constructiveevaluation
site investigation ● building pathology

PROJECT REFERENCE: 16.8997

APRIL 2016

ADDITIONAL GROUND INVESTIGATION

Project Nobel, Harlow Data Centre

FOR

abstruct
consulting

CONSTRUCTIVE EVALUATION
UNIT 15 & 16 FORD LANE BUSINESS PARK
FORD LANE
FORD
BN18 0UZ
T: 01243 533499
E: info@theconstructivegroup.com

Document Approval		
Report Authors		
Max Smeeth BSc, MSc **(Geo-Environmental Scientist)**	Signature:	Date: 11/4/16
Graham Carter BSc, FGS **(Engineering Geologist)**	Signature:	Date: 11/4/16

Report Checked by		
Rob Marsh BSc, FGS **(Engineering Geologist)**	Signature:	Date: 11/04/16

Report Approved		
Paul Moore **(Director)**	Signature:	Date: 11.04.16

REPORT REVISED (response to significant changes in client requirements, methods of work etc).			
Name:	Signature:	Date:	Nature of revision:
Name:	Signature:	Date:	Nature of revision:
Name:	Signature:	Date:	Nature of revision:

Contents

Appendices

Trading Terms
Unless specifically stated within the tender/quotation or unless identified within the introduction to this report it is confirmed that this report has been compiled wholly in accord with Constructive Evaluation Limited's terms of engagement. This report is provided for sole use by the Client and is confidential to them. No responsibility whatsoever for the contents of the report will be accepted to anyone other than the Client.

Copyright

Context
This report is written in the context of an agreed scope of work between Constructive Evaluation Limited and the Client and should not be used in a different context. In light of additional information becoming available, improved practices and changes in legislation amendment or re-interpretation of the report in whole or part may be necessary after its original submission.

Professional Interpretation
The recommendations made and opinions expressed in the report are based on the conditions revealed by the site works together with an assessment of the data from the insitu and laboratory testing or in respect of the desktop reports. No responsibility can be accepted for conditions that have not been revealed by the research, site works and testing.

The Client is advised that the conditions observed on site by Constructive Evaluation Limited at the time of any site survey may be subject to change. Certain indicators of the presence of hazardous substances may have been latent at the time of the most recent site reconnaissance and they may subsequently have become evident. It is not possible to assess areas which are inaccessible or where access is not granted and CE accept no liability for risks subsequently identified therein.

The conceptual model, Risk assessment and sampling regime has been formulated in accordance with current UK guidance at time of production based upon the relevant information gained from Phase 1 and Phase 2 investigations. While the model and assessment offer opinions and interpretations of these guidelines, the comments made are for guidance only and no liability can be accepted for their accuracy. It is possible that aspects of desktop study may need to be altered to conform to the requirements of the statutory regulatory bodies.

Intrusive Field Operations
The data collected through direct operations in the production of this report has been so obtained, unless directly otherwise stated, in accordance with current UK guidance, law or accepted industry practice, including but not limited to: BS.5930: 1990 Code of Practice for Site Investigations (Amendment 2: 2010), & BS.10175: 2011 + A1: 2013 Investigations into Potentially Contaminated Sites. Exact exploratory locations will depend upon access conditions, site use and plant capability, CE do not accept liability for issues arising from material identified between or outside of the area of exploratory locations.

Laboratory Testing
Unless stated otherwise within the text, all geotechnical and material laboratory tests have been performed in accordance with the relevant British Standard Documents. Laboratory testing for contaminated land assessment is completed under the UKAS / MCERTS accreditation schemes, unless identified as otherwise in the report.

Human Health Risk Assessment Criteria
The Environment Agency has recently undertaken revision of the Soil Guideline Values (SGVs) which are partially complete. Where standards are available using the "new" approach, these have been utilised for correlative purposes. Where standards have not yet been revised, guidance following the "old" approach has been utilised. Please note that upon release of the remaining guidelines, the standards contained within this report may be subject to change. In addition, the second edition of the LQM CIEH guidance has now been released and will be utilised in favour of previously published guideline values.

Third Parties
The findings and opinions conveyed in this report are based on information obtained from a variety of sources, including that from previous Site investigations and chemical testing laboratories. Constructive Evaluation Limited has assumed that such information is correct. Constructive Evaluation Limited cannot and does not guarantee the authenticity or reliability of the information it has relied upon and can accept no responsibility for inaccuracies with the data supplied by other parties.

The accuracy of the historical map extracts supplied can not be guaranteed and it should be noted that different conditions may have existed between mapping sheet editions. Therefore, there can be no certainty that all areas of contamination have been identified during the Phase 1 investigation.

Definitions
Reference to the word "contamination" in this report does not relate to the statutory definition of contaminated land under 1990 Environmental Protection Act unless otherwise stated. The definition used in this report is: "Land that contains substances that, when present in sufficient quantities or concentrations, are likely to cause harm, directly or indirectly, to man, to the environment, or on occasion to other targets" (NATO CCMS, 1985).

1.0 INTRODUCTION

Constructive Evaluation (CE) Limited were instructed by Abstruct Consulting LLP (EQ10770, 9th February 2016) to carry out an additional Ground Investigation and extensive Waste Acceptance Criteria (WAC) testing at Harlow Data Centre, London Road, Harlow, CM17 9NA (hereafter referred to as the "site").

The site is currently occupied in part by light industrial/ office units with associated car parking and areas of soft landscaping although there has been recent demolition and ground preparation works associated with proposals to construct four new buildings associated with the business park.

Proposed development plans can be viewed in **Appendix A**.

This additional Ground Investigation was required in order to supplement geotechnical information obtained during the first phase of investigative works (Ref: 14.8039, Date: May 2015 – 'Stage 2: Site Investigation', of which a summary is provided in Section 3.0 of this report. WAC testing was required in order to characterise stockpiles of spoil and crushed concrete produced during recent demolition works. A risk assessment and Conceptual Site Model fall outside the scope of this report.

Further to this, the scope of works was designed by the client, and consisted of:

- One 10m borehole within area DC-1 complete with SPTs and associated geotechnical testing;
- CBR tests along the route of the proposed spine road; and
- Thirty-two WAC tests to characterise five stockpiles across the site.

2.0 SITE DESCRIPTION

The site is located to the east of Harlow and is centred on National Grid Reference 545014, 210048, with a site area of approximately 11 hectares.

Currently occupied in part by light industrial/ office units with associated car parking and areas of soft landscaping although there has been recent demolition and ground preparation works associated with proposals to construct four new buildings associated with the business park.

3.0 PREVIOUS REPORTS

A number of reports have been issued for the study site, the most pertinent of which are detailed in the table below:

Report	Author	Date	Reference
Stage 1: Desktop Study and Walkover Survey, KAO Business Park	CE	April 2014	14.8039
Stage 2: Site Investigation, KAO Business Park	CE	May 2014	14.8039

3.1 Stage 2: Site Investigation, May 2014

3.1.1 Ground Conditions

The following strata conditions were encountered during the intrusive works conducted in May 2014:

Hardstanding – Tarmac surfacing was described in the northern half of the open car park and around the units in the northwest corner of the site area to a maximum thickness of 0.20mbgl.

The southern half of the open car park was laid to brick paving, and in turn underlain by a fine gravel subbase and subsequently by a coarse gravel base to a maximum depth of 0.70mbgl.

Made Ground – Made Ground soils were encountered to a maximum depth of 2.50mbgl. However the thickest Made Ground deposits were consistently described in the bunded area which forms the southwest corner of the site. Here, Made Ground soils, described as reworked slightly gravelly clay, locally with masonry rubble to depths of 1.00m to 2.50mbgl.

Elsewhere onsite the Made Ground soils were described to a maximum depth of 1.70mbgl, but generally not deeper than 0.70mbgl and were described as either subbase to pavements or reworked silty sandy and gravelly Clay soils with masonry rubble.

Alluvium – At the locations of WS4 and WS5 the upper most natural soils were described as soft consistency dark grey slightly gravelly silty Clay. The gravels are fine, subrounded and of flint or chalk. This material was encountered to the base of both of these boreholes, a maximum depth of 3.00mbgl.

Slightly Sandy Slightly Gravelly Clay – With the exception of BH2, across the remainder of the site the upper most natural soils were described as stiff to very stiff consistency brown mottled grey and speckled white slightly sandy and slightly gravelly Clay. The gravels are subangular to rounded, fine to coarse sized chalk and occasional flint. This material is considered to be representative of the weathered Lowestoft Formation and is encountered to a maximum depth of 8.00mbgl.

The latter stratum was observed to become very stiff and dark grey with depth at BH1, 3, 4, 5 and 6; considered representative of unweathered Lowestoft formation material. This soil was encountered to a maximum depth of 13.35mbgl.

Gravel – Within BH1 and BH6, the above soils were found to be underlain by dense brown sandy flint Gravel, the thickness of this deposit was proven in BH1 only at 1.70m thick. The maximum proven depth of this material was 8.40mbgl in BH1 and 13.40mbgl in BH6.

Gravelly Silt – At locations BH1 and BH7 the gravel / chalky clay soils are underlain by material described as stiff consistency gravelly Silt. The gravel is described as fine to coarse sized chalk. This material is considered to be representative of depositional variation in the Lowestoft Formation. This soil is encountered to a maximum depth of 12.00mbgl.

Fissured Clay – Below the base of the latter deposit in BH1, the solid geology of the London Clay Formation is encountered; this material is described as very stiff consistency fissured dark grey silty Clay. Fissures are closely spaced, subvertical and subhorizontal. This material is encountered to the final drilled depth of 20.00mbgl.

4.0 PHYSICAL SETTING

4.1 Published Geology

The Geology of Britain Viewer (British Geological Survey (BGS), 2016) indicates the majority of the site is underlain by superficial deposits of the Lowestoft Formation with an area in the south initially underlain by Head Deposits; the bedrock Geology is the London Clay Formation.

Head Deposits – Comprised of gravel, sand and clay depending on the upslope source and distance from that source. The deposits are poorly sorted and formed mostly by solifluction, hillwash and soil creep.

Lowestoft Formation – Forms an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays. The till is characterised by its chalk and flint content. The carbonate content of the till matrix is approximately 30%.

London Clay Formation – Typically consists of dark bluish to brownish grey, stiff heavily fissured Clay, containing variable amounts of fine grained sand and silt (particularly at the top and base of the deposit), weathering to orange brown Clay near the surface.

5.0 FIELDWORKS

The following intrusive works were carried out on 22nd and 23rd of March 2016 supervised by an Environmental Scientist from CE. The SI was undertaken in accordance with the scope of works agreed with our Client and in relation to statutory guidance including BS5930: 1999 Code of Practice for Site Investigations (Amendment 2: 2010) and BS10175: 2011+A1: 2013 Investigation of Potentially Contaminated Sites: Code of Practice.

- Prior to any excavations taking place a Cable Avoidance Tool (CAT) was used to check for the position of any underlying electrical services. In addition, starter pits were excavated to 1.20 meters below ground level (mbgl) to clear test locations prior to any further drilling commencing.

- One cable percussive borehole (16BH1) was advanced to 10.00mbgl using a Shell and Auger drilling rig. This was supplemented by the completion of insitu Standard Penetration Tests (SPTs) throughout drilling, at standard centres.

- Five dynamic cone penetrometer tests (16CBR1-5) were targeted in positions along the route of the proposed spine road.

- Removal of representative samples for geotechnical analysis.

- Removal of thirty-two samples for Waste Acceptance Criteria (WAC) testing to characterise soil for muck-away.

The site layout plan indicating the position of the test locations is provided in **Appendix A**, with photographs taken during the investigation in **Appendix B**.

