RSK	Report No: 371944	PHOTOGRAPHIC LOG
Client name: Rocco Ventures Ltd	Site Location: Royal College Street	

Photo No. 15	Date: 26-07-19
Direction Photo Taken: South	
Description: Retaining wall to car park outside eastern site boundary	

Photo No. 16	Date: 16-08-19
Direction Photo Taken: North	
Description: TP1 – Golden Lion Public House. Masonry wall to public house to the north. Possible footing to northern ATS building to the south.	

RSK	Report No: 371944	PHOTOGRAPHIC LOG
Client name: Rocco Ventures Ltd	Site Location: Royal College Street	

Photo No. 17	Date: 16-08-19

Direction Photo Taken:

North

Description:

TP1 – Golden Lion Public House. Masonry wall to public house to the north. Possible footing to northern ATS building to the south.

Photo No. 18	Date: 16-08-19

Direction Photo Taken:

East

Description:

TP2 – Central ATS building to the top of the picture

RSK	Report No: 371944	PHOTOGRAPHIC LOG
Client name: Rocco Ventures Ltd	Site Location: Royal College Street	

Photo No. 19	Date: 16-08-19
Direction Photo Taken: East	
Description: TP2 – Central ATS building to the top of the picture	

Photo No. 20	Date: 16-08-19
Direction Photo Taken: South	
Description: TP3 – Tyre centre mass concrete footing exposure	

APPENDIX G
TECHNICAL BACKGROUND

H1 Desk Study

Aquifer designation and Source protection zones

Principal aquifer: layers of rock or drift deposit that have high intergranular and/or fracture permeability (usually providing a high level of water storage). They may support water supply and/or river base flow on a strategic scale.

Secondary A aquifer: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Secondary B aquifer: predominantly lower permeability layers that may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

Secondary undifferentiated aquifer: it has not been possible to attribute either a category A or B to a rock type. In most cases this means that it was previously designated as both a minor and non-aquifer in different locations owing to the variable characteristics.

Unproductive' strata: low permeability with negligible significance for water supply or river base flow.

The EA generally adopts a three-fold classification of source protection zones (SPZ) surround abstractions for public water supply. The Site is situated in an area defined as follows:

- Zone 1 or the 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source
- Zone 2 or the 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants
- Zone 3 or the 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Preliminary risk assessment methodology

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. Under CLR11, three stages of risk assessment exist: preliminary, generic quantitative and detailed quantitative. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) contaminant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)
- medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem
- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**Highly likely**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required
- high: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term
- moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term
- low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild
- very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

H2 Site Investigation Methodology

Ground gas monitoring

An infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO_2), methane (CH_4) and oxygen (O_2) in percentage by volume, while hydrogen sulphide (H_2S) and carbon monoxide (CO) were recorded in parts per million. Initial and steady state concentrations were recorded. In addition, during the first monitoring round, all wells were screened with a PID to establish if there are any interferences and cross-sensitivity of other hydrocarbons with the infrared gas meter.

Low flow groundwater sampling

Groundwater samples were retrieved using a United States Environment Protection Agency (USEPA) approved low-flow purging and sampling methodology.

The low-flow method relies on moving groundwater through the well screen at approximately the same rate as it flows through the geological formation. This results in a significant reduction in the volume of water extracted before sampling and significantly reduces the amount of disturbance of the water in the monitoring well during purging and sampling. Drawdown levels in the monitoring well and water quality indicator parameters (pH, temperature, electrical conductivity, redox potential and dissolved oxygen) are monitored during low-flow purging and sampling, with stabilisation indicating that purging is complete and sampling can begin. As the flow rate used for purging, in most cases, is the same or only slightly higher than the flow rate used for sampling, and because purging and sampling are conducted as one continuous operation in the field, the process is referred to as low-flow purging and sampling.

H3 Site Investigation Methodology

Statistical assessment

Statistical analysis of the results has been conducted in accordance with *Guidance on Comparing Soil Contamination Data with a Critical Concentration* (CIEH and CL:AIRE, 2008) as detailed in Appendix D.

Statistical analysis is utilised to establish whether the land is suitable for the proposed use under the land use planning system by attempting to answer a key question. For a site being developed the key question is: '*can we confidently say that the level of contamination on this land is low relative to some appropriate measure of risk?*' More specifically, this is expressed as '*Is there sufficient evidence that the true mean concentration of the contaminant (μ) is less than the critical concentration (C_c)?*', where the critical concentration could be the GAC or a site-specific assessment criterion (SSAC). The true mean (*μ*) is unknown and therefore a conservative estimate, termed the upper confidence limit (UCL), of this value is derived from the data. The UCL is then compared against the GAC.

In statistical terms the question above is handled through the use of a formal hypothesis – the null hypothesis and the alternate hypothesis. The statistical tests are structured to show (with a defined level of confidence, in this case 95%) which of the two hypotheses is most likely to be true, by determining whether the null hypothesis can be rejected.

For consideration under the planning regime, the null (H_0) and alternative (H_1) hypotheses are presented below.

Null and alternative hypotheses

Hypothesis	Equation	Description
Null (H_0)	$\mu \geq C_c$	The true mean concentration is equal to, or greater than, the critical concentration
Alternative (H_1)	$\mu < C_c$	The true mean concentration is less than the critical concentration

Therefore, if the null hypothesis is accepted for a certain contaminant it can be concluded that its concentration is high relative to the critical concentration, which in the case of this assessment is taken to be the GAC/SSAC and as such the whole site may be classed as being contaminated by a particular substance.

In addition, the statistical guidance provides an outlier test (Grubbs' test) that has been used within this assessment for the identification of 'outliers' or 'hotspots'. The 'outlier' test is conducted before undertaking statistical analysis (and 'outliers' may be removed from the dataset) but **only** where the conceptual model supports this.

The statistical tests applied to the dataset are selected based on whether the data is normally or non-normally distributed. The distribution of the dataset has been assessed using the Shapiro-Wilks normality test. Where the dataset has been found to be normally distributed the one sample t-test is undertaken. Where data has been found to be non-normally distributed Chebyshev's theorem is utilised.

Reuse of suitable materials

The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011) (CoP) was developed in cons**u**ltation with the Environment Agency and development industry to enable the re-use of materials under certain scenarios and subject to demonstrating that specific criteria are met. The current reuse scenarios covered by the CoP comprise

- reuse on the site of origin (with or without treatment)
- direct transfer of clean and natural soils between sites
- use in the development of land other than the site of origin following treatment at an authorised Hub site (including a fixed soil treatment facility).

The importation of made ground soils (irrespective of contamination status) or crushed demolition materials is not permitted currently under the CoP and requires either a standard rules environmental permit or a U1 waste exemption (see below).

In the context of excavated materials used on-sites undergoing development, four factors are considered to be of particular relevance in determining if the material is a waste or when it ceases to be waste:

- the aim of the Waste Framework Directive is not undermined, i.e. if the use of the material will create an unacceptable risk of pollution of the environment or harm to human health it is likely to be waste
- the material is certain to be used
- the material is suitable for use both chemically and geotechnically
- only the required quantity of material will be used.

The CoP requires the preparation of a materials management plan (MMP) that confirms the above factors will be met. This plan needs to be reviewed by a 'Qualified Person' (QP) who will then issue a declaration form to the EA. As the project progresses, data must be collated and on completion a verification report produced that shows the MMP was followed and describes any changes.

The MMP establishes whether specific materials are classified as waste and how excavated materials will be treated and/or reused in line with the CoP. The MMP is likely to form part of the site waste management plan.

APPENDIX H
EXPLORATORY HOLE RECORDS

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**14.08.19** End: **15.08.19**	**---**	**---**	**1** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete.		0.20	
0.25	1	D				MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint, brick, asphalt and concrete.			
0.50		PID	0.2ppm						
0.60	2	D							
1.20-1.65	1	SPT(c)	1,2/2,1,2,1 N=6						
1.50	3	D						(3.20)	
2.00-2.45	2	SPT	2,2/2,2,3,3 N=10						
2.00	4	D							
2.50	5	D							
3.00-3.45	6	U	39 blows						
								3.40	
3.50	7	D				Firm light brown silty CLAY. (LONDON CLAY FORMATION)			
4.00-4.45	3	SPT	3,3/4,5,6,6 N=21			...occasional bands of silt below 4.00m depth.			
4.00	8	D							
4.50	9	D							
5.00-5.45	10	U	56 blows						
5.50	11	D							
6.00-6.45	4	SPT	4,5/4,6,6,7 N=23			...becomes stiff below 6.00m depth.			
6.00	12	D						(6.20)	
7.00	13	D							
7.50-7.95	14	U	69 blows						
8.50	15	D							
9.00-9.45	5	SPT	4,4/5,5,7,8 N=25						
9.00	16	D						9.60	
						Stiff to very stiff, grey silty CLAY. (LONDON CLAY FORMATION)			
10.00	17	D				...occasional pockets of fine selenite crystals below 10.00m depth.			
10.50-10.95	18	U	81 blows						
11.50	19	D				...increase in abundance of thin claystone bands to 20.10m.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
14/08/19	08:00	0.00	-	0	
14/08/19	19:00	11.00	1.70	150	Dry
15/08/19	07:00	11.00	1.70	150	Dry
15/08/19	19:00	30.45	1.70	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
20.20	20.40	00:33

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Down borehole checks for buried ferrous objects carried out during drilling by specialist unexploded ordnance (UXO) officer using magnetometer at regular intervals to 12.00m depth.
3. No groundwater encountered.

