343%)
selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex: (Cation conc. entered: <1 mg/kg, converted to compound conc.:<2.554 mg/kg or <0.000255%) IGNORED Because: "<LOD"
divanadium pentaoxide; vanadium pentoxide: (Cation conc. entered: 29 mg/kg, converted to compound conc.:51.77 mg/kg or 0.00518%)
zinc sulphate: (Cation conc. entered: 37 mg/kg, converted to compound conc.:91.364 mg/kg or 0.00914%)
sulphur dioxide: (Cation conc. entered: <5 mg/kg, converted to compound conc.:<9.99 mg/kg or <0.000999%) IGNORED Because: "<LOD"
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 150 mg/kg or 0.015%)
benzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
toluene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
ethylbenzene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"

xylene: (Whole conc. entered as: <0.01 mg/kg or <0.000001%) IGNORED Because: "<LOD"
naphthalene: (Whole conc. entered as: 0.93 mg/kg or 0.000093%)
acenaphthylene: (Whole conc. entered as: 2.46 mg/kg or 0.000246%)
acenaphthene: (Whole conc. entered as: 0.73 mg/kg or 0.000073%)
fluorene: (Whole conc. entered as: 2.36 mg/kg or 0.000236%)
phenanthrene: (Whole conc. entered as: 20.8 mg/kg or 0.00208%)
anthracene: (Whole conc. entered as: 8.41 mg/kg or 0.000841%)
fluoranthene: (Whole conc. entered as: 42.6 mg/kg or 0.00426%)
pyrene: (Whole conc. entered as: 39 mg/kg or 0.0039%)
benzo[a]anthracene: (Whole conc. entered as: 43.9 mg/kg or 0.00439%)
chrysene: (Whole conc. entered as: 29.9 mg/kg or 0.00299%)
benzo[b]fluoranthene: (Whole conc. entered as: 34.4 mg/kg or 0.00344%)
benzo[k]fluoranthene: (Whole conc. entered as: 16.4 mg/kg or 0.00164%)
benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 34.5 mg/kg or 0.00345%)
dibenz[a,h]anthracene: (Whole conc. entered as: 5.21 mg/kg or 0.000521%)
indeno[123-cd]pyrene: (Whole conc. entered as: 19.1 mg/kg or 0.00191%)
benzo[ghi]perylene: (Whole conc. entered as: 14.3 mg/kg or 0.00143%)
coronene: (Whole conc. entered as: 2.39 mg/kg or 0.000239%)

Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this test to non hazardous because: "Non hazardous by HP 3(i). Appendix C of WM3 v1. Figure C3.1."

Notes utilised in assessment

C14: Step 4

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..." , used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]anthracene"

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "nickel sulfate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "zinc sulphate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "divanadium pentaoxide; vanadium pentoxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Note 1 , used on:

Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Test: "HP 6 on Acute Tox. 4; H302" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 7 on Carc. 1B; H350, Carc. 1A; H350, Carc. 1B; H350i, Carc. 1A; H350i" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 1A; H360, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1B; H360Fd, Repr. 1B; H360Df, Repr. 1A; H360Df" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Determinand notes

Note 1 , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

Note A , used on:

determinand: "lead compounds with the exception of those specified elsewhere in this Annex (worst case)"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Appendix A: Classifier defined and non CLP determinands

barium oxide (CAS Number: 1304-28-5)

Conversion factor: 1.117
Comments: Data from C&L Inventory Database; No entries in Registered Substances Database, IARC or Pesticide Properties Database
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=88825&HarmOnly=no?fc=true&lang=en
Data source date: 02/06/2014
Risk Phrases: R20, R22, R25, R35, R36/37/38
Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Acute Tox. 3; H301, Skin Corr. 1A; H314, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

boron tribromide/trichloride/trifluoride (combined) (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Conversion factor: 13.43
Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06/08/2015
Risk Phrases: R14, T+; R26/28, C; R34, C; R35
Hazard Statements: EUH014, Acute Tox. 2; H330, Acute Tox. 2; H300, Skin Corr. 1A; H314, Skin Corr. 1B; H314

chromium(III) oxide (CAS Number: 1308-38-9)

Conversion factor: 1.462
Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R20, R22, R36, R37, R38, R42, R43, R50/53, R60, R61
Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

iron (III) oxide (CAS Number: 1309-37-1)

Conversion factor: 1.43
Comments:
Data source: C&L Inventory, Registered Substances database, SDS: Sigma-Aldrich dated 19/09/2012 (REACH compliant)
Data source date: 21/05/2015
Risk Phrases: R36/37/38
Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335

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

CLP index number: 082-001-00-6
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Risk Phrases: None.
Additional Hazard Statements: Carc. 1A; H350
Reason:
03/06/2015 - Carc. 1A; H350 hazard statement sourced from: Larsen et al., 2014; Survey of lead and lead compounds, Environmental Project No. 1539, The Danish Environmental Protection Agency

TPH (C6 to C40) petroleum group

Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: R10, R45, R46, R51/53, R63, R65
Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

ethylbenzene (CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Risk Phrases: None.
Additional Hazard Statements: Carc. 2; H351
Reason:
03/06/2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (CAS Number: 208-96-8)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R22, R26, R27, R36, R37, R38
Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

acenaphthene (CAS Number: 83-32-9)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36, R37, R38, N; R50/53, N; R51/53
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

fluorene (CAS Number: 86-73-7)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N; R50/53
Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

phenanthrene (CAS Number: 85-01-8)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R22, R36, R37, R38, R40, R43, N; R50/53
Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

anthracene (CAS Number: 120-12-7)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36, R37, R38, R43, N; R50/53
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

fluoranthene (CAS Number: 206-44-0)

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xn; R22, N; R50/53
Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

pyrene (CAS Number: 129-00-0)

Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xi; R36/37/38, N; R50/53
Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R40
Hazard Statements: Carc. 2; H351

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

Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23/07/2015
Risk Phrases: N; R50/53
Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

coronene (CAS Number: 191-07-1)

Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16/06/2014
Risk Phrases: R68/20
Hazard Statements: STOT SE 2; H371

Appendix B: Notes

C14: Step 4

from section: WM3: C14 in the document: "WM3 - Waste Classification"

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..."

C14: Step 5

from section: WM3: C14 in the document: "WM3 - Waste Classification"

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..."

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 5

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

"The concentration limits for gaseous mixtures are expressed as volume per volume percentage."

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."

WM3: Unknown oil

from section: Chapter 3: 4. Waste oils and other wastes containing or contaminated with oil in the document: "WM3 - Waste Classification"

"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

"

Appendix C: Version

Classification utilises the following:

- CLP Regulations - Regulation 1272/2008/EC of 16 December 2008
- 1st ATP - Regulation 790/2009/EC of 10 August 2009
- 2nd ATP - Regulation 286/2011/EC of 10 March 2011
- 3rd ATP - Regulation 618/2012/EU of 10 July 2012
- 4th ATP - Regulation 487/2013/EU of 8 May 2013
- Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
- 5th ATP - Regulation 944/2013/EU of 2 October 2013
- 6th ATP - Regulation 605/2014/EU of 5 June 2014
- WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
- Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
- WM3 - Waste Classification - May 2015
- 7th ATP - Regulation 2015/1221/EU of 24 July 2015
- POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

HazWasteOnline Engine: WM3 1st Edition, May 2015
HazWasteOnline Engine Version: 2015.308.2983.5979 (04 Nov 2015)
HazWasteOnline Database: 2015.308.2983.5979 (04 Nov 2015)

UK and Ireland Office Locations