6.0 GROUND CONDITIONS

6.1 Soils

The following strata conditions were encountered during the drilling of 16BH1:

Type 1 – Compacted type 1 fill was identified from ground level to 0.08mbgl.

Made Ground – Three layers of Made Ground were identified below the ground surface of Type 1 fill, and comprised the following; gravelly sand of brick and flint (0.08-0.30mbgl), concrete (0.30-0.35mbgl), and Type 1 sand and gravel of limestone hardcore/ sandstone (0.35-0.45mbgl).

Silty Clay – Stiff light brown and in parts grey speckled white white slightly gravelly silty Clay was identified from 0.45 to 1.50mbgl. Gravel comprised sub angular to rounded fine and medium chalk.

This strata became very stiff brown and in parts red/ brown and grey speckled white slightly gravelly from 1.50mbgl. Gravel comprised sub angular and sub rounded fine and medium and occasional chalk and flint.

The silty Clay became very stiff dark grey and occasional speckled cream slightly gravelly from 2.90mbgl (to maximum drill depth of 10.00mbgl). Gravel comprised sub angular to rounded fine and medium chalk.

This silty Clay strata is thought to represent the Lowestoft Formation.

Please refer to the stratigraphic logs contained within **Appendix C** for a more detailed description.

6.2 Groundwater

No groundwater was encountered during this investigation, however water was added to assist the drilling, and therefore a standing level may be encountered during normal conditions.

6.3 Visual and Olfactory Observations

There was no visual or olfactory evidence of contamination noted during this investigation.

6.4 Ground Gas

When consideration is given to soil types (clays and silts) identified throughout this most recent investigation and past investigations, there is thought to be limited risk of ground gas generation. Furthermore, there are no records of historical or active waste facilities within 1500m of the site.

7.0 SOIL TESTING

7.1 WAC Testing

Thirty two soil samples obtained from five stockpiles were submitted for Waste Acceptance Criteria Testing. Sample frequency was set at approximately one sample per 500m^3 as set out by the client, or based on consistency of stockpile constituents.
Sample details are listed below:

SSP1 – Spoil Stockpile 1 – Approximately 4,000m^3

- SSP1-1
- SSP1-2
- SSP1-3
- SSP1-4
- SSP1-5
- SSP1-6
- SSP1-7
- SSP1-8

- SSP1-9

SSP2 – Spoil Stockpile 2 – Approximately 2,000m^3

- SSP2-1
- SSP2-2
- SSP2-3
- SSP2-4
- SSP2-5

DSP1 – Demolition Stockpile 1 – Approximately 6,000m^3

- DSP1-1
- DSP1-2
- DSP1-3
- DSP1-4
- DSP1-5
- DSP1-6
- DSP1-7
- DSP1-8
- DSP1-9
- DSP1-10

DSP2 – Demolition Stockpile 2 – Approximately 1,500m^3

- DSP2-1
- DSP2-2
- DSP2-3
- DSP2-4

DSP3 – Demolition Stockpile 3 – Approximately 2,000m^3

- DSP3-1
- DSP3-2
- DSP3-3
- DSP3-4
- DSP3-5

Laboratory Certificates can be viewed in **Appendix D**.

7.2 Geotechnical Testing

7.2.1 Atterberg Limits and Natural Moisture Content

Six samples from 16BH1 at 0.70m to 7.20mbgl were submitted for determination of their Natural Moisture Content (NMC) and Plasticity Index (PI).

NMC values were found to range from 16% to 25%. Liquid Limits ranged from 36-41% and the modified PI (once the 7-14% retained on the 425micron sieve is taken into account) ranged from 20-24%.

On this basis the soils of the Lowestoft Formation are classified as intermediate plasticity Clay soils and would be of medium shrinkage potential in accordance with NHBC standards.

It is possible to use comparison of 40% of the liquid limit against NMC of a soil as a preliminary indicator of soil desiccation. The NMC values are recorded as 40% or greater when compared to the Liquid Limit, with lower NMC values coincidental with higher granular fractions. As a result it is not considered that the analysis has identified soil desiccation.

These results compare well to the results of the previous investigation which identified Liquid limits of 40-47% and NMC values of 13-19% in the Lowestoft Formation.

7.2.3 Sulphate and pH Analysis

Five samples were submitted for determination of pH and Water Soluble Sulphate concentration.

The results indicate Water soluble sulphate concentrations of 53mg/l to 264mg/l, with pH levels

ranging from 7.9 to 8.1.

This testing compares well to the results of the previous investigation which indicated a Water Soluble sulphate range of 20-230mg/l and pH of 7.8-8.7.

Full laboratory test results can be found in **Appendix D**.

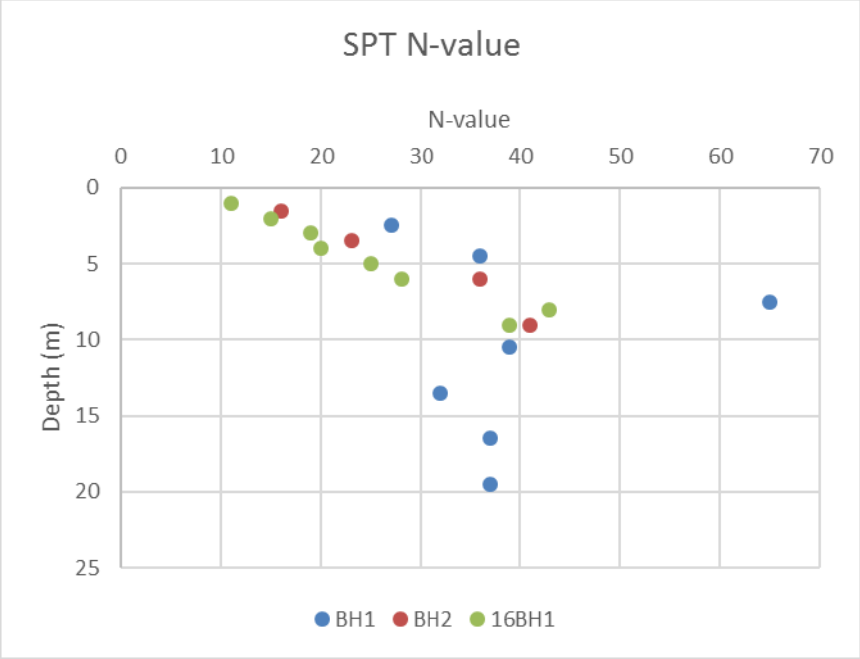
8.0 INSITU TESTING

8.1 Standard Penetration Testing

Standard Penetration testing was completed throughout the drilling of 16BH1 at 1.00m centres to 5.00mbgl, 1.50m centres thereafter. This form of testing is completed using a 63.5kg drop hammer weight, over a 750mm drop, measuring the blow counts for six, 75mm increments. The first two values are recorded as seating blows, with the remaining four values, added together to provide an 'N-value'.

N-values show an increasing trend throughout the borehole; from 1.20m to 2.20mbgl and were found to increase from N=11 to N=15, indicative of stiff consistency soils and considered to accordance with the logging engineer's description of this material as stiff. The subsequent testing from 3.20m to 9.20mbgl indicates an increase in N-value of N=19 to N=39; these values indicting stiff to very stiff consistency clay soils, complementing the hand specimen description.

However, it is noted that the insitu test results indicate lower soil consistency than those results from the closest boreholes during the previous investigation, BH1 and BH2. The graph below indicates the N-values from this work compared to those from BH1 and BH2.



For full details please refer to the soil logs contained within **Appendix C**.

8.2 Dynamic Cone Penetrometer (DCP) Testing

A Dynamic Cone Penetrometer (DCP) was used on site to determine equivalent California Bearing Ratio (CBR) values for the new spine access road design. This form of testing utilises an 8kg drop weight, over a height of 575mm, with a 60degree fixed cone angle at the base (20mm diameter). Measurement of penetration is recorded against a fixed ruler per number of blows. Continuous measurements can be made down to 850mm or, with added extension bars to a recommended maximum depth of 2000mm.

8.2.1 CBR Results

The table below identified the equivalent values determined by the DCP testing.

Hole ID	Depth (mm)	Equivalent CBR%
16CBR1	**300**	**5.0**
16CBR1	**600**	**6.5**
16CBR2	**300**	**4.8**
16CBR2	**600**	**13.4**
16CBR3	**300**	**5.8**
16CBR3	**600**	**17.3**
16CBR4	**300**	**15.1**
16CBR4	**600**	**13.4**
16CBR5	**300**	**17.3**
16CBR5	**600**	**17.3**

9.0 DISCUSSION OF GROUND CONDITIONS

9.1 Soil Engineering Properties

The purpose of this investigation is to provide additional pile design information in the former car park area which forms the south of the Business Park. Exact design proposals are not known at the time of writing, however the proposed construction is presumed to comprise a series of multi storey office type buildings.

The soil conditions encountered in this phase of investigation are considered complimentary to those described during the previous work in 2014. The initial ground conditions are formed by Made Ground comprised of layers of Type 1 or other granular fill over a 50mm thick concrete base to a maximum depth of 0.35mbgl.

The underlying material is described as stiff consistency becoming very stiff consistency silty clay with variable gravel content of chalk and flint, considered representative of the Lowestoft Formation. This consistency is confirmed by the results of insitu SPT testing.

The results of insitu testing indicate a slightly lower soil consistency that that indicated by the adjacent boreholes BH1 and BH2 in the previous investigation. The previous work indicated undrained shear strengths of 239-439kN/m^2 within the Lowestoft Formation; on the basis of the results of this work it would be considered prudent to utilise the an undrained shear strength profile closer to the lower bound values identified by the previous testing results in pile design calculations.

It is considered that the slightly lower soil strengths indicated by this investigation may be

attributable to the higher NMC values indicated by laboratory testing compared to those from the previous work. This may be a reflection of the different phase of the development, as much of the surrounding hardstanding has been disturbed since the original work.

The results of both investigations identify the Lowestoft Formation soils as intermediate plasticity clay.

Furthermore the design of piled foundations and the selection of the construction methodology should take into consideration the slightly variable soil conditions described within BH1, with particular consideration to the issues surrounding the presence of a dense gravel layer from 6.70m to 8.40mbgl. The mode of deposition of this soil suggests that further granular soils may be encountered elsewhere, and these may be expected to locally be subject to the presence of perched water.

9.2 Deep Foundations

It is understood that a piled foundation is to be used for the new development, on the basis of the soil conditions encountered it is considered that a CFA pile would be the most suitable. However, it is recommended that a specialist contractor is consulted to complete the final design and method selection for the installation of new pile type foundations.

Further guidance, including indicative safe working loads for pile layout design can be found in the previous investigation report.

9.3 Floor Slabs

The floor slab design will depend on the final foundation designs and is dependent on the underlying materials, including bearing capacity and the presence of any cohesive or Made Ground Soils.

Given the variable thickness of Made Ground and the high shrinkage potential soils encountered, it would be recommended that a fully suspended floor slab is used in order to account for these factors; the advice of the NHBC guidelines should be adhered to in the design of such a floor.

9.4 Excavations and Groundwater

It is possible that excavations of less than 1.20mbgl will require support to their faces due to the variable, granular and loose nature of the Made Ground. Should excavations be taken below this then adequate support should be provided in order to satisfy statutory safety regulations.

Groundwater was not encountered during the investigation, however it was in previous investigations elsewhere on site at depths up to 0.80mbgl. Groundwater levels are also dependent upon seasonal variations and levels may change after periods of heavy rainfall or prolonged drought. As such, if groundwater is encountered within any excavations during the construction phase it should be dealt with appropriately and removed using good engineering practices. If any dewatering is used as part of this process then care should be taken not to remove any of the finer particles.