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAI Hilly**	

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**14.08.19** End: **15.08.19**	**---**	**---**	**2** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
12.00-12.45	6	SPT	4,5/6,6,7,8 N=27			Stiff to very stiff, grey silty CLAY. (LONDON CLAY FORMATION) *(stratum copied from 9.60m from previous sheet)*			
12.00	20	D							
13.00	21	D							
13.50-13.95	22	U	91 blows						
14.50	23	D							
15.00-15.45	7	SPT	5,6/7,8,9,9 N=33						
15.00	24	D							
16.00	25	D							
16.50-16.95	26	U	98 blows						
17.50	27	D							
18.00-18.45	8	SPT	7,7/10,12,13,14 N=49			...rare bioturbation noted below 18.00m depth.			
18.00	28	D							
19.00	29	D							
19.50-19.95	30	U	114 blows						
19.50	30	D						(20.85)	
20.50	31	D				...grey claystone band from 20.10m to 20.50m.			
21.00-21.45	9	SPT	7,8/10,12,14,14 N=50						
21.00	32	D							
22.00	33	D							
22.50-22.95	34	U	126 blows						
23.50	35	D							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

4. 50mm diameter water standpipe (complete with flush protective cover) installed to 6.00m depth on completion. Response zone 2.00m to 6.00m.
5. 35mm diameter gas standpipe (complete with flush protective cover) installed to 1.00m depth on completion. Response zone 0.50m

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAI Hilly**	

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**14.08.19** End: **15.08.19**	**---**	**---**	**3** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
24.00-24.45	10	SPT	8,8/10,11,13,15 N=49			Stiff to very stiff, grey silty CLAY. (LONDON CLAY FORMATION) *(stratum copied from 9.60m from previous sheet)*			
24.00	36	D							
25.00	37	D							
25.50-25.95	38	U	156 blows						
26.50	39	D							
27.00-27.44	11	SPT	8,9/11,13,13,13 for 65mm N=52*						
27.00	40	D							
28.00	41	D							
28.50-28.95	42	U	176 blows						
29.50	43	D							
30.00-30.42	12	SPT	8,10/13,14,15,8 for 45mm N=56*					30.45	
30.00	44	D				Borehole terminated at 30.45m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 1.00m.

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAI Hilly**	

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**13.08.19** End: **14.08.19**	**---**	**---**	**1** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
0.20	1	D				MADE GROUND: Asphalt.		0.08	
0.50	2	D				MADE GROUND: Yellow medium to coarse SAND.		0.15	
0.60		PID	0.2ppm			MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse brick, flint, slate and concrete.		(1.15)	
1.20-1.65	1	SPT	1,2/1,2,2,2 N=7					1.30	
1.20	3	D				Firm light brown silty slightly gravelly CLAY. Gravel is angular to rounded fine to coarse flint, chert and mixed lithology. (POSSIBLE REWORKED LONDON CLAY)		(0.90)	
1.50	4	D							
2.00-2.45	5	U	38 blows					2.20	
2.50	6	D				Firm brown gravelly CLAY. Gravel is angular to rounded fine to coarse flint, chert and mixed lithology. (POSSIBLE REWORKED LONDON CLAY)		(1.10)	
3.00-3.45	2	SPT	3,3/4,3,4,3 N=14					3.30	
3.00	7	D				Firm light brown silty CLAY. (LONDON CLAY FORMATION)			
3.50	8	D							
4.00-4.45	9	U	45 blows						
4.50	10	D				...becomes dark brown grey below 4.50m depth.			
5.00-5.45	3	SPT	4,6/6,10,8,8 N=32						
5.00	11	D							
5.50	12	D						(5.00)	
6.00-6.45	13	U	108 blows						
6.50	14	D							
7.50-7.95	4	SPT	5,6/7,10,9,8 N=34			...becomes stiff below 7.50m depth.			
7.50	15	D						8.30	
8.50	16	D				Stiff to very stiff grey silty CLAY. (LONDON CLAY FORMATION)			
9.00-9.45	17	U	80 blows						
9.50	18	D							
10.50-10.95	5	SPT	5,7/7,8,8,9 N=32						
10.50	19	D							
11.50	20	D							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/08/19	08:00	0.00	-	0	
13/08/19	19:00	25.95	3.15	150	Dry
14/08/19	07:30	24.70	3.15	150	Dry
14/08/19	13:30	30.45	3.15	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Inspection pit hand dug to 1.20m depth.
3. Down borehole checks for buried ferrous objects carried out during drilling by specialist unexploded ordnance (UXO) officer using magnetometer at regular intervals to 12.00m

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAlhilly**	

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**13.08.19** End: **14.08.19**	**---**	**---**	**2** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
12.00-12.45	21	U	125 blows			Stiff to very stiff grey silty CLAY. (LONDON CLAY FORMATION) *(stratum copied from 8.30m from previous sheet)*			
12.50	22	D				...occasional pockets of fine selenite crystals below 12.00m depth.			
13.50-13.95	6	SPT	6,7/7,8,9,9 N=33						
13.50	23	D							
14.50	24	D				...grey claystone band from 14.40m to 14.80m.			
15.00-15.45	25	U	134 blows			...increase in abundance of thin claystone bands from 14.80m to 16.60m.			
15.50	26	D							
16.50-16.82	7	SPT	25/31,9,8,2 for 15mm N=62*			...grey claystone band from 16.60m to 16.90m.			
16.50	27	D							
17.50	28	D							
18.00-18.45	29	U	116 blows						
19.00	30	D						(22.15)	
19.50-19.95	8	SPT	9,10/10,11,12,17 for 70mm N=51*						
19.50	31	D				...occasional pockets and bands of silt below 20.00m depth.			
20.50	32	D							
21.00-21.45	33	U	119 blows						
22.00	34	D							
22.50-22.95	9	SPT	8,9/10,11,13,13 N=47						
22.50	35	D							
23.00	36	D							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

depth.
4. No groundwater encountered.
5. 50mm diameter water standpipe (complete with flush protective cover) installed to 6.00m depth on completion. Response zone 2.00m to 6.00m depth.
6. 35mm diameter gas standpipe (complete with

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAlhilly**	

FINAL

BOREHOLE LOG

Contract:	Client:	Borehole:
Royal College Street, London	**Rocco Ventures Ltd.**	**BH2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**13.08.19** End: **14.08.19**	**---**	**---**	**3** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results						
24.00-24.45	37	U	125 blows			Stiff to very stiff grey silty CLAY. (LONDON CLAY FORMATION) *(stratum copied from 8.30m from previous sheet)*			
24.50	38	D							
25.50-25.95	10	SPT	8,10/10,12,12,14 N=48						
25.50	39	D							
26.00	40	D							
27.00-27.45	41	U	139 blows						
28.00	42	D							
28.50-28.91	11	SPT	8,11/13,15,15,7 for 30mm N=59*						
28.50	43	D							
29.50	44	D							
30.00-30.37	12	SPT	10,14/17,16,17 for 70mm N=68*						
30.00	45	D				Borehole terminated at 30.45m depth.		30.45	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

flush protective cover) installed to 1.00m depth on completion. Response zone 0.50m to 1.00m depth.

All dimensions in metres | Scale: **1:67**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**CJA**	**SAlhilly**	

FINAL

TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Royal College Street, London	**Rocco Ventures Ltd.**	**TP1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**1** of **1**
	End: **15.08.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt:		0.08	
0.50 0.50	1	ES PID	0.0ppm			MADE GROUND: Grey brown very gravelly medium to coarse SAND. Gravel is angular to subrounded fine to coarse brick, flint, concrete, slate, tiles and asphalt.		(1.12)	
						Trial pit terminated at 1.20m depth.		1.20	

General Remarks

1. Checks for buried ferrous objects carried out during excavation by specialist unexploded ordnance (UXO) officer using magnetometer.
2. Trial pit remained stable during excavation.
3. No groundwater encountered.
4. Ease of trial pit excavation: easy.
5. On completion, trial pit backfilled with arisings.

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

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

FINAL

TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Royal College Street, London	**Rocco Ventures Ltd.**	**TP2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19** End: **16.08.19**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete.		(0.15) 0.15	
0.50 0.50	1	ES PID	0.2ppm			MADE GROUND: Light yellow brown very gravelly medium to corse SAND. Gravel is subangular to subrounded fine to coarse flint and rare fragments of brick.		(1.27) 1.42	
						Trial pit terminated at 1.42m depth.			

General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Checks for buried ferrous objects carried out during excavation by specialist unexploded ordnance (UXO) officer using magnetometer.
3. Trial pit remained stable during excavation.
4. No groundwater encountered.
5. Ease of trial pit excavation: difficult.
6. On completion, trial pit backfilled with arisings.

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

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

FINAL

TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Royal College Street, London	**Rocco Ventures Ltd.**	**TP3**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**1** of **1**
	End: **15.08.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt.		0.09	
						MADE GROUND: Pink gravelly medium to coarse SAND. Gravel is angular to subangular fine to coarse roadstone.		0.15	
						MADE GROUND: Yellow medium to coarse SAND.		(0.15)	
0.30 0.30	1	ES PID	0.3ppm			MADE GROUND: Grey brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick, concrete slate and asphalt.		0.30 (0.25)	
0.60 0.60	2	ES PID	0.0ppm			MADE GROUND: Dark brown grey slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick, concrete and slate.		0.55 (0.27)	
						Trial pit terminated at 0.82m depth.		0.82	

General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Checks for buried ferrous objects carried out during excavation by specialist unexploded ordnance (UXO) officer using magnetometer.
3. Trial pit remained stable during excavation.
4. No groundwater encountered.
5. Ease of trial pit excavation: easy.
6. On completion, trial pit backfilled with arisings.

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

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

FINAL

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Royal College Street, London	**Rocco Ventures Ltd.**	**WS1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**1** of **1**
	End: **15.08.19**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
	0.04		PID	0.7ppm			MADE GROUND: Concrete (slab).		0.25	
	0.40	1	ES	TXJXV			MADE GROUND: Brown very gravelly medium to coarse SAND. Gravel is angular to subangular fine to coarse flint and concrete.		0.50	
							Trial pit terminated at 0.50m depth.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Checks for buried ferrous objects carried out during excavation by specialist unexploded ordnance (UXO) officer using magnetometer.
2. Trial pit remained stable during excavation.
3. No groundwater encountered.
4. Ease of trial pit excavation: moderate.
5. On completion, trial pit backfilled with arisings.

All dimensions in metres | Scale: **1:36**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	**Archway Competitor 130**	**GEH Groundworks**	**SAI Hilly**	

FINAL

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Royal College Street, London	**Rocco Ventures Ltd.**	**WS2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**1** of **1**
	End: **15.08.19**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Reinforced concrete (200mm spacing rebar mesh - 10mm diameter).		0.20	
	0.30 0.30	1	ES PID	TXJXV 0.4ppm			MADE GROUND: Light brown gravelly medium to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick and concrete. Occasional cobbles of brick and concrete.		0.50 (0.70)	
	0.80 0.80	2	ES PID	TXJXV 0.3ppm			MADE GROUND: Dark grey brown / black slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse brick, flint, concrete, chalk and black ash.		1.20	
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	1,1/1,1,1,1 N=4			Firm light brown silty slightly gravelly CLAY. Gravel is angular to subangular fine to coarse mixed lithology. (POSSIBLE REWORKED LONDON CLAY)		(1.30)	
	1.40 1.40 1.60	3 4	ES PID D	TXJXV 0.2ppm			...becoming stiff below 2.00m depth.		2.50	
2.00 - 3.00 (98mm dia) 100% rec	2.00-2.45	2	SPT	2,2/2,3,3,2 N=10			Stiff light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse mixed lithology. (POSSIBLE REWORKED LONDON CLAY)		(0.50)	
	2.30 2.80	6 7	D D						3.00	
3.00 - 4.00 (85mm dia) 100% rec	3.00-3.45	3	SPT	3,3/3,3,4,4 N=14			Stiff light brown silty CLAY. (LONDON CLAY FORMATION)		(1.00)	
	3.50	8	D						4.00	
							Borehole terminated at 4.00m depth on recommendation of UXO specialist due to abnormal high reading on magnetometer.			

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Inspection pit hand dug to 1.20m depth.
3. Down borehole checks for buried ferrous objects carried out during drilling by specialist unexploded ordnance (UXO) officer using magnetometer at regular intervals to 4.00m depth.
4. No groundwater encountered.
5. On completion, borehole backfilled with arisings.

All dimensions in metres | Scale: **1:36**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	**Archway Competitor 130**	**GEH Groundworks**	**SAlhilly**	

FINAL

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Royal College Street, London	**Rocco Ventures Ltd.**	**WS3**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**1** of **2**
	End: **15.08.19**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Asphalt.		0.08	
							MADE GROUND: Yellow medium to coarse SAND.		0.15	
	0.40	1	ES	TxVxJ			MADE GROUND: Grey brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse brick, flint, concrete, slate and rare shell fragments. Occasional cobbles of brick and concrete.		(0.55)	
	0.40		PID	3.7ppm					0.70	
	0.80	2	ES	TxVxJ						
	0.80		PID	146.6ppm					1.00	
	1.20-1.65	1	SPT	2,1/2,2,2,2 N=8			MADE GROUND: Dark grey black brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse brick and flint. Strong hydrocarbon odour noted.			
1.20 - 2.00 (115mm dia) 100% rec	1.20	3	ES	TxVxJ			Firm grey brown with dark grey / black staining silty CLAY. (LONDON CLAY FORMATION)			
	1.20		PID	52.9ppm						
	1.50	4	D							
	1.50		PID	10.2ppm						
	2.00-2.45	2	SPT	2,2/2,3,3,3 N=11			...black staining stops at 2.10m depth.			
	2.30	5	ES	TxVxJ						
2.00 - 3.00 (98mm dia) 100% rec	2.30		PID	35.0ppm						
	2.50	6	D							
	2.50		PID	2.9ppm						
	3.00-3.45	3	SPT	3,2/3,3,3,2 N=11			...becomes slightly sandy with rare bands and pockets of fine sand below 3.00m depth.		(4.45)	
3.00 - 4.00 (85mm dia) 100% rec	3.50	7	D							
	3.50		PID	2.3ppm						
	4.00-4.45	4	SPT	3,3/3,3,3,3 N=12						
4.00 - 5.00 (75mm dia) 100% rec	4.50	8	D							
	4.50		PID	1.6ppm						
	5.00-5.45	5	SPT	4,4/4,4,4,4 N=16					5.45	
							Borehole terminated at 5.45m depth.			

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Inspection pit hand dug to 1.20m depth.
3. Down borehole checks for buried ferrous objects carried out during drilling by specialist unexploded ordnance (UXO) officer using magnetometer at regular intervals to 4.00m depth.
4. No groundwater encountered.
5. 35mm diameter standpipe piezometer (complete with flush protective cover)

All dimensions in metres | Scale: **1:36**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window	**Dando Terrier**	**GEH Groundworks**	**SAI Hilly**	

FINAL

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Royal College Street, London	**Rocco Ventures Ltd.**	**WS3**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
371944	**15.08.19**	**---**	**---**	**2** of **2**
	End: **15.08.19**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