The design of any temporary retaining structures to support excavation faces should be made assuming the following moderately conservative parameters:

Material	Effective angle of friction (Ø')	Effective Cohesion; c' (kPa)	Bulk Density kN/m^3
Made Ground	24	0	16
Lowestoft Formation	28	0	18

9.5 Aggressive Chemical Environment to Concrete

Sulphate concentrations within the Made Ground and Natural soils were found to range from 53mg/l to 264mg/l and pH levels were noted to range from 7.9 to 8.1. These values suggest that a design class of DS-1 should be utilised along with an ACEC subclass of AC-1.

APPENDICES

Appendix A – Site Plan

Appendix B – Photographic Log

Appendix C – Soil Logs

Appendix D – Laboratory Test Certificates

APPENDIX A

Site Plan

PRYOR

Job Title
London Road
Harlow

Client
Stace

Rev	Date	Description

Volumetric as-built

Drawing Title
Stockpiles volumes

Project Ref

Scale 1:1000
Date Drawn 21/10/2015

Reviewed By
Original Size A3

Drawing Number
WSCJP-LRH-001

Rev
0

NOTES

1. Do not scale from this drawing except for planning purposes. Use figured dimensions only.
2. All dimensions must checked on site prior to commencement of work.
3. Where applicable this drawing is to be read in conjunction with other consultants drawings.
4. This drawing is the copyright of Constructive Evaluation Ltd.

rev	date	amendment	check

constructiveevaluation
Building & Material Test Consultants
TEL-01243-533499 FAX-01243-531070
email-info@theconstructivegroup.com

Client.
BARRY SAUNDERS & PARTNERS

Project.
KAO BUSINESS PARK, HARLOW

Drawing. SITE INVESTIGATION PLAN
scale NTS

date APR 14	drawn D.Y	checked
drawing number 14.8039		revision

APPENDIX B

Photographic Log

Investigation Photographs

Project Ref: 16.8997

Site Name: Project Nobel, Harlow

1.

2.

1) SSP2
2) SSP2
3) SSP1
4) SSP1

3.

4.

Investigation Photographs

5.

6.

7.

8.

5) DSP2

6) DSP3

7) DSP1

8) Drilling location of 16BH1

APPENDIX C

Soil Logs

constructiveevaluation
site investigation • building pathology

Borehole No
16BH1
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Project Nobel, Harlow Business Centre	16.8997		Cable
Location: Harlow, Essex		Level: -	Scale 1:50
Plant: Cable Percussive Rig			
Client: Abstruct Consulting LLP		Dates: 23/03/2016	Logged By MS
Drilled By: Geotechnical Construction			

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.08			MADE GROUND: Compacted type 1 fill.
		0.30	D		0.30			MADE GROUND: Dark brown slightly silty gravelly Sand. Gravel is angular to sub rounded fine to coarse brick and flint.
		0.50	B		0.35			
		0.70	D		0.45			MADE GROUND: Concrete.
								MADE GROUND: Type 1 sand and gravel fill.
		1.20	SPT	N=11 (2,2,3,3,2,3)				Geotextile membrane over stiff stiff light brown and in parts grey slightly gravelly silty CLAY. Gravel is sub angular to rounded fine and medium chalk. Cream/ white streaks in places. (LOWESTOFT FORMATION).
		1.20-1.70	SPTLS		1.50			
		1.70	D					Very stiff brown and in parts red/ brown and grey speckeled white slightly gravelly silty CLAY. Gravel is sub angular and sub rounded fine and medium and occasional chalk and flint. (LOWESTOFT FORMATION).
		2.20	SPT	N=15 (3,3,4,3,3,5)				
		2.20-2.70	SPTLS					
		2.70	D		2.90			
		3.20	SPT	N=19 (2,4,5,4,4,6)				Very stiff dark grey and occasional speckled cream slightly gravelly silty CLAY. Gravel is sub angular to rounded fine and medium chalk. (LOWESTOFT FORMATION).
		3.20-3.70	SPTLS					
		3.70	D					
		4.20	SPT	N=20 (3,3,4,5,5,6)				
		4.20-4.70	SPTLS					
		4.70	D					
		5.20	SPT	N=25 (4,5,6,6,6,7)				
		5.20-5.70	SPTLS					
		6.20	SPT	N=28 (6,7,6,7,7,8)				
		6.20	D					
		6.20-6.70	SPTLS					
		7.20	D					
		8.00	SPT	N=43 (5,8,9,11,11,12)				
		8.00-8.50	SPTLS					
		9.20	SPT	N=39 (6,6,8,9,10,12)				
		9.20	D					
		9.20-9.70	SPTLS					
			Type	Results				End of Borehole at 10.00 m

Remarks: Borehole backfilled with arisings. No installation. Groundwater not encountered.

AGS

constructiveevaluation
site investigation • building pathology

Project Nobel, Harlow Data Centre

Determination of Penetration Value of Unbound Soil using Dynamic Cone Penetrometer (DCP)

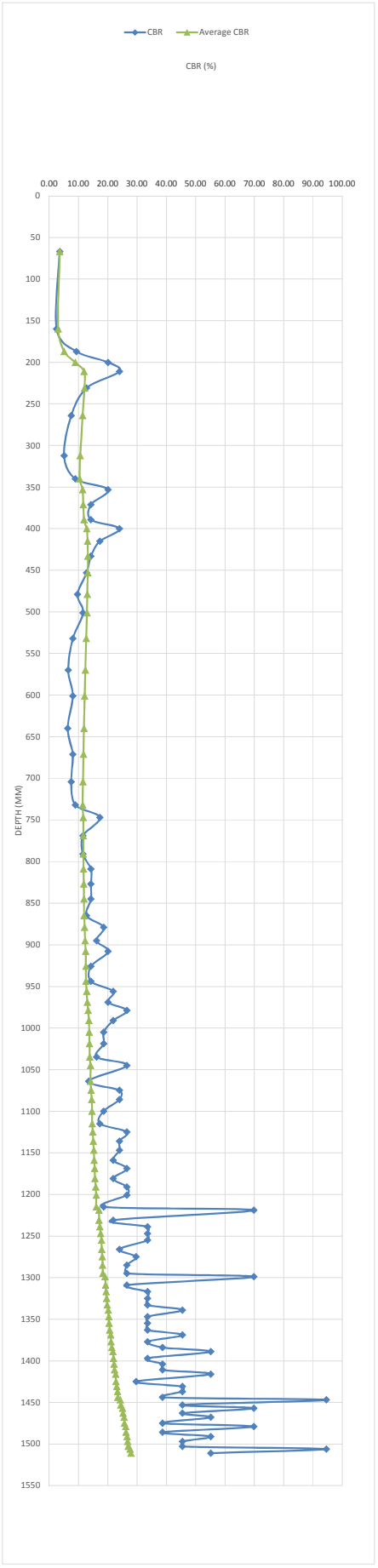
Sample Reference

Test Ref.	16CBR1
Location	Eastern end of proposed spine road
Date	22/03/2016
Material:	Made Ground/ Natural
Level	From ground level

Number of Blows	Total Blows	Rod 1 Reading (mm)	Rod 2 Reading (mm)	Rod 3 Reading (mm)	Total Depth	mm/Blow (5)		CBR (%)	Average CBR (%)
START POSITION:									
	zero	200	137		0				
1	1	267			67	67	0.5498389	3.5	3.5
1	2	360			160	93	0.3993135	2.5	3.0
1	3	387			187	27	0.9670485	9.3	5.1
1	4	400			200	13	1.3025619	20.1	8.8
1	5	411			211	11	1.3792479	23.9	11.9
1	6	431			231	20	1.1048113	12.7	12.0
1	7	464			264	33	0.8749308	7.5	11.4
1	8	512			312	48	0.702928	5.0	10.6
1	9	540			340	28	0.950354	8.9	10.4
1	10	553			353	13	1.3025619	20.1	11.4
1	11	571			371	18	1.153177	14.2	11.6
1	12	589			389	18	1.153177	14.2	11.8
1	13	600			400	11	1.3792479	23.9	12.8
1	14	615			415	15	1.2368715	17.3	13.1
1	15	633			433	18	1.153177	14.2	13.2
1	16	653			453	20	1.1048113	12.7	13.1
1	17	679			479	26	0.9843732	9.6	12.9
1	18	701			501	22	1.0610592	11.5	12.9
1	19	732			532	31	0.9036307	8.0	12.6
1	20	770			570	38	0.8101687	6.5	12.3
1	21	801			601	31	0.9036307	8.0	12.1
1	22	840			640	39	0.7982447	6.3	11.8
1	23	871			671	31	0.9036307	8.0	11.7
1	24	904			704	33	0.8749308	7.5	11.5
1	25	932			732	28	0.950354	8.9	11.4
1	26	932	152		747	15	1.2368715	17.3	11.6
1	27	932	174		769	22	1.0610592	11.5	11.6
1	28	932	196		791	22	1.0610592	11.5	11.6
1	29	932	214		809	18	1.153177	14.2	11.7
1	30	932	232		827	18	1.153177	14.2	11.8
1	31	932	250		845	18	1.153177	14.2	11.9
1	32	932	270		865	20	1.1048113	12.7	11.9
1	33	932	284		879	14	1.2685427	18.6	12.1
1	34	932	300		895	16	1.2072452	16.1	12.2
1	35	932	313		908	13	1.3025619	20.1	12.4
1	36	932	331		926	18	1.153177	14.2	12.5
1	37	932	349		944	18	1.153177	14.2	12.5
1	38	932	361		956	12	1.3393054	21.8	12.8
1	39	932	374		969	13	1.3025619	20.1	13.0
1	40	932	384		979	10	1.423	26.5	13.3
1	41	932	396		991	12	1.3393054	21.8	13.5
1	42	932	410		1005	14	1.2685427	18.6	13.6
1	43	932	424		1019	14	1.2685427	18.6	13.7
1	44	932	440		1035	16	1.2072452	16.1	13.8
1	45	932	450		1045	10	1.423	26.5	14.1
1	46	932	469		1064	19	1.1283574	13.4	14.1
1	47	932	480		1075	11	1.3792479	23.9	14.3
1	48	932	491		1086	11	1.3792479	23.9	14.5
1	49	932	505		1100	14	1.2685427	18.6	14.6
1	50	932	520		1115	15	1.2368715	17.3	14.6
1	51	932	530		1125	10	1.423	26.5	14.8
1	52	932	541		1136	11	1.3792479	23.9	15.0
1	53	932	552		1147	11	1.3792479	23.9	15.2
1	54	932	564		1159	12	1.3393054	21.8	15.3
1	55	932	574		1169	10	1.423	26.5	15.5
1	56	932	586		1181	12	1.3393054	21.8	15.6
1	57	932	596		1191	10	1.423	26.5	15.8
1	58	932	606		1201	10	1.423	26.5	16.0
1	59	932	620		1215	14	1.2685427	18.6	16.0
1	60	932	624		1219	4	1.8436226	69.8	16.9
1	61	932	636		1231	12	1.3393054	21.8	17.0
1	62	932	644		1239	8	1.5254339	33.5	17.3
1	63	932	652		1247	8	1.5254339	33.5	17.5
1	64	932	660		1255	8	1.5254339	33.5	17.8
1	65	932	671		1266	11	1.3792479	23.9	17.9
1	66	932	680		1275	9	1.4713657	29.6	18.1
1	67	932	690		1285	10	1.423	26.5	18.2
1	68	932	700		1295	10	1.423	26.5	18.3
1	69	932	704		1299	4	1.8436226	69.8	19.1
1	70	932	714		1309	10	1.423	26.5	19.2
1	71	932	722		1317	8	1.5254339	33.5	19.4
1	72	932	730		1325	8	1.5254339	33.5	19.6
1	73	932	738		1333	8	1.5254339	33.5	19.8
1	74	932	744		1339	6	1.6574941	45.4	20.1
1	75	932	752		1347	8	1.5254339	33.5	20.3
1	76	932	760		1355	8	1.5254339	33.5	20.5
1	77	932	768		1363	8	1.5254339	33.5	20.6
1	78	932	774		1369	6	1.6574941	45.4	20.9
1	79	932	782		1377	8	1.5254339	33.5	21.1
1	80	932	789		1384	7	1.5867314	38.6	21.3
1	81	932	794		1389	5	1.7411887	55.1	21.7
1	82	932	802		1397	8	1.5254339	33.5	21.9
1	83	932	809		1404	7	1.5867314	38.6	22.1
1	84	932	816		1411	7	1.5867314	38.6	22.3
1	85	932	821		1416	5	1.7411887	55.1	22.7
1	86	932	830		1425	9	1.4713657	29.6	22.7
1	87	932	836		1431	6	1.6574941	45.4	23.0
1	88	932	842		1437	6	1.6574941	45.4	23.3
1	89	932	849		1444	7	1.5867314	38.6	23.4
1	90	932	852		1447	3	1.9756828	94.6	24.2
1	91	932	858		1453	6	1.6574941	45.4	24.5
1	92	932	862		1457	4	1.8436226	69.8	25.0
1	93	932	868		1463	6	1.6574941	45.4	25.2
1	94	932	873		1468	5	1.7411887	55.1	25.5
1	95	932	880		1475	7	1.5867314	38.6	25.6
1	96	932	884		1479	4	1.8436226	69.8	26.1
1	97	932	891		1486	7	1.5867314	38.6	26.2
1	98	932	896		1491	5	1.7411887	55.1	26.5
1	99	932	902		1497	6	1.6574941	45.4	26.7
1	100	932	908		1503	6	1.6574941	45.4	26.9
1	101	932	911		1506	3	1.9756828	94.6	27.6
1	102	932	916		1511	5	1.7411887	55.1	27.8