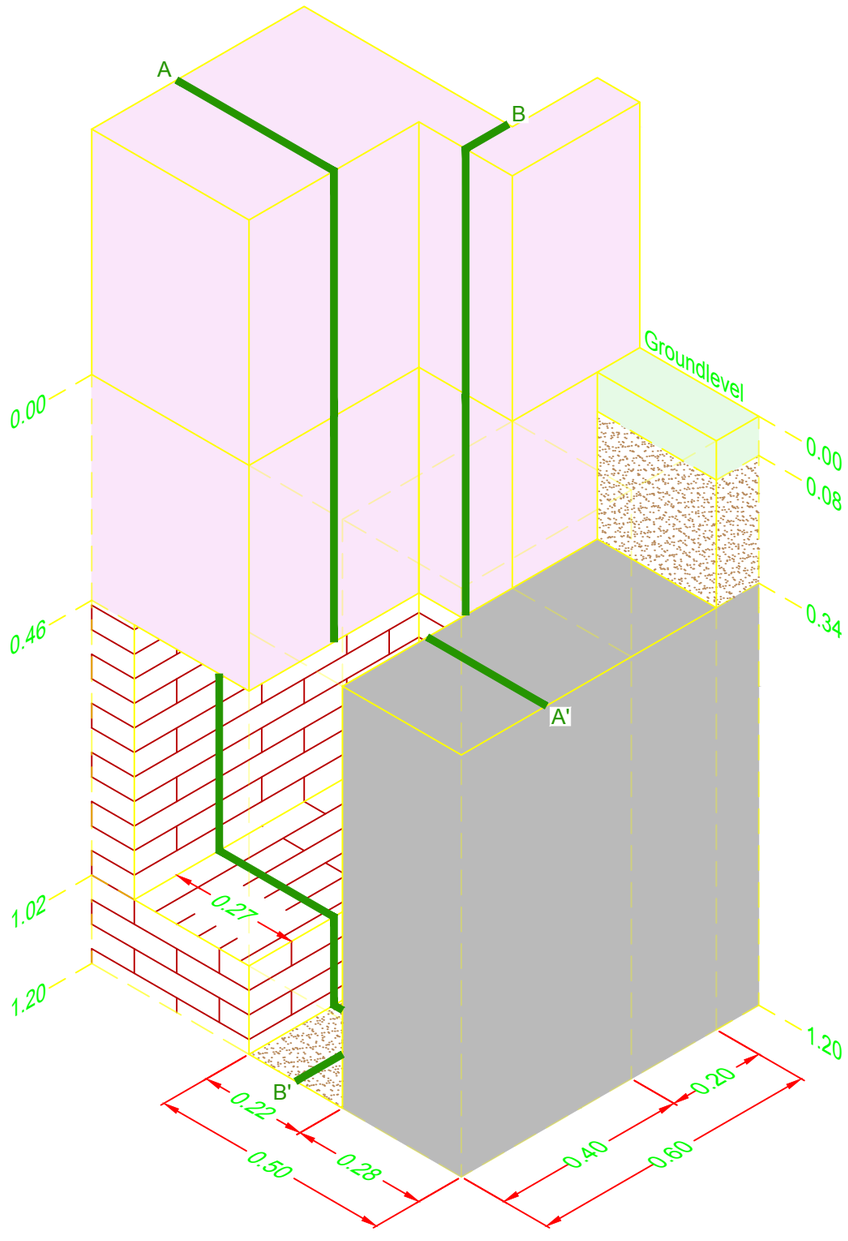
General Remarks

installed to 1.00m depth on completion. Response zone 0.50m to 1.00m.

All dimensions in metres | Scale: **1:36**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Dando Terrier**	**GEH Groundworks Specialists**	**SAI Hilly**	

Isometric Plan view:
(1:12.5)



Scale 1 : 12.5
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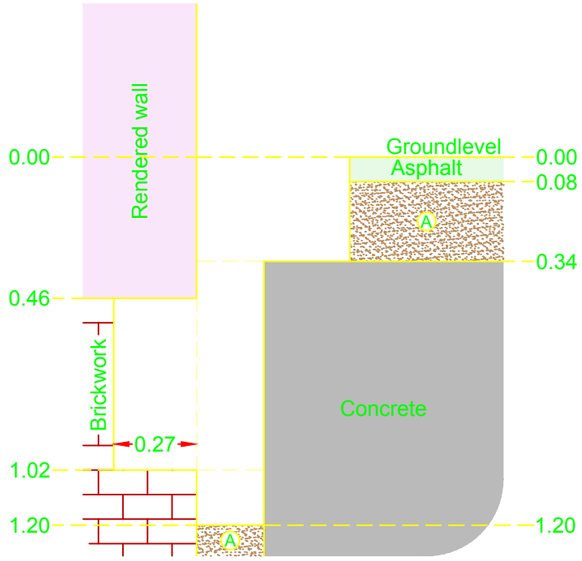
Section A-A':
(1:20)



Scale 1 : 20
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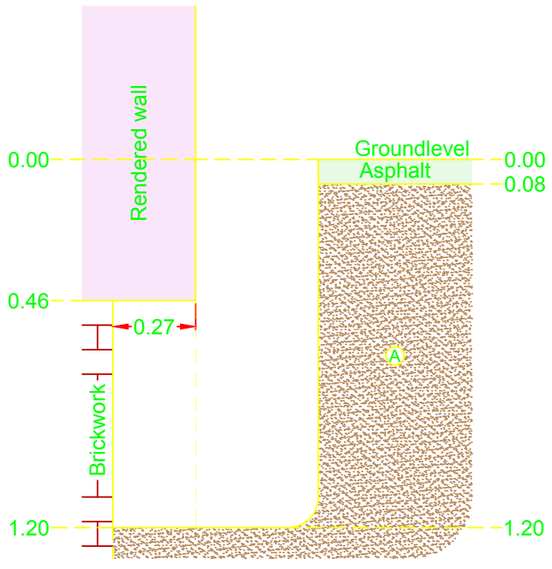
Section B-B':
(1:20)



Scale 1 : 20
0 200 400 600 800 1000 1200 1400 1600 1800 2000mm

LEGEND

- Section Line
- Brick
- Concrete
- Asphalt
- Rendered Wall
- A: Made Ground: Grey brown very gravelly medium to coarse SAND. Gravel is angular to subrounded fine to coarse brick, flint, concrete, slate, tiles and asphalt.

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK
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Client
ROCCO VENTURES LTD

Project Title
60-86 ROYAL COLLEGE STREET, LONDON

Drawing Title
TRIAL PIT DIAGRAM (TRIAL PIT 1)

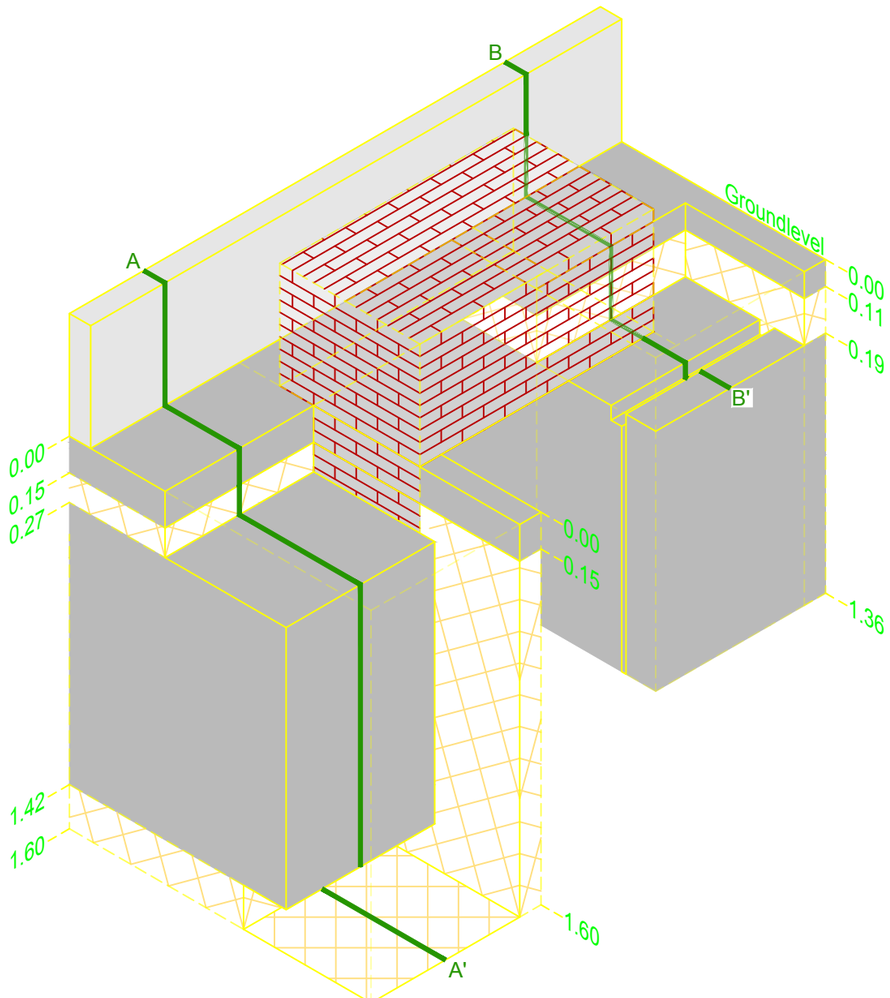
Drawn	Date	Checked	Date	Approved	Date
ASC	28.08.19	AT	28.08.19	AT	19.09.19

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371944 - R01 (00)	Trial Pit Sections 371944.dwg

Drawing No.	Rev.
TP1	P1

Isometric Plan view:
(1:25)