Remarks

TEST 16CBR1



constructiveevaluation
site investigation • building pathology

Project Nobel, Harlow Data Centre

Determination of Penetration Value of Unbound Soil using Dynamic Cone Penetrometer (DCP)

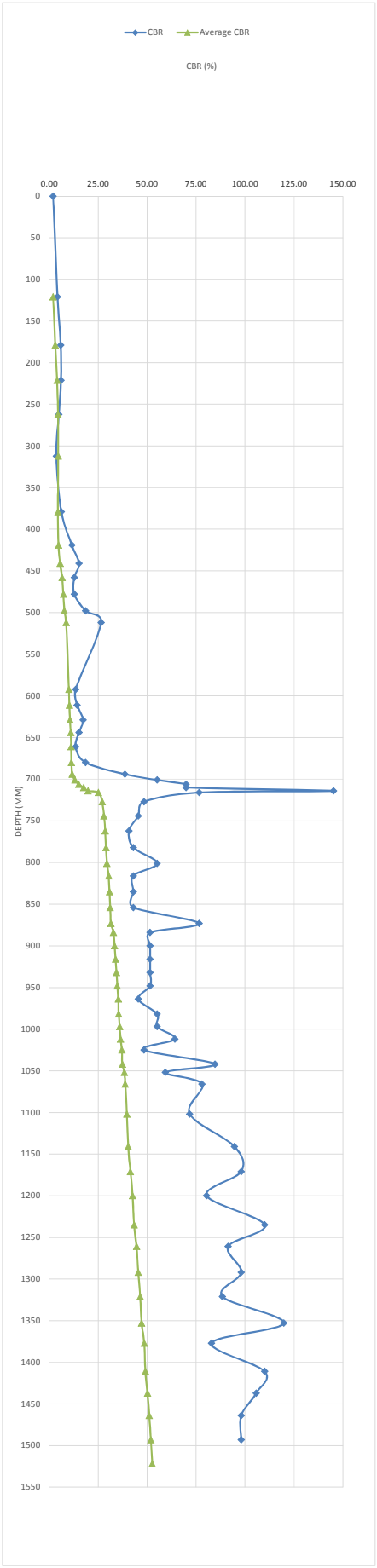
Sample Reference

Test Ref.	16CBR2
Location	
Date	22/03/2016
Material:	Made Ground/ Natural
Level	From ground level

Number of Blows	Total Blows	Rod 1 Reading (mm)	Rod 2 Reading (mm)	Rod 3 Reading (mm)	Total Depth	mm/Blow (5)		CBR (%)	Average CBR (%)
START POSITION:									
zero		210	12		0				
1	1	331			121	121	0.2784959	1.9	1.9
1	2	389			179	58	0.6160566	4.1	3.0
1	3	431			221	42	0.7642255	5.8	3.9
1	4	472			262	41	0.7752875	6.0	4.5
1	5	522			312	50	0.6841887	4.8	4.5
1	6	589			379	67	0.5498389	3.5	4.4
1	7	629			419	40	0.7866226	6.1	4.6
1	8	651			441	22	1.0610592	11.5	5.5
1	9	668			458	17	1.1794155	15.1	6.5
1	10	688			478	20	1.1048113	12.7	7.2
1	11	708			498	20	1.1048113	12.7	7.7
1	12	722			512	14	1.2685427	18.6	8.6
8	20	802			592	10	1.423	26.5	10.0
1	21	802	31		611	19	1.1283574	13.4	10.2
1	22	802	49		629	18	1.153177	14.2	10.5
1	23	802	64		644	15	1.2368715	17.3	10.9
1	24	802	81		661	17	1.1794155	15.1	11.1
1	25	802	100		680	19	1.1283574	13.4	11.3
1	26	802	114		694	14	1.2685427	18.6	11.7
1	27	802	121		701	7	1.5867314	38.6	13.0
1	28	802	126		706	5	1.7411887	55.1	15.0
1	29	802	130		710	4	1.8436226	69.8	17.5
1	30	802	134		714	4	1.8436226	69.8	19.8
1	31	802	136		716	2	2.1618113	145.1	25.0
3	34	802	147		727	3.666667	1.8835651	76.5	27.1
3	37	802	164		744	5.666667	1.6837327	48.3	27.9
3	40	802	182		762	6	1.6574941	45.4	28.5
3	43	802	202		782	6.666667	1.6091285	40.7	29.0
3	46	802	221		801	6.333333	1.6326746	42.9	29.4
3	49	802	236		816	5	1.7411887	55.1	30.3
3	52	802	255		835	6.333333	1.6326746	42.9	30.7
3	55	802	274		854	6.333333	1.6326746	42.9	31.1
3	58	802	293		873	6.333333	1.6326746	42.9	31.4
3	61	802	304		884	3.666667	1.8835651	76.5	32.8
3	64	802	320		900	5.333333	1.7115623	51.5	33.3
3	67	802	336		916	5.333333	1.7115623	51.5	33.8
3	70	802	352		932	5.333333	1.7115623	51.5	34.3
3	73	802	368		948	5.333333	1.7115623	51.5	34.7
3	76	802	384		964	5.333333	1.7115623	51.5	35.2
3	79	802	402		982	6	1.6574941	45.4	35.4
3	82	802	417		997	5	1.7411887	55.1	35.9
3	85	802	432		1012	5	1.7411887	55.1	36.4
3	88	802	445		1025	4.333333	1.806879	64.1	37.0
3	91	802	462		1042	5.666667	1.6837327	48.3	37.3
3	94	802	472		1052	3.333333	1.9273172	84.6	38.3
3	97	802	486		1066	4.666667	1.7728598	59.3	38.8
10	107	802	522		1102	3.6	1.8919883	78.0	39.6
10	117	802	561		1141	3.9	1.8552447	71.7	40.3
10	127	802	591		1171	3	1.9756828	94.6	41.4
10	137	802	620		1200	2.9	1.9912453	98.0	42.5
10	147	802	655		1235	3.5	1.9049201	80.3	43.3
10	157	802	681		1261	2.6	2.0413732	110.0	44.5
10	167	802	712		1292	3.1	1.9606307	91.3	45.4
10	177	802	741		1321	2.9	1.9912453	98.0	46.4
10	187	802	773		1353	3.2	1.9460565	88.3	47.2
10	197	802	797		1377	2.4	2.0781167	119.7	48.4
10	207	802	831		1411	3.4	1.9182268	82.8	49.1
10	217	802	857		1437	2.6	2.0413732	110.0	50.1
10	227	802	884		1464	2.7	2.0240485	105.7	51.0
10	237	802	913		1493	2.9	1.9912453	98.0	51.8
10	247	802	942		1522	2.9	1.9912453	98.0	52.6

Remarks

TEST 16CBR2



constructiveevaluation
site investigation • building pathology

Project Nobel, Harlow Data Centre

Determination of Penetration Value of Unbound Soil using Dynamic Cone Penetrometer (DCP)

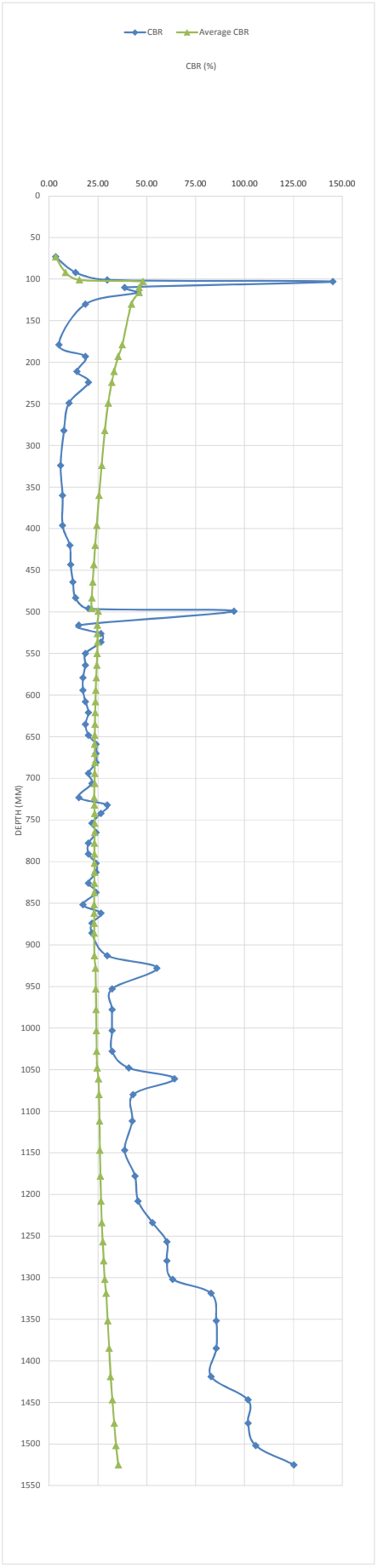
Sample Reference

Test Ref.	16CBR3
Location	
Date	22/03/2016
Material:	Made Ground/ Natural
Level	From ground level

Number of Blows	Total Blows	Rod 1 Reading (mm)	Rod 2 Reading (mm)	Rod 3 Reading (mm)	Total Depth	mm/Blow (5)		CBR (%)	Average CBR (%)
START POSITION:									
zero		190	94		0				
1	1	263			73	73	0.5104677	3.2	3.2
1	2	282			92	19	1.1283574	13.4	8.3
1	3	291			101	9	1.4713657	29.6	15.4
1	4	293			103	2	2.1618113	145.1	47.9
1	5	300			110	7	1.5867314	38.6	46.0
1	6	306			116	6	1.6574941	45.4	45.9
1	7	320			130	14	1.2685427	18.6	42.0
1	8	369			179	49	0.6934627	4.9	37.4
1	9	383			193	14	1.2685427	18.6	35.3
1	10	401			211	18	1.153177	14.2	33.2
1	11	414			224	13	1.3025619	20.1	32.0
1	12	439			249	25	1.0023774	10.1	30.2
1	13	472			282	33	0.8749308	7.5	28.4
1	14	514			324	42	0.7642255	5.8	26.8
1	15	550			360	36	0.8349883	6.8	25.5
1	16	586			396	36	0.8349883	6.8	24.3
1	17	610			420	24	1.0211167	10.5	23.5
1	18	633			443	23	1.0406537	11.0	22.8
1	19	654			464	21	1.0824142	12.1	22.2
1	20	673			483	19	1.1283574	13.4	21.8
1	21	686			496	13	1.3025619	20.1	21.7
1	22	689			499	3	1.9756828	94.6	25.0
1	23	706			516	17	1.1794155	15.1	24.6
1	24	716			526	10	1.423	26.5	24.7
1	25	726			536	10	1.423	26.5	24.7
1	26	740			550	14	1.2685427	18.6	24.5
1	27	754			564	14	1.2685427	18.6	24.3
1	28	769			579	15	1.2368715	17.3	24.0
1	29	784			594	15	1.2368715	17.3	23.8
1	30	798			608	14	1.2685427	18.6	23.6
1	31	811			621	13	1.3025619	20.1	23.5
1	32	825			635	14	1.2685427	18.6	23.4
1	33	838			648	13	1.3025619	20.1	23.3
1	34	849			659	11	1.3792479	23.9	23.3
1	35	860			670	11	1.3792479	23.9	23.3
1	36	871			681	11	1.3792479	23.9	23.3
1	37	884			694	13	1.3025619	20.1	23.2
1	38	896			706	12	1.3393054	21.8	23.2
1	39	896	111		723	17	1.1794155	15.1	23.0
1	40	896	120		732	9	1.4713657	29.6	23.1
1	41	896	130		742	10	1.423	26.5	23.2
1	42	896	142		754	12	1.3393054	21.8	23.2
1	43	896	153		765	11	1.3792479	23.9	23.2
1	44	896	166		778	13	1.3025619	20.1	23.1
1	45	896	179		791	13	1.3025619	20.1	23.1
1	46	896	190		802	11	1.3792479	23.9	23.1
1	47	896	201		813	11	1.3792479	23.9	23.1
1	48	896	214		826	13	1.3025619	20.1	23.0
1	49	896	225		837	11	1.3792479	23.9	23.1
1	50	896	240		852	15	1.2368715	17.3	23.0
1	51	896	250		862	10	1.423	26.5	23.0
1	52	896	262		874	12	1.3393054	21.8	23.0
1	53	896	274		886	12	1.3393054	21.8	23.0
3	56	896	301		913	9	1.4713657	29.6	23.1
3	59	896	316		928	5	1.7411887	55.1	23.7
3	62	896	341		953	8.333333	1.5066946	32.1	23.8
3	65	896	366		978	8.333333	1.5066946	32.1	24.0
3	68	896	391		1003	8.333333	1.5066946	32.1	24.1
3	71	896	416		1028	8.333333	1.5066946	32.1	24.3
3	74	896	436		1048	6.666667	1.6091285	40.7	24.5
3	77	896	449		1061	4.333333	1.806879	64.1	25.2
3	80	896	468		1080	6.333333	1.6326746	42.9	25.5
5	85	896	500		1112	6.4	1.6278678	42.4	25.7
5	90	896	535		1147	7	1.5867314	38.6	25.9
5	95	896	566		1178	6.2	1.642442	43.9	26.2
5	100	896	596		1208	6	1.6574941	45.4	26.5
5	105	896	622		1234	5.2	1.7231845	52.9	26.9
5	110	896	645		1257	4.6	1.779465	60.2	27.4
5	115	896	668		1280	4.6	1.779465	60.2	27.9
5	120	896	690		1302	4.4	1.7998705	63.1	28.4
5	125	896	707		1319	3.4	1.9182268	82.8	29.1
10	135	896	740		1352	3.3	1.9319308	85.5	29.9
10	145	896	773		1385	3.3	1.9319308	85.5	30.7
10	155	896	807		1419	3.4	1.9182268	82.8	31.4
10	165	896	835		1447	2.8	2.007354	101.7	32.3
10	175	896	863		1475	2.8	2.007354	101.7	33.2
10	185	896	890		1502	2.7	2.0240485	105.7	34.2
10	195	896	913		1525	2.3	2.0976537	125.2	35.3

Remarks

TEST 16CBR3



constructiveevaluation
site investigation • building pathology

Project Nobel, Harlow Data Centre

Determination of Penetration Value of Unbound Soil using Dynamic Cone Penetrometer (DCP)

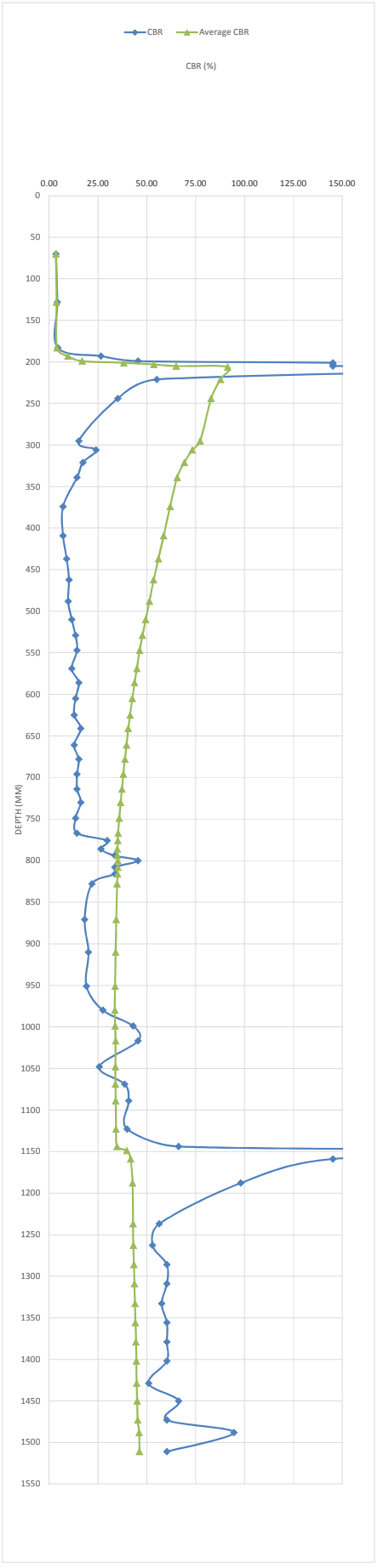
Sample Reference

TEST 16CBR4

Test Ref.	16CBR4
Location	
Date	22/03/2016
Material:	Made Ground/ Natural
Level	From ground level

Number of Blows	Total Blows	Rod 1 Reading (mm)	Rod 2 Reading (mm)	Rod 3 Reading (mm)	Total Depth	mm/Blow (5)		CBR (%)	Average CBR (%)
START POSITION:									
zero		191	161		0				
1	1	261			70	70	0.5297314	3.4	3.4
1	2	319			128	58	0.6160566	4.1	3.8
1	3	374			183	55	0.6404366	4.4	4.0
1	4	384			193	10	1.423	26.5	9.6
1	5	390			199	6	1.6574941	45.4	16.8
1	6	392			201	2	2.1618113	145.1	38.2
1	7	394			203	2	2.1618113	145.1	53.4
1	8	396			205	2	2.1618113	145.1	64.9
1	9	397			206	1	2.48	302.0	91.3
3	12	412			221	5	1.7411887	55.1	87.6
3	15	435			244	7.666667	1.5449708	35.1	82.9
3	18	486			295	17	1.1794155	15.1	77.2
1	19	497			306	11	1.3792479	23.9	73.1
1	20	512			321	15	1.2368715	17.3	69.1
1	21	530			339	18	1.153177	14.2	65.5
1	22	565			374	35	0.8479201	7.0	61.8
1	23	600			409	35	0.8479201	7.0	58.6
1	24	628			437	28	0.950354	8.9	55.8
1	25	653			462	25	1.0023774	10.1	53.4
1	26	679			488	26	0.9843732	9.6	51.2
1	27	701			510	22	1.0610592	11.5	49.3
1	28	720			529	19	1.1283574	13.4	47.7
1	29	738			547	18	1.153177	14.2	46.3
1	30	760			569	22	1.0610592	11.5	44.8
1	31	777			586	17	1.1794155	15.1	43.6
1	32	796			605	19	1.1283574	13.4	42.5
1	33	816			625	20	1.1048113	12.7	41.4
1	34	832			641	16	1.2072452	16.1	40.5
1	35	852			661	20	1.1048113	12.7	39.5
1	36	869			678	17	1.1794155	15.1	38.7
1	37	887			696	18	1.153177	14.2	37.9
1	38	905			714	18	1.153177	14.2	37.2
1	39	921			730	16	1.2072452	16.1	36.5
1	40	940			749	19	1.1283574	13.4	35.8
1	41	958			767	18	1.153177	14.2	35.2
1	42	958	170		776	9	1.4713657	29.6	35.1
1	43	958	180		786	10	1.423	26.5	34.8
1	44	958	188		794	8	1.5254339	33.5	34.8
1	45	958	194		800	6	1.6574941	45.4	35.1
1	46	958	202		808	8	1.5254339	33.5	35.0
1	47	958	210		816	8	1.5254339	33.5	35.0
1	48	958	222		828	12	1.3393054	21.8	34.7
3	51	958	265		871	14.33333	1.257741	18.1	34.3
3	54	958	304		910	13	1.3025619	20.1	34.0
3	57	958	345		951	13.66667	1.2796046	19.0	33.6
3	60	958	374		980	9.666667	1.4385625	27.5	33.5
3	63	958	393		999	6.333333	1.6326746	42.9	33.7
3	66	958	411		1017	6	1.6574941	45.4	34.0
3	69	958	442		1048	10.33333	1.4079479	25.6	33.8
3	72	958	463		1069	7	1.5867314	38.6	33.9
3	75	958	483		1089	6.666667	1.6091285	40.7	34.0
5	80	958	517		1123	6.8	1.6000381	39.8	34.1
5	85	958	538		1144	4.2	1.8212255	66.3	34.7
5	90	958	543		1149	1	2.48	302.0	39.7
5	95	958	553		1159	2	2.1618113	145.1	41.6
10	105	958	582		1188	2.9	1.9912453	98.0	42.6
10	115	958	631		1237	4.9	1.7504627	56.3	42.8
5	120	958	657		1263	5.2	1.7231845	52.9	43.0
5	125	958	680		1286	4.6	1.779465	60.2	43.3
5	130	958	703		1309	4.6	1.779465	60.2	43.6
5	135	958	727		1333	4.8	1.759928	57.5	43.8
5	140	958	750		1356	4.6	1.779465	60.2	44.1
5	145	958	773		1379	4.6	1.779465	60.2	44.3
5	150	958	796		1402	4.6	1.779465	60.2	44.6
5	155	958	823		1429	5.4	1.7058598	50.8	44.7
5	160	958	844		1450	4.2	1.8212255	66.3	45.0
5	165	958	867		1473	4.6	1.779465	60.2	45.2
5	170	958	882		1488	3	1.9756828	94.6	46.0
5	175	958	905		1511	4.6	1.779465	60.2	46.2

Remarks



constructiveevaluation
site investigation • building pathology

Project Nobel, Harlow Data Centre

Determination of Penetration Value of Unbound Soil using Dynamic Cone Penetrometer (DCP)