Scale 1 : 25

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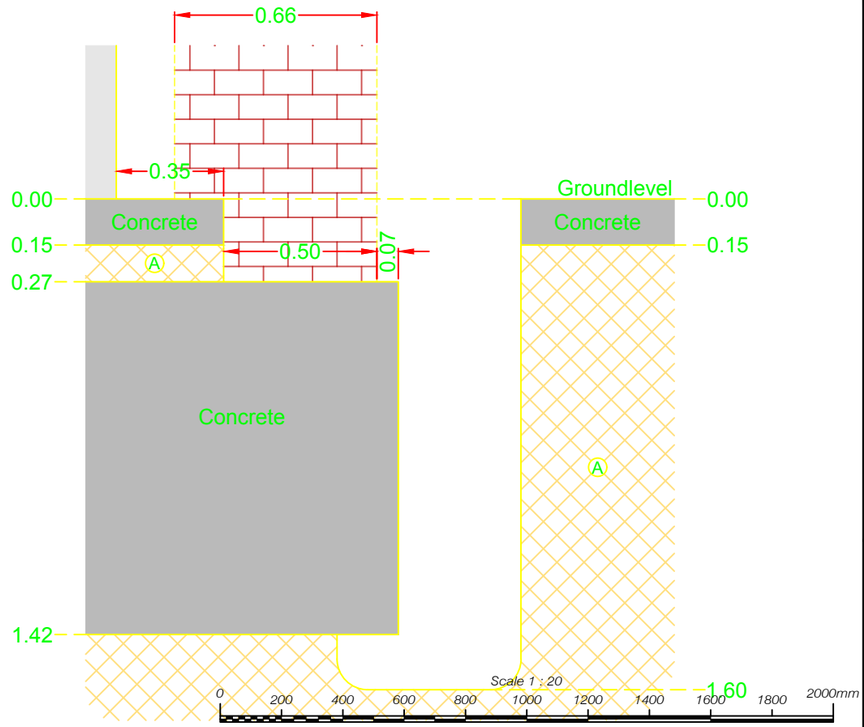
Section A-A':
(1:20)



Scale 1 : 20

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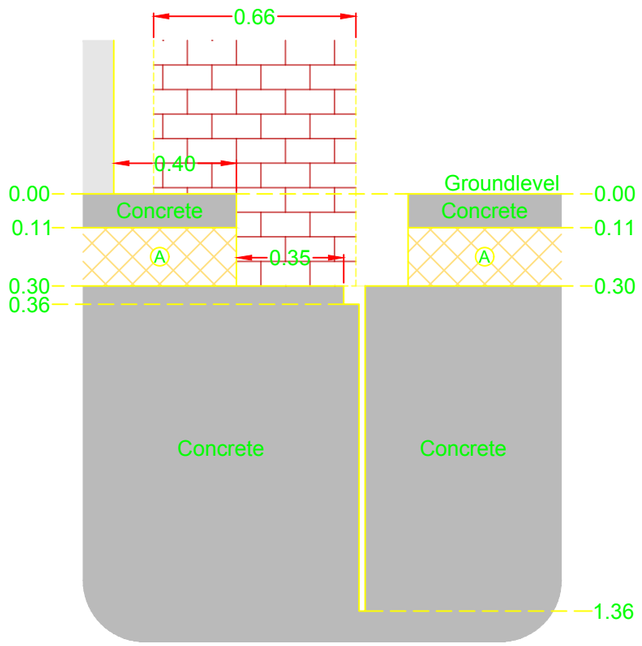
Section B-B':
(1:20)



Scale 1 : 20

0 200 400 600 800 1000 1200 1400 1600 1800 2000mm

LEGEND

- Section Line
- Brick
- Concrete
- Metal Shutter
- A — Made Ground: Light yellow brown very gravelly medium to corse SAND. Gravel is subangular to subrounded fine to coarse flint and rare fragments of brick.

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

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Client

ROCCO VENTURES LTD

Project Title

60-86 ROYAL
COLLEGE STREET,
LONDON,

Drawing Title

TRIAL PIT
DIAGRAM
(TRIAL PIT 2)

Drawn	Date	Checked	Date	Approved	Date
ASC	28.08.19	AT	28.08.19	AT	19.09.19

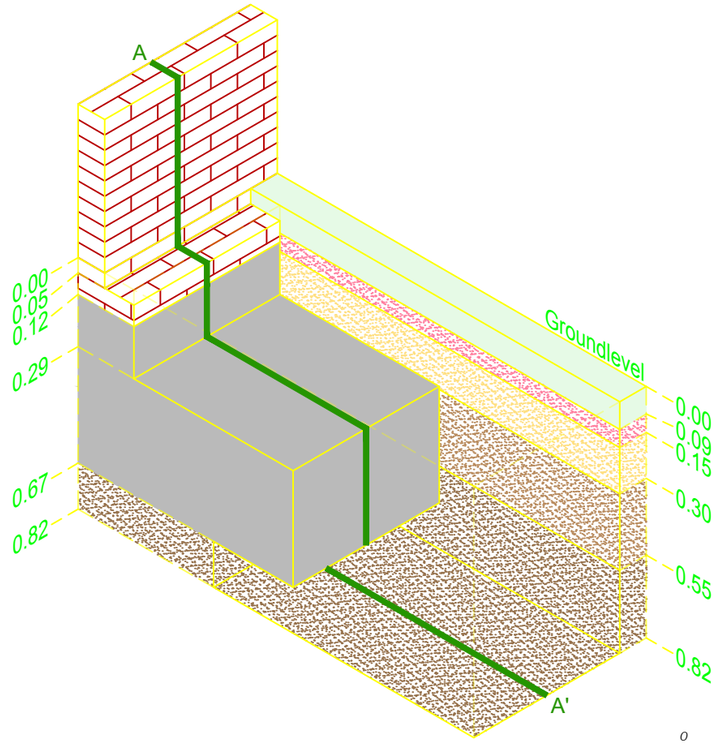
Scale	Orig Size	Dimensions
AS SHOWN	A3	m

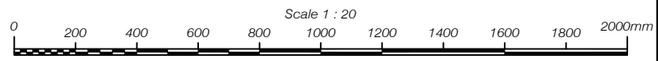
Project No.	Drawing File
371944 - R01 (00)	Trial Pit Sections 371944.dwg

Drawing No.	Rev.
TP2	P1

Isometric Plan view:

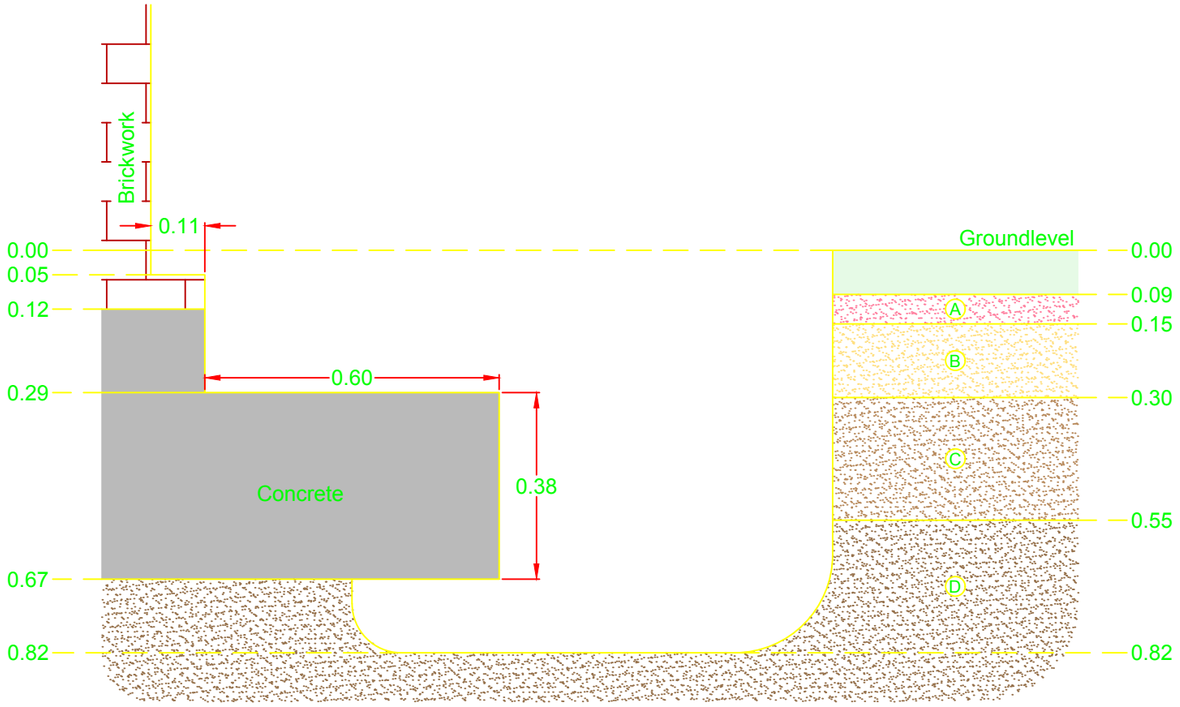
(1:20)

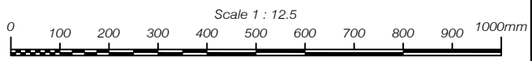




Section A-A':

(1:12.5)





LEGEND

- Section Line
- Brick
- Concrete
- Asphalt
- A: Made Ground: Pink gravelly medium to coarse SAND. Gravel is angular to subangular fine to coarse roadstone.
- B: Made Ground: Yellow medium to coarse SAND.
- C: Made Ground: Grey brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick, concrete slate and asphalt.
- D: Made Ground: Dark brown grey slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick, concrete and slate.

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

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Client

ROCCO VENTURES LTD

Project Title

60-86 ROYAL
COLLEGE STREET,
LONDON,

Drawing Title

TRIAL PIT
DIAGRAM
(TRIAL PIT 3)

Drawn	Date	Checked	Date	Approved	Date
ASC	28.08.19	AT	28.08.19	AT	19.09.19

Scale	Orig Size	Dimensions
AS SHOWN	A3	m

Project No.	Drawing File
371944 - R01 (00)	Trial Pit Sections 371944.dwg

Drawing No.	Rev.
TP3	P1

RSK ENVIRONMENT LTD

STANDARD PENETRATION TEST SUMMARY TABLE

Contract:		Client:		Contract ref:
Royal College Street, London		**Rocco Ventures Ltd.**		**371944**

Exploratory Position ID	Depth (m)	Seating Drive		Test Drive			Comments
		Blows	Pen (mm)	Blows	R (mm)	Result	
BH1	1.20	1,2	150	2,1,2,1		1,2/2,1,2,1	SPT(c)
						N=6	
	2.00	2,2	150	2,2,3,3		2,2/2,2,3,3	
						N=10	
	4.00	3,3	150	4,5,6,6		3,3/4,5,6,6	
						N=21	
	6.00	4,5	150	4,6,6,7		4,5/4,6,6,7	
						N=23	
	9.00	4,4	150	5,5,7,8		4,4/5,5,7,8	
						N=25	
	12.00	4,5	150	6,6,7,8		4,5/6,6,7,8	
						N=27	
	15.00	5,6	150	7,8,9,9		5,6/7,8,9,9	
						N=33	
	18.00	7,7	150	10,12,13,14		7,7/10,12,13,14	
						N=49	
	21.00	7,8	150	10,12,14,14		7,8/10,12,14,14	
						N=50	
	24.00	8,8	150	10,11,13,15		8,8/10,11,13,15	
						N=49	
	27.00	8,9	150	11,13,13,13+	290	8,9/11,13,13,13	
						for 65mm	
						N=52*	
	30.00	8,10	150	13,14,15,8+	270	8,10/13,14,15,8	
						for 45mm	
						N=56*	
BH2	1.20	1,2	150	1,2,2,2		1,2/1,2,2,2	
						N=7	
	3.00	3,3	150	4,3,4,3		3,3/4,3,4,3	
						N=14	
	5.00	4,6	150	6,10,8,8		4,6/6,10,8,8	
						N=32	

Notes:
1. **Tests carried out in general accordance with BS EN ISO 22476-3:2005**
2. **Reported blows are for 75mm penetration unless indicated "+".**
3. **Where full test drive was not achieved, actual penetration (R) and extrapolated N value (N*) reported.**
4. **Tests carried out using a split spoon sampler unless noted as SPT(c) (denotes use of solid cone method) in the comments column.**

AGS

RSK ENVIRONMENT LTD

STANDARD PENETRATION TEST SUMMARY TABLE

Contract:		Client:		Contract ref:
Royal College Street, London		**Rocco Ventures Ltd.**		**371944**

Exploratory Position ID	Depth (m)	Seating Drive		Test Drive			Comments
		Blows	Pen (mm)	Blows	R (mm)	Result	
BH2	7.50	5,6	150	7,10,9,8		5,6/7,10,9,8	
						N=34	
	10.50	5,7	150	7,8,8,9		5,7/7,8,8,9	
						N=32	
	13.50	6,7	150	7,8,9,9		6,7/7,8,9,9	
						N=33	
	16.50	25,0	75	31,9,8,2+	240	25/31,9,8,2	
						for 15mm	
						N=62*	
	19.50	9,10	150	10,11,12,17+	295	9,10/10,11,12,17	
						for 70mm	
						N=51*	
	22.50	8,9	150	10,11,13,13		8,9/10,11,13,13	
						N=47	
	25.50	8,10	150	10,12,12,14		8,10/10,12,12,14	
						N=48	
	28.50	8,11	150	13,15,15,7+	255	8,11/13,15,15,7	
						for 30mm	
						N=59*	
	30.00	10,14	150	17,16,17+,0+	220	10,14/17,16,17	
						for 70mm	
						N=68*	
WS2	1.20	1,1	150	1,1,1,1		1,1/1,1,1,1	
						N=4	
	2.00	2,2	150	2,3,3,2		2,2/2,3,3,2	
						N=10	
	3.00	3,3	150	3,3,4,4		3,3/3,3,4,4	
						N=14	
WS3	1.20	2,1	150	2,2,2,2		2,1/2,2,2,2	
						N=8	
	2.00	2,2	150	2,3,3,3		2,2/2,3,3,3	
						N=11	

Notes:
1. Tests carried out in general accordance with BS EN ISO 22476-3:2005
2. Reported blows are for 75mm penetration unless indicated "+".
3. Where full test drive was not achieved, actual penetration (R) and extrapolated N value (N*) reported.
4. Tests carried out using a split spoon sampler unless noted as SPT(c) (denotes use of solid cone method) in the comments column.

AGS

STANDARD PENETRATION TEST SUMMARY TABLE

Contract:		Client:		Contract ref:
Royal College Street, London		**Rocco Ventures Ltd.**		**371944**

Exploratory Position ID	Depth (m)	Seating Drive		Test Drive			Comments
		Blows	Pen (mm)	Blows	R (mm)	Result	
WS3	3.00	3,2	150	3,3,3,2		3,2/3,3,3,2	
						N=11	
	4.00	3,3	150	3,3,3,3		3,3/3,3,3,3	
						N=12	
	5.00	4,4	150	4,4,4,4		4,4/4,4,4,4	
						N=16	

Notes:
1. Tests carried out in general accordance with BS EN ISO 22476-3:2005
2. Reported blows are for 75mm penetration unless indicated "+".
3. Where full test drive was not achieved, actual penetration (R) and extrapolated N value (N*) reported.
4. Tests carried out using a split spoon sampler unless noted as SPT(c) (denotes use of solid cone method) in the comments column.

Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling uk ltd
5-8 victory parkway
victory road
Derby
DE24 8ZF

Hammer Ref:	CJ08
Test Date:	07/06/2019
Report Date:	07/06/2019
File Name:	CJ08.spt
Test Operator:	TP

Instrumented Rod Data

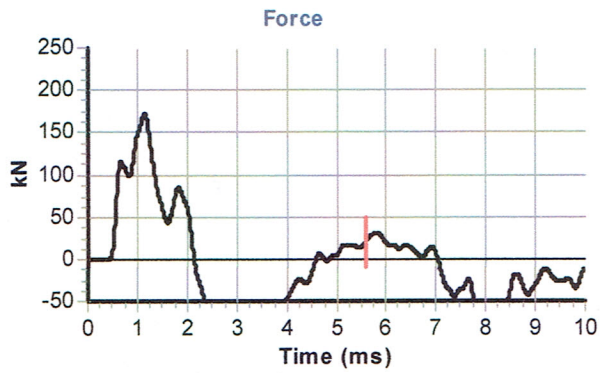
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	9603
Accelerometer No.2:	6457

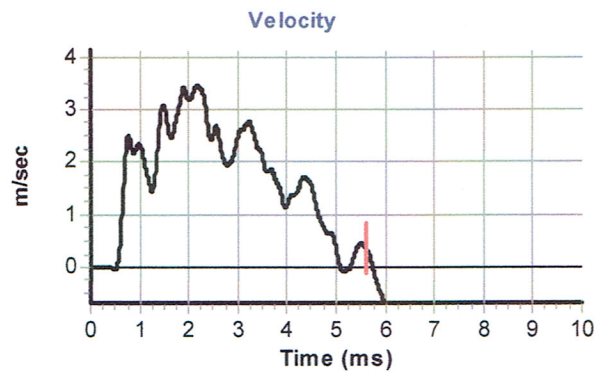
Hammer Information

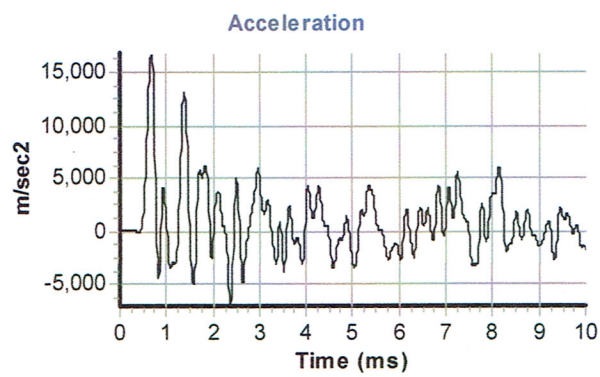
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	15.0

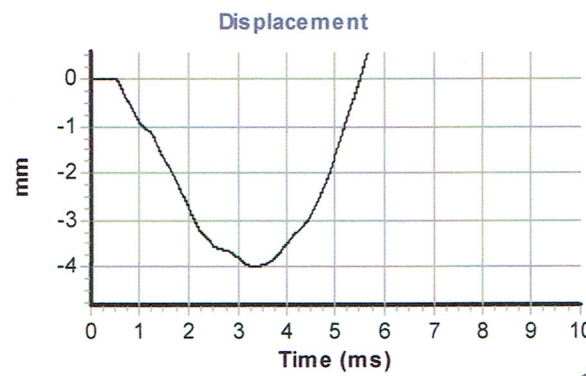
Comments / Location

CJ associates hammer tested at Dynamic samplings yard.