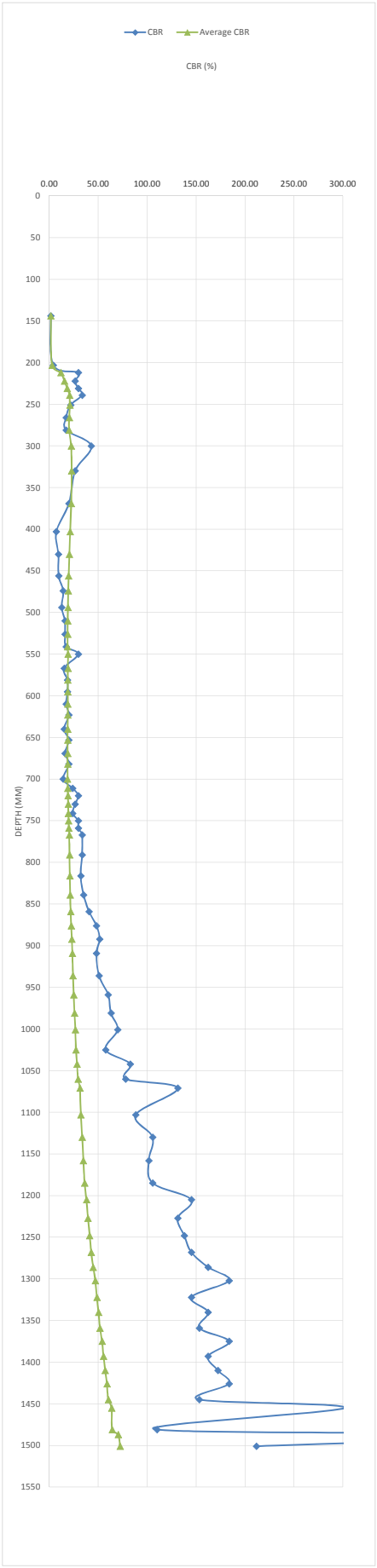
Sample Reference

Test Ref.	16CBR5
Location	Western end of proposed spine road
Date	22/03/2016
Material:	Made Ground/ Natural
Level	From ground level

Number of Blows	Total Blows	Rod 1 Reading (mm)	Rod 2 Reading (mm)	Rod 3 Reading (mm)	Total Depth	mm/Blow (5)		CBR (%)	Average CBR (%)
START POSITION:									
zero		213	124		0				
1	1	357			144	144	0.1986108	1.6	1.6
1	2	416			203	59	0.6082094	4.1	2.8
1	3	425			212	9	1.4713657	29.6	11.7
1	4	435			222	10	1.423	26.5	15.4
1	5	444			231	9	1.4713657	29.6	18.3
1	6	452			239	8	1.5254339	33.5	20.8
1	7	464			251	12	1.3393054	21.8	21.0
1	8	479			266	15	1.2368715	17.3	20.5
1	9	494			281	15	1.2368715	17.3	20.1
3	12	513			300	6.333333	1.6326746	42.9	22.4
3	15	543			330	10	1.423	26.5	22.8
3	18	582			369	13	1.3025619	20.1	22.6
1	19	616			403	34	0.8612268	7.3	21.4
1	20	643			430	27	0.9670485	9.3	20.5
1	21	669			456	26	0.9843732	9.6	19.8
1	22	687			474	18	1.153177	14.2	19.4
1	23	707			494	20	1.1048113	12.7	19.0
1	24	723			510	16	1.2072452	16.1	18.9
1	25	739			526	16	1.2072452	16.1	18.7
1	26	754			541	15	1.2368715	17.3	18.7
1	27	763			550	9	1.4713657	29.6	19.2
1	28	780			567	17	1.1794155	15.1	19.0
1	29	794			581	14	1.2685427	18.6	19.0
1	30	808			595	14	1.2685427	18.6	19.0
1	31	823			610	15	1.2368715	17.3	18.9
1	32	836			623	13	1.3025619	20.1	18.9
1	33	853			640	17	1.1794155	15.1	18.8
1	34	866			653	13	1.3025619	20.1	18.8
1	35	882			669	16	1.2072452	16.1	18.8
1	36	895			682	13	1.3025619	20.1	18.8
1	37	913			700	18	1.153177	14.2	18.6
1	38	924			711	11	1.3792479	23.9	18.8
1	39	924	133		720	9	1.4713657	29.6	19.1
1	40	924	143		730	10	1.423	26.5	19.4
1	41	924	154		741	11	1.3792479	23.9	19.5
1	42	924	163		750	9	1.4713657	29.6	19.8
1	43	924	172		759	9	1.4713657	29.6	20.0
1	44	924	180		767	8	1.5254339	33.5	20.4
3	47	924	204		791	8	1.5254339	33.5	20.7
3	50	924	229		816	8.333333	1.5066946	32.1	21.0
3	53	924	252		839	7.666667	1.5449708	35.1	21.4
3	56	924	272		859	6.666667	1.6091285	40.7	21.8
3	59	924	289		876	5.666667	1.6837327	48.3	22.4
3	62	924	305		892	5.333333	1.7115623	51.5	23.1
3	65	924	322		909	5.666667	1.6837327	48.3	23.6
5	70	924	349		936	5.4	1.7058598	50.8	24.2
5	75	924	372		959	4.6	1.779465	60.2	25.0
5	80	924	394		981	4.4	1.7998705	63.1	25.8
5	85	924	414		1001	4	1.8436226	69.8	26.7
5	90	924	438		1025	4.8	1.759928	57.5	27.3
5	95	924	455		1042	3.4	1.9182268	82.8	28.4
5	100	924	473		1060	3.6	1.8919883	78.0	29.4
5	105	924	484		1071	2.2	2.1180592	131.2	31.3
10	115	924	516		1103	3.2	1.9460565	88.3	32.3
10	125	924	543		1130	2.7	2.0240485	105.7	33.7
10	135	924	571		1158	2.8	2.007354	101.7	34.9
10	145	924	598		1185	2.7	2.0240485	105.7	36.1
10	155	924	618		1205	2	2.1618113	145.1	38.0
10	165	924	640		1227	2.2	2.1180592	131.2	39.6
10	175	924	661		1248	2.1	2.1394142	137.9	41.2
10	185	924	681		1268	2	2.1618113	145.1	42.9
10	195	924	699		1286	1.8	2.210177	162.2	44.8
10	205	924	715		1302	1.6	2.2642452	183.8	47.1
10	215	924	735		1322	2	2.1618113	145.1	48.6
10	225	924	753		1340	1.8	2.210177	162.2	50.3
10	235	924	772		1359	1.9	2.1853574	153.2	51.9
10	245	924	788		1375	1.6	2.2642452	183.8	53.9
10	255	924	806		1393	1.8	2.210177	162.2	55.5
10	265	924	823		1410	1.7	2.2364155	172.4	57.2
10	275	924	839		1426	1.6	2.2642452	183.8	59.0
10	285	924	858		1445	1.9	2.1853574	153.2	60.3
10	295	924	868		1455	1	2.48	302.0	63.6
10	305	924	894		1481	2.6	2.0413732	110.0	64.3
10	315	924	900		1487	0.6	2.7144941	518.2	70.4
10	325	924	914		1501	1.4	2.3255427	211.6	72.3

Remarks

TEST 16CBR5



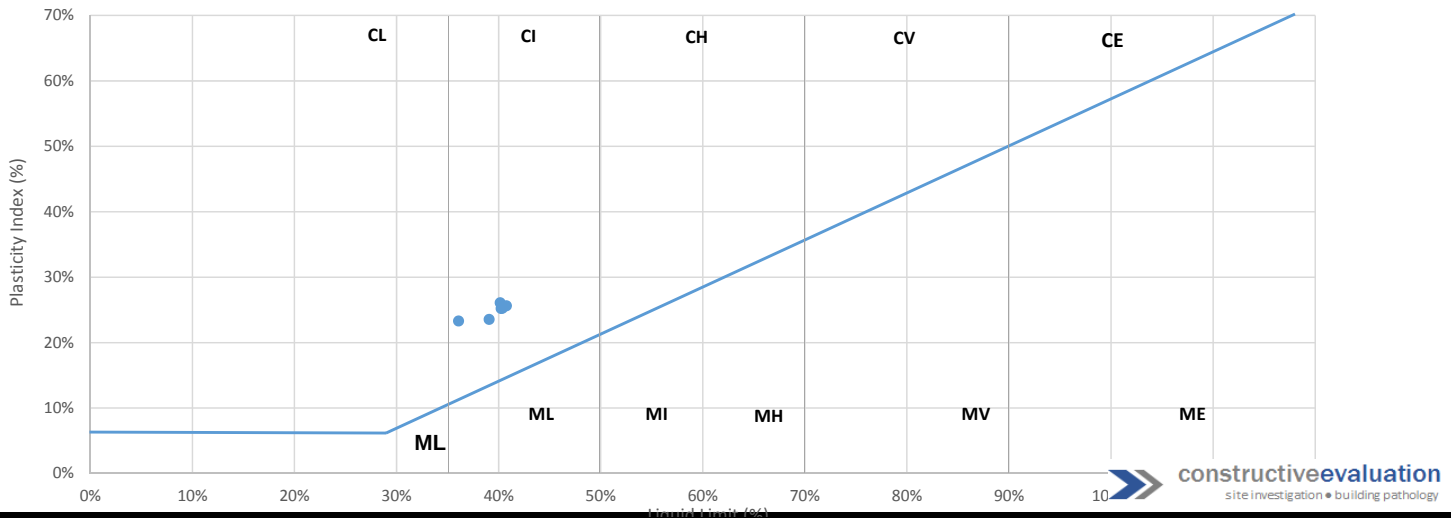
APPENDIX D

Laboratory Test Certificates

CLASSIFICATION: NATURAL MOISTURE CONTENT AND PLASTICITY INDEX

Project No	**16.8997**
Project Name	**Harlow Data Center**
Client	**Abstruct Consulting**

Hole ID	Depth (m)	Moisture Content (W%)	Liquid Limit (WL%)	Plastic Limit (WP%)	Plasticity Index (IP%)	Portion >425µm (%)	Modified PI (mIP%)	Soil Classification	Consistency Index (Ipc)	Remarks
16BH1	0.7m	17%	39%	16%	24%	14%	20%	CI	0.94	
16BH1	1.7m	18%	41%	15%	26%	7%	24%	CI	0.87	
16BH1	2.7m	21%	40%	15%	25%	9%	23%	CI	0.76	
16BH1	4.2-4.7m	16%	40%	14%	26%	13%	23%	CI	0.91	
16BH1	6.2m	25%	40%	15%	25%	8%	23%	CI	0.60	
16BH1	7.2m	17%	36%	13%	23%	8%	22%	CI	0.80	



Max Smeeth
Constructive Evaluation Ltd
Unit 15 & 16
Ford Lane Business
Ford Lane
Ford
Arundel
BN18 0UZ

QTS Environmental Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 16-42365

Site Reference:	Harlow Data Centre
Project / Job Ref:	16.8997
Order No:	16.8997/MS
Sample Receipt Date:	30/03/2016
Sample Scheduled Date:	30/03/2016
Report Issue Number:	1
Reporting Date:	05/04/2016

Authorised by:

Russell Jarvis
Associate Director of Client Services
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Associate Director of Laboratory
On behalf of QTS Environmental Ltd