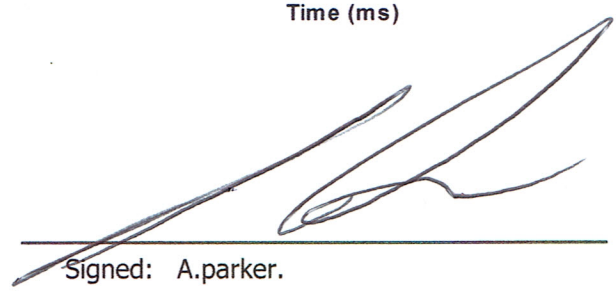




Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	317

Energy Ratio E_r (%): **67**



Signed: A.parker.

Title: Associate Director.

The recommended calibration interval is 12 months

APPENDIX I
GROUND GAS MONITORING DATA

IN-SITU GAS MONITORING RESULTS

	Start Date	End Date	Pressures Previous	Pressures During	Pressures Start	Pressures End	Equipment Used & Remarks
Round 1	23/08/19	23/08/19	-	-	1024	1024	
Round 2	02/09/19	02/09/19	-	-	1021	1022	
Round 3	18/09/19	18/09/19	-	-	10127	-	

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
BH1	2	35	1	1.00	1.00	0.50 to 1.00	30/12/1899 00:00:15	-	1024	-	DRY	0.3	0.0	20.4	0.0	-	-	-
BH1	2	35	1		1.00	0.50 to 1.00	30 secs	-	1024	-	DRY	0.3	0.0	20.2	0.0	-	-	-
BH1	2	35	1		1.00	0.50 to 1.00	60 secs	-	1024	-	DRY	0.4	0.0	19.9	0.0	-	-	-
BH1	2	35	1		1.00	0.50 to 1.00	90 secs	-	1024	-	DRY	0.5	0.0	19.7	0.0	-	-	-
BH1	2	35	1		1.00	0.50 to 1.00	120 secs	-	1024	-	DRY	0.5	0.0	19.7	0.0	-	-	-
BH1	2	35	1		1.00	0.50 to 1.00	150 secs	-	1024	-	DRY	0.5	0.0	19.7	0.0	-	-	-
BH1	2	35	1	1.00	1.00	0.50 to 1.00	23/08/2019 12:00:00	-	1024	$0.0_{(SS)}$	DRY	0.3	0.0	20.7	0.0	-	-	-
BH1	1	50	2	6.00	5.64	2.00 to 6.00	02/09/2019 10:09:00	-	1022	$0.0_{(SS)}$	3.31	0.1	0.0	20.9	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	15 secs	-	1022	-	3.31	0.6	0.0	20.3	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	30 secs	-	1022	-	3.31	0.6	0.0	20.0	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	60 secs	-	1022	-	3.31	0.7	0.0	19.8	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	90 secs	-	1022	-	3.31	0.8	0.0	19.8	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	120 secs	-	1022	-	3.31	0.7	0.0	19.8	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	180 secs	-	1022	-	3.31	0.7	0.0	19.8	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	240 secs	-	1022	-	3.31	0.7	0.0	19.8	0.0	0.3	0	0
BH1	1	50	2		5.64	2.00 to 6.00	300 secs	-	1022	-	3.31	0.7	0.0	19.8	0.0	0.3	0	0
BH1	1	50	3	6.00	5.82	2.00 to 6.00	18/09/2019 12:38:00	-	1029	$0.0_{(I)}$	2.69	0.1	0.0	20.9	-	0.2	0	0
BH1	1	50	3		---	2.00 to 6.00	15 secs	-	-	$0.0_{(SS)}$	-	0.3	0.0	20.6	-	-	0	0

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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

Compiled By	Date	Checked By	Date	Contract Ref:
A. Fyfe	19/09/19			371944

Contract: **Royal College Street, London**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
BH1	1	50	3		---	2.00 to 6.00	30 secs	-	-	-	-	0.4	0.0	20.3	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	60 secs	-	-	-	-	0.7	0.0	20.0	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	90 secs	-	-	-	-	0.8	0.0	20.0	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	120 secs	-	-	-	-	0.8	0.0	20.0	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	180 secs	-	-	-	-	0.8	0.0	20.0	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	240 secs	-	-	-	-	0.8	0.0	20.1	-	-	0	0
BH1	1	50	3		---	2.00 to 6.00	300 secs	-	-	-	-	0.7	0.0	20.1	-	-	0	0
BH2	2	35	1	1.00	1.00	0.50 to 1.00	23/08/2019	-	1024	0.0	DRY	0.3	0.0	20.6	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	15 secs	-	1024	0.0	DRY	0.3	0.0	20.7	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	30 secs	-	1024	0.0	DRY	0.3	0.0	20.7	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	60 secs	-	1024	0.0	DRY	0.3	0.0	20.6	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	90 secs	-	1024	0.0	DRY	0.3	0.0	20.6	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	120 secs	-	1024	0.0	DRY	0.4	0.0	20.6	0.0	-	-	-
BH2	2	35	1		1.00	0.50 to 1.00	150 secs	-	1024	0.0	DRY	0.4	0.0	20.6	0.0	-	-	-
BH2	1	50	2	6.00	5.72	2.00 to 6.00	02/09/2019 09:05:00	-	1021	$0.0_{(I)}$	3.26	0.2	0.0	20.9	0.0	0.3	0	0
BH2	1	50	2		5.72	2.00 to 6.00	15 secs	-	1021	$-0.1_{(SS)}$	3.26	0.2	0.0	20.6	0.0	0.3	0	0
BH2	1	50	2		5.72	2.00 to 6.00	30 secs	-	1021	-	3.26	0.3	0.0	20.5	0.0	0.3	0	0
BH2	1	50	2		5.72	2.00 to 6.00	60 secs	-	1021	-	3.26	0.3	0.0	20.4	0.0	0.3	0	1
BH2	1	50	2		5.72	2.00 to 6.00	90 secs	-	1021	-	3.26	0.4	0.0	20.4	0.0	0.3	0	1
BH2	1	50	2		5.72	2.00 to 6.00	120 secs	-	1021	-	3.26	0.3	0.0	20.4	0.0	0.3	0	1
BH2	1	50	2		5.72	2.00 to 6.00	190 secs	-	1021	-	3.26	0.3	0.0	20.4	0.0	0.3	0	1
BH2	1	50	2		5.72	2.00 to 6.00	240 secs	-	1021	-	3.26	0.3	0.0	20.4	0.0	0.3	0	1
BH2	1	50	2		5.72	2.00 to 6.00	300 secs	-	1021	-	3.26	0.3	0.0	20.4	0.0	0.3	0	1
BH2	1	50	3	6.00	5.94	2.00 to 6.00	18/09/2019 11:57:00	-	1027	$0.0_{(I)}$	3.48	0.1	0.0	20.9	-	-	0	0

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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

Compiled By	Date	Checked By	Date	Contract Ref:
A. Fyfe	19/09/19			371944

Contract: **Royal College Street, London**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
BH2	1	50	3		---	2.00 to 6.00	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.7	-	-	0	0
BH2	1	50	3		---	2.00 to 6.00	30 secs	-	-	-	-	0.2	0.0	20.6	-	-	0	0
BH2	1	50	3		---	2.00 to 6.00	60 secs	-	-	-	-	0.2	0.0	20.5	-	-	0	1
BH2	1	50	3		---	2.00 to 6.00	90 secs	-	-	-	-	0.2	0.0	20.5	-	-	0	1
BH2	1	50	3		---	2.00 to 6.00	120 secs	-	-	-	-	0.2	0.0	20.5	-	-	0	1
BH2	1	50	3		---	2.00 to 6.00	190 secs	-	-	-	-	0.2	0.0	20.4	-	-	0	1
BH2	1	50	3		---	2.00 to 6.00	240 secs	-	-	-	-	0.2	0.0	20.3	-	-	0	1
BH2	1	50	3		---	2.00 to 6.00	300 secs	-	-	-	-	0.2	0.0	20.3	-	-	0	1
WS2	1	35	2	1.00	0.80	0.50 to 1.00	02/09/2019 09:52:00	-	1022	$0.0_{(SS)}$	DRY	0.1	0.0	20.9	0.0	0.0	0	0
WS2	1	35	2		0.80	0.50 to 1.00	15 secs	-	1022	-	DRY	0.1	0.0	19.8	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	30 secs	-	1022	-	DRY	0.0	0.0	19.2	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	60 secs	-	1022	-	DRY	0.0	0.0	19.1	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	90 secs	-	1022	-	DRY	0.0	0.0	19.1	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	120 secs	-	1022	-	DRY	0.0	0.0	19.2	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	180 secs	-	1022	-	DRY	0.0	0.0	19.2	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	240 secs	-	1022	-	DRY	0.0	0.0	19.2	0.0	0.0	1	0
WS2	1	35	2		0.80	0.50 to 1.00	300 secs	-	1022	-	DRY	0.0	0.0	19.3	0.0	0.0	1	0
WS2	1	35	3	1.00	0.91	0.50 to 1.00	18/09/2019 12:23:00	-	1028	$0.0_{(I)}$	0.91	0.1	0.0	20.9	-	0.1	0	0
WS2	1	35	3		---	0.50 to 1.00	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	18.7	-	-	1	0
WS2	1	35	3		---	0.50 to 1.00	30 secs	-	-	-	-	0.0	0.0	17.4	-	-	1	1
WS2	1	35	3		---	0.50 to 1.00	60 secs	-	-	-	-	0.0	0.0	17.2	-	-	1	1
WS2	1	35	3		---	0.50 to 1.00	90 secs	-	-	-	-	0.0	0.0	17.2	-	-	1	1
WS2	1	35	3		---	0.50 to 1.00	120 secs	-	-	-	-	0.0	0.0	17.2	-	-	1	1
WS2	1	35	3		---	0.50 to 1.00	180 secs	-	-	-	-	0.0	0.0	17.3	-	-	1	1

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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

Compiled By	Date	Checked By	Date	Contract Ref:
A. Fyfe	19/09/19			371944

Contract: **Royal College Street, London**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS2	1	35	3		---	0.50 to 1.00	240 secs	-	-	-	-	0.0	0.0	17.3	-	-	1	1
WS2	1	35	3		---	0.50 to 1.00	300 secs	-	-	-	-	0.0	0.0	17.4	-	-	1	1
WS3	1	35	1	1.00	1.00	0.50 to 1.00	23/08/2019	-	1024	0.0	DRY	0.5	0.0	20.8	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	15 secs	-	1024	0.0	DRY	0.5	0.0	20.1	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	30 secs	-	1024	0.0	DRY	0.5	0.0	20.0	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	60 secs	-	1024	0.0	DRY	0.6	0.0	19.8	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	90 secs	-	1024	0.0	DRY	0.6	0.0	19.7	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	120 secs	-	1024	0.0	DRY	0.6	0.0	19.7	0.0	-	-	-
WS3	1	35	1		1.00	0.50 to 1.00	150 secs	-	1024	0.0	DRY	0.6	0.0	19.7	0.0	-	-	-
WS3	1	35	2	1.00	0.81	0.50 to 1.00	02/09/2019 09:37:00	-	1022	$0.0_{(I)}$	DRY	0.1	0.0	20.9	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	15 secs	-	1022	$0.0_{(SS)}$	DRY	0.9	0.0	19.9	0.0	0.0	1	0
WS3	1	35	2		0.81	0.50 to 1.00	30 secs	-	1022	-	DRY	0.9	0.0	19.4	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	60 secs	-	1022	-	DRY	1.0	0.0	19.3	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	90 secs	-	1022	-	DRY	1.0	0.0	19.3	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	120 secs	-	1022	-	DRY	1.0	0.0	19.3	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	180 secs	-	1022	-	DRY	1.0	0.0	19.3	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	240 secs	-	1022	-	DRY	1.0	0.0	19.3	0.0	0.0	0	0
WS3	1	35	2		0.81	0.50 to 1.00	300 secs	-	1022	-	DRY	1.0	0.0	19.4	0.0	0.0	0	0
WS3	1	35	3	1.00	0.99	0.50 to 1.00	18/09/2019 12:09:00	-	1028	$0.0_{(I)}$	0.99	0.1	0.0	20.9	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	15 secs	-	-	$0.0_{(SS)}$	-	0.7	0.0	20.2	-	-	1	0
WS3	1	35	3		---	0.50 to 1.00	30 secs	-	-	-	-	0.7	0.0	19.9	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	60 secs	-	-	-	-	0.8	0.0	19.8	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	90 secs	-	-	-	-	0.8	0.0	19.8	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	120 secs	-	-	-	-	0.8	0.0	19.7	-	-	0	0

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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

Compiled By	Date	Checked By	Date	Contract Ref:
A. Fyfe	19/09/19			371944

Contract: **Royal College Street, London**

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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	PID (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS3	1	35	3		---	0.50 to 1.00	180 secs	-	-	-	-	0.8	0.0	19.7	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	240 secs	-	-	-	-	0.7	0.0	19.7	-	-	0	0
WS3	1	35	3		---	0.50 to 1.00	300 secs	-	-	-	-	0.7	0.0	19.7	-	-	0	0

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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

Compiled By	Date	Checked By	Date	Contract Ref:
A. Fyfe	19/09/19			371944

Contract: **Royal College Street, London**

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APPENDIX J
LABORATORY CERTIFICATES FOR SOIL ANALYSIS

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

Final Test Report

Envirolab Job Number:	19/07826		
Issue Number:	1	Date:	3-Sep-19

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

Project Manager:	Andrew Tyler
Project Name:	60 - 86 Royal College Street, London
Project Ref:	371944
Order No:	N/A
Date Samples Received:	20-Aug-19
Date Instructions Received:	20-Aug-19
Date Analysis Completed:	2-Sep-19

Notes - Soil analysis

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

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

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

Notes - General

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

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

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

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

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

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

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

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

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

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

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

Please contact us if you need any further information.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King

Holly Neary-King
Client Manager

envirolab

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	19/07826/8				
Client Sample Number				ES1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS3				
Depth to Top				0.4				
Depth to Bottom								
Date Sampled				14/08/2019				
Sample Type				Soil - ES				
Sample Matrix Code				5A				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.20**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.57**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.07**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**6.8**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**3.25**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**4.95**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**62**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.016	**0.160**	0.5	2	25
Barium	A-T-025	N	N	0.028	**0.280**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.003	**0.030**	0.5	10	70
Copper	A-T-025	N	N	0.038	**0.380**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.005	**0.050**	0.5	10	30
Nickel	A-T-025	N	N	0.003	**0.030**	0.4	10	40
Lead	A-T-025	N	N	0.198	**1.980**	0.5	10	50
Antimony	A-T-025	N	N	0.004	**0.040**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.032	**0.320**	4	50	200
Chloride	A-T-026	N	N	6	**60**	800	15000	25000
Fluoride	A-T-026	N	N	0.4	**4.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	13	**128**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	73	**730**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	6.9				
Conductivity (µS/cm)	A-T-037	N	N	147				
Mass Sample (kg)				0.229				
Dry Matter (%)	A-T-044	N	N	76.3				

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

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/07826
Issue Number: 1 **Date:** 03 September, 2019

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

Project Manager: Andrew Tyler
Project Name: 60 - 86 Royal College Street, London
Project Ref: 371944
Order No: N/A
Date Samples Received: 20/08/19
Date Instructions Received: 20/08/19
Date Analysis Completed: 02/09/19

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King
Client Manager

Envirolab Job Number: 19/07826

Client Project Name: 60 - 86 Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
% Moisture at <40C$_A$	12.4	8.6	-	6.3	-	-	-	% w/w	0.1	A-T-044
% Stones >10mm$_A$	30.1	<0.1	17.1	30.8	54.2	6.7	<0.1	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.85	12.91	-	11.34	12.33	-	-	pH	0.01	A-T-031s
Total Organic Carbon$_D$$^{M\#}$	-	-	0.23	-	-	-	0.41	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	22	6	-	3	4	-	-	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	0.8	<0.5	-	<0.5	<0.5	-	-	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	43	24	-	3	22	-	-	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	14	48	-	6	11	-	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	-	<1	-	-	-	mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	514	72	-	13	17	-	-	mg/kg	1	A-T-024s
Mercury$_D$	0.78	0.26	-	<0.17	<0.17	-	-	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	37	41	-	3	9	-	-	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	-	<1	<1	-	-	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	215	58	-	10	26	-	-	mg/kg	5	A-T-024s

Envirolab Job Number: 19/07826

Client Project Name: 60 - 86 Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A	-			

Envirolab Job Number: 19/07826

Client Project Name: 60 - 86 Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
PAH-