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP2-1	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199020	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	2.3	3%	5%	6%
Loss on Ignition	%	< 0.01	4.42	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	90	500	--	--
Total PAH[MU]	mg/kg	< 1.7	5.5	100	--	--
pH[MU]	pH Units	N/a	8.0	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.9	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	0.04		0.4	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.003	0.002		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.005	0.006		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	4	2		24	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	110	26		374	1000	20000	50000
TDS	163	81		925	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	5.4	2.2		26.5	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	95.3						
Moisture (%)	5						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.25						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365		**Date Sampled**	23/03/16		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd		**Time Sampled**	None Supplied				
Site Reference: Harlow Data Centre		**TP / BH No**	SSP2-2				
Project / Job Ref: 16.8997		**Additional Refs**	None Supplied				
Order No: 16.8997/MS		**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016		**QTSE Sample No**	199021				
Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.3		3%	5%	6%
Loss on Ignition	%	< 0.01	1.24		--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10		500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7		100	--	--
pH[MU]	pH Units	N/a	7.9		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1		--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.05	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.011	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.013	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	1		19	800	15000	25000
Fluoride[U]	0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1153	144		2574	**1000**	20000	50000
TDS	1210	255		3620	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	7.9	4.2		46.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	96.2						
Moisture (%)	4						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.20						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP2-3	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199022	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	1.1	3%	5%	6%
Loss on Ignition	%	< 0.01	3.10	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	4.5	100	--	--
pH[MU]	pH Units	N/a	7.8	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.06	0.03		0.3	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.013	0.007		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.010	0.007		0.07	**0.06**	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	2		25	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1474	348		4824	**1000**	20000	50000
TDS	1500	474		5968	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	11.7	5.7		63.7	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.5						
Moisture (%)	5.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP2-4	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199023	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	1	3%	5%	6%
Loss on Ignition	%	< 0.01	2.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	4.6	100	--	--
pH[MU]	pH Units	N/a	8.0	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	< 0.02	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.004	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	2	< 1		< 12	800	15000	25000
Fluoride[U]	0.6	< 0.5		< 1	10	150	500
Sulphate[U]	41	4		78	1000	20000	50000
TDS	151	106		1106	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	6.8	4.2		45	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.9						
Moisture (%)	6.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.18						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365		**Date Sampled**	23/03/16		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd		**Time Sampled**	None Supplied				
Site Reference: Harlow Data Centre		**TP / BH No**	SSP2-5				
Project / Job Ref: 16.8997		**Additional Refs**	None Supplied				
Order No: 16.8997/MS		**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016		**QTSE Sample No**	199024				
Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.7		3%	5%	6%
Loss on Ignition	%	< 0.01	2.40		--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10		500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7		100	--	--
pH[MU]	pH Units	N/a	8.0		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1		--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.02	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.005	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	3	2		21	800	15000	25000
Fluoride[U]	0.8	0.6		6.2	10	150	500
Sulphate[U]	13	3		40	1000	20000	50000
TDS	134	94		969	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	6.9	4.7		48.6	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	92.7						
Moisture (%)	7.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-1	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199025	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.5	3%	5%	6%
Loss on Ignition	%	< 0.01	8.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	3.1	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.06	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.004	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	3	< 1		< 12	800	15000	25000
Fluoride[U]	0.8	< 0.5		< 1	10	150	500
Sulphate[U]	133	17		289	1000	20000	50000
TDS	273	109		1254	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	7.2	3.6		39.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.4						
Moisture (%)	6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.18						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd	**Time Sampled**	None Supplied					
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-2					
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied					
Order No: 16.8997/MS	**Depth (m)**	None Supplied					
Reporting Date: 05/04/2016	**QTSE Sample No**	199026					
Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.4		3%	5%	6%
Loss on Ignition	%	< 0.01	2.30		--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10		500	--	--
Total PAH[MU]	mg/kg	< 1.7	4.1		100	--	--
pH[MU]	pH Units	N/a	8.2		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1		--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.022	0.007		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	2		22	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	314	45		678	1000	20000	50000
TDS	468	141		1692	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	10.6	5.1		55.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.1						
Moisture (%)	6.4						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.15						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-3	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199027	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	2.60	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	2.4	100	--	--
pH[MU]	pH Units	N/a	8.2	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.07	0.02		0.3	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.009	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	11	2		27	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	241	27		477	1000	20000	50000
TDS	403	130		1569	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	10.4	4.5		50.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.9						
Moisture (%)	6.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-4	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199028	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.8	3%	5%	6%
Loss on Ignition	%	< 0.01	3.40	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	8.0	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	< 0.02	< 0.02		0.1	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.006	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	3	1		15	800	15000	25000
Fluoride[U]	0.5	< 0.5		< 1	10	150	500
Sulphate[U]	119	15		259	1000	20000	50000
TDS	267	110		1264	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	9.6	4.8		53	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	92.6						
Moisture (%)	8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.18						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16		**Landfill Waste Acceptance Criteria Limits**		
Constructive Evaluation Ltd	**Time Sampled**	None Supplied		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-5				
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied				
Order No: 16.8997/MS	**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016	**QTSE Sample No**	199029				

Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.4			3%	5%	6%
Loss on Ignition	%	< 0.01	2.20			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	55			500	--	--
Total PAH[MU]	mg/kg	< 1.7	11.5			100	--	--
pH[MU]	pH Units	N/a	7.9			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.018	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	15	3		43	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	742	93		1625	**1000**	20000	50000
TDS	903	196		2720	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	12.8	4.4		53.3	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.5						
Moisture (%)	7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.19						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365		**Date Sampled**	23/03/16		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd		**Time Sampled**	None Supplied				
Site Reference: Harlow Data Centre		**TP / BH No**	SSP1-6				
Project / Job Ref: 16.8997		**Additional Refs**	None Supplied				
Order No: 16.8997/MS		**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016		**QTSE Sample No**	199030				
Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.7		3%	5%	6%
Loss on Ignition	%	< 0.01	2.70		--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10		500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7		100	--	--
pH[MU]	pH Units	N/a	8.2		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1		--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.05	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.008	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	5	1		15	800	15000	25000
Fluoride[U]	0.5	< 0.5		< 1	10	150	500
Sulphate[U]	111	14		223	1000	20000	50000
TDS	272	109		1232	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	9.5	5.2		56	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	96.5						
Moisture (%)	3.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.15						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-7	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199031	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	5.20	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	10	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.014	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	6	2		21	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	237	36		525	1000	20000	50000
TDS	380	132		1524	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	9.1	5		53.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.5						
Moisture (%)	7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.14						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-8	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199032	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	2.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.02	< 0.02		0.1	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.002	0.002		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	2		23	800	15000	25000
Fluoride[U]	0.5	< 0.5		< 1	10	150	500
Sulphate[U]	119	14		245	1000	20000	50000
TDS	269	102		1184	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	9.3	4.7		51.7	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	95.3						
Moisture (%)	5						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	SSP1-9	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199033	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	1	3%	5%	6%
Loss on Ignition	%	< 0.01	3.20	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	3.6	100	--	--
pH[MU]	pH Units	N/a	8.2	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	< 0.005	< 0.005		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.005	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	5	1		16	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	259	36		547	1000	20000	50000
TDS	419	135		1593	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	11.6	5.8		63.2	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.2						
Moisture (%)	6.2						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.15						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd	**Time Sampled**	None Supplied					
Site Reference: Harlow Data Centre	**TP / BH No**	DSP2-1					
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied					
Order No: 16.8997/MS	**Depth (m)**	None Supplied					
Reporting Date: 05/04/2016	**QTSE Sample No**	199034					

Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	0.7			3%	5%	6%
Loss on Ignition	%	< 0.01	4			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	31			500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7			100	--	--
pH[MU]	pH Units	N/a	8.2			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.060	0.017		0.22	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.037	0.010		0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	8	3		35	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	761	134		2105	**1000**	20000	50000
TDS	925	233		3172	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	14.1	5.2		62.3	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.1						
Moisture (%)	6.4						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP2-2	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199035	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.9	3%	5%	6%
Loss on Ignition	%	< 0.01	4.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	7.4	100	--	--
pH[MU]	pH Units	N/a	8.6	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.058	0.021		0.26	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.036	0.011		0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	8	3		39	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	632	87		1585	**1000**	20000	50000
TDS	794	189		2685	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	16.8	6.3		76.4	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.5						
Moisture (%)	5.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.23						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP2-3	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199036	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	1.1	3%	5%	6%
Loss on Ignition	%	< 0.01	5	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	89	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	9.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.1	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.108	0.018		0.30	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.047	0.010		0.1	0.5	10	30
Nickel[U]	0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	9	3		40	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	506	69		1299	**1000**	20000	50000
TDS	712	191		2634	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	30.5	8.7		117	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	95.4						
Moisture (%)	4.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.24						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP2-4	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199037	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.8	3%	5%	6%
Loss on Ignition	%	< 0.01	3.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	9.0	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.02	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.090	0.018		0.27	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.027	0.006		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	3		30	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	360	47		866	1000	20000	50000
TDS	523	172		2167	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	15.9	5.8		70.7	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	92.5						
Moisture (%)	8.2						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP3-1	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199038	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.8	3%	5%	6%
Loss on Ignition	%	< 0.01	2.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	37	500	--	--
Total PAH[MU]	mg/kg	< 1.7	3.7	100	--	--
pH[MU]	pH Units	N/a	8.5	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	0.03		0.3	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.016	0.007		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.011	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.006	< 0.005		< 0.2	4	50	200
Chloride[U]	9	2		30	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	240	42		651	1000	20000	50000
TDS	368	133		1600	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	11.4	4.5		53.1	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	95.7						
Moisture (%)	4.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.20						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP3-2	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199039	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	2.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	71	500	--	--
Total PAH[MU]	mg/kg	< 1.7	52.1	100	--	--
pH[MU]	pH Units	N/a	8.4	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.024	0.009		< 0.20	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.013	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.007	< 0.005		< 0.2	4	50	200
Chloride[U]	6	2		26	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	262	57		773	1000	20000	50000
TDS	390	133		1581	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	11	5.1		56.6	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	92.2						
Moisture (%)	8.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16		**Landfill Waste Acceptance Criteria Limits**		
Constructive Evaluation Ltd	**Time Sampled**	None Supplied		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Harlow Data Centre	**TP / BH No**	DSP3-3				
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied				
Order No: 16.8997/MS	**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016	**QTSE Sample No**	199040				

Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	0.6				3%	5%	6%
Loss on Ignition	%	< 0.01	2.80				--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	15				500	--	--
Total PAH[MU]	mg/kg	< 1.7	7.3				100	--	--
pH[MU]	pH Units	N/a	8.1				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2				--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.028	0.009		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.013	0.004		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.012	< 0.005		< 0.2	4	50	200
Chloride[U]	11	3		40	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	308	59		882	1000	20000	50000
TDS	477	135		1747	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	10.4	5		55.9	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.4						
Moisture (%)	6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.20						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP3-4	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199041	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	2.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	97	500	--	--
Total PAH[MU]	mg/kg	< 1.7	3.2	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.025	0.011		< 0.20	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.008	0.002		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	8	5		53	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	167	31		433	1000	20000	50000
TDS	297	108		1256	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	9.6	4.5		49.8	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	96.5						
Moisture (%)	3.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.16						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP3-5	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199042	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	2.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	24	500	--	--
Total PAH[MU]	mg/kg	< 1.7	11.2	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.066	0.018		0.24	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.018	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.008	< 0.005		< 0.2	4	50	200
Chloride[U]	19	4		61	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	481	78		1274	**1000**	20000	50000
TDS	668	172		2332	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	12.3	5		58.6	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	94.8						
Moisture (%)	5.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-1	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199043	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.8	3%	5%	6%
Loss on Ignition	%	< 0.01	3.80	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	27	500	--	--
Total PAH[MU]	mg/kg	< 1.7	6.9	100	--	--
pH[MU]	pH Units	N/a	8.1	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.9	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.118	0.031		0.43	0.5	10	70
Copper[U]	0.03	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.028	0.007		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.006	< 0.005		< 0.2	4	50	200
Chloride[U]	9	2		32	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1519	335		4926	**1000**	20000	50000
TDS	1590	437		5903	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	22.7	5.2		74.9	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.5						
Moisture (%)	7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.23						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-2	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199044	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	3.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	82	500	--	--
Total PAH[MU]	mg/kg	< 1.7	14	100	--	--
pH[MU]	pH Units	N/a	8.5	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.11	< 0.02		0.3	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.104	0.022		0.33	0.5	10	70
Copper[U]	0.03	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.023	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.005	0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.006	< 0.005		< 0.2	4	50	200
Chloride[U]	8	3		33	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1297	205		3528	**1000**	20000	50000
TDS	1390	315		4605	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	18.5	4.9		67.7	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.3						
Moisture (%)	7.2						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.24						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-3	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199045	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	3	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	9.9	100	--	--
pH[MU]	pH Units	N/a	9.0	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.029	0.010		< 0.20	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.019	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.008	0.006		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	10	3		38	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	693	135		2015	**1000**	20000	50000
TDS	887	239		3161	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	11.6	4.5		53	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	92						
Moisture (%)	8.8						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

					Landfill Waste Acceptance Criteria Limits		
QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Constructive Evaluation Ltd	**Time Sampled**	None Supplied					
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-4					
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied					
Order No: 16.8997/MS	**Depth (m)**	None Supplied					
Reporting Date: 05/04/2016	**QTSE Sample No**	199046					

Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	0.4			3%	5%	6%
Loss on Ignition	%	< 0.01	2.70			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	4.9			100	--	--
pH[MU]	pH Units	N/a	9.2			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.9			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.026	0.011		< 0.20	0.5	10	70
Copper[U]	< 0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.010	0.003		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	7	4		41	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	353	51		947	1000	20000	50000
TDS	493	141		1921	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	8	3.3		39.5	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	94.2						
Moisture (%)	6.2						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.25						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365		**Date Sampled**	23/03/16	**Landfill Waste Acceptance Criteria Limits**		
Constructive Evaluation Ltd		**Time Sampled**	None Supplied	**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Harlow Data Centre		**TP / BH No**	DSP1-5			
Project / Job Ref: 16.8997		**Additional Refs**	None Supplied			
Order No: 16.8997/MS		**Depth (m)**	None Supplied			
Reporting Date: 05/04/2016		**QTSE Sample No**	199047			
Determinand	**Unit**	**MDL**				
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	2.50	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	11.2	100	--	--
pH[MU]	pH Units	N/a	8.4	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.03	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.049	0.010		< 0.20	0.5	10	70
Copper[U]	0.01	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.015	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.007	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.006	< 0.005		< 0.2	4	50	200
Chloride[U]	8	2		29	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	698	121		1931	**1000**	20000	50000
TDS	871	222		3032	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	13.2	4.3		54	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.5						
Moisture (%)	7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-6	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199048	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	3.10	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	9.5	100	--	--
pH[MU]	pH Units	N/a	8.2	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.05	0.04		0.4	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.028	0.007		< 0.20	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.023	0.006		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	0.012	< 0.005		< 0.2	4	50	200
Chloride[U]	11	3		37	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1572	234		4017	**1000**	20000	50000
TDS	1520	338		4864	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	15.4	4.3		56.9	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.4						
Moisture (%)	7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-7	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199049	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.7	3%	5%	6%
Loss on Ignition	%	< 0.01	3.20	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	15	500	--	--
Total PAH[MU]	mg/kg	< 1.7	14.7	100	--	--
pH[MU]	pH Units	N/a	8.3	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.069	0.013		< 0.20	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.020	0.005		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	12	2		34	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1116	155		2705	**1000**	20000	50000
TDS	1230	258		3746	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	14.2	4.9		60.5	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	91						
Moisture (%)	10						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16	
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-8	
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	
Order No: 16.8997/MS	**Depth (m)**	None Supplied	
Reporting Date: 05/04/2016	**QTSE Sample No**	199050	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	2.70	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	16	500	--	--
Total PAH[MU]	mg/kg	< 1.7	20.5	100	--	--
pH[MU]	pH Units	N/a	9.2	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2.1	--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.05	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.074	0.021		0.28	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.026	0.006		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	< 0.005	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	12	3		37	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1178	167		3052	**1000**	20000	50000
TDS	1300	305		4410	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	15.8	4.2		57.6	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.18						
Dry Matter (%)	95.1						
Moisture (%)	5.2						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.24						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

QTS Environmental Report No: 16-42365	**Date Sampled**	23/03/16		**Landfill Waste Acceptance Criteria Limits**		
Constructive Evaluation Ltd	**Time Sampled**	None Supplied		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Harlow Data Centre	**TP / BH No**	DSP1-9				
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied				
Order No: 16.8997/MS	**Depth (m)**	None Supplied				
Reporting Date: 05/04/2016	**QTSE Sample No**	199051				

Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	0.8			3%	5%	6%
Loss on Ignition	%	< 0.01	3.50			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	29			500	--	--
Total PAH[MU]	mg/kg	< 1.7	19.9			100	--	--
pH[MU]	pH Units	N/a	8.4			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	2			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.01		< 0.2	0.5	2	25
Barium[U]	0.04	< 0.02		0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.0005		< 0.02	0.04	1	5
Chromium[U]	0.107	0.025		0.34	0.5	10	70
Copper[U]	0.02	< 0.01		< 0.5	2	50	100
Mercury[U]	< 0.005	< 0.005		< 0.01	0.01	0.2	2
Molybdenum[U]	0.027	0.006		< 0.1	0.5	10	30
Nickel[U]	< 0.007	< 0.007		< 0.2	0.4	10	40
Lead[U]	< 0.005	< 0.005		< 0.2	0.5	10	50
Antimony[U]	0.006	< 0.005		< 0.06	0.06	0.7	5
Selenium[U]	< 0.005	< 0.005		< 0.1	0.1	0.5	7
Zinc[U]	< 0.005	< 0.005		< 0.2	4	50	200
Chloride[U]	9	2		30	800	15000	25000
Fluoride[U]	< 0.5	< 0.5		< 1	10	150	500
Sulphate[U]	1567	273		4263	**1000**	20000	50000
TDS	1570	370		5119	**4000**	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	22.4	4.8		69	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.19						
Dry Matter (%)	93.9						
Moisture (%)	6.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - Sample Descriptions	
QTS Environmental Report No: 16-42365	
Constructive Evaluation Ltd	
Site Reference: Harlow Data Centre	
Project / Job Ref: 16.8997	
Order No: 16.8997/MS	
Reporting Date: 05/04/2016	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
199020	SSP2-1	None Supplied	None Supplied	4.7	Grey sand with concrete
199021	SSP2-2	None Supplied	None Supplied	3.9	Light brown sand with concrete
199022	SSP2-3	None Supplied	None Supplied	5.5	Light brown sand with concrete
199023	SSP2-4	None Supplied	None Supplied	6.1	Light brown sand with concrete
199024	SSP2-5	None Supplied	None Supplied	7.3	Light brown sand with concrete
199025	SSP1-1	None Supplied	None Supplied	5.6	Light brown sand with concrete
199026	SSP1-2	None Supplied	None Supplied	5.9	Light brown sand with concrete
199027	SSP1-3	None Supplied	None Supplied	6.1	Light brown sand with concrete
199028	SSP1-4	None Supplied	None Supplied	7.4	Light brown sand with concrete
199029	SSP1-5	None Supplied	None Supplied	6.5	Light brown sand with concrete
199030	SSP1-6	None Supplied	None Supplied	3.5	Light brown sand with concrete
199031	SSP1-7	None Supplied	None Supplied	6.5	Light brown sand with concrete and glass
199032	SSP1-8	None Supplied	None Supplied	4.7	Light brown sand with concrete
199033	SSP1-9	None Supplied	None Supplied	5.8	Light brown sand with concrete
199034	DSP2-1	None Supplied	None Supplied	6.4	Light brown sand with concrete
199035	DSP2-2	None Supplied	None Supplied	5.5	Light brown sand with concrete
199036	DSP2-3	None Supplied	None Supplied	4.6	Light brown sand with concrete and metal
199037	DSP2-4	None Supplied	None Supplied	7.5	Light brown sand with concrete
199038	DSP3-1	None Supplied	None Supplied	4.3	Light brown sand with concrete
199039	DSP3-2	None Supplied	None Supplied	7.8	Light brown sand with concrete
199040	DSP3-3	None Supplied	None Supplied	5.6	Light brown sand with concrete
199041	DSP3-4	None Supplied	None Supplied	3.5	Light brown sand with concrete
199042	DSP3-5	None Supplied	None Supplied	5.2	Light brown sand with concrete
199043	DSP1-1	None Supplied	None Supplied	6.5	Light brown sand with concrete
199044	DSP1-2	None Supplied	None Supplied	6.7	Light brown sand with concrete
199045	DSP1-3	None Supplied	None Supplied	8	Light brown sand with concrete
199046	DSP1-4	None Supplied	None Supplied	5.7	Light brown sand with concrete
199047	DSP1-5	None Supplied	None Supplied	6.5	Light brown sand with concrete
199048	DSP1-6	None Supplied	None Supplied	6.6	Light brown sand with concrete
199049	DSP1-7	None Supplied	None Supplied	9	Light brown sand with concrete
199050	DSP1-8	None Supplied	None Supplied	4.9	Light brown sand with concrete
199051	DSP1-9	None Supplied	None Supplied	6.1	Light brown sand with concrete

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 16-42365
Constructive Evaluation Ltd
Site Reference: Harlow Data Centre
Project / Job Ref: 16.8997
Order No: 16.8997/MS
Reporting Date: 05/04/2016

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Max Smeeth
Constructive Evaluation Ltd
Unit 15 & 16
Ford Lane Business
Ford Lane
Ford
Arundel
BN18 0UZ

QTS Environmental Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 16-42373

Site Reference:	Harlow Data Centre
Project / Job Ref:	16.8997
Order No:	16.8997/MS
Sample Receipt Date:	30/03/2016
Sample Scheduled Date:	30/03/2016
Report Issue Number:	1
Reporting Date:	05/04/2016

Authorised by:

Russell Jarvis
Associate Director of Client Services
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Associate Director of Laboratory
On behalf of QTS Environmental Ltd

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
QTS Environmental Report No: 16-42373	**Date Sampled**	23/03/16	23/03/16	23/03/16	23/03/16	23/03/16
Constructive Evaluation Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Harlow Data Centre	**TP / BH No**	16BH1	16BH1	16BH1	16BH1	16BH1
Project / Job Ref: 16.8997	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 16.8997/MS	**Depth (m)**	1.20 - 1.70	3.20 - 3.70	4.70	6.50	9.20
Reporting Date: 05/04/2016	**QTSE Sample No**	199109	199110	199111	199112	199113

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.0	8.1	7.9	7.9	7.9
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	53	65	231	249	264
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.05	0.06	0.23	0.25	0.26

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{O}C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis [S]

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - Sample Descriptions	
QTS Environmental Report No: 16-42373	
Constructive Evaluation Ltd	
Site Reference: Harlow Data Centre	
Project / Job Ref: 16.8997	
Order No: 16.8997/MS	
Reporting Date: 05/04/2016	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
199109	16BH1	None Supplied	1.20 - 1.70	12.9	Light brown clay with chalk
199110	16BH1	None Supplied	3.20 - 3.70	12.9	Light brown clay with chalk
199111	16BH1	None Supplied	4.70	14.4	Grey clay with chalk
199112	16BH1	None Supplied	6.50	12.4	Grey clay with chalk
199113	16BH1	None Supplied	9.20	13.5	Grey clay with chalk

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 16-42373
Constructive Evaluation Ltd
Site Reference: Harlow Data Centre
Project / Job Ref: 16.8997
Order No: 16.8997/MS
Reporting Date: 05/04/2016

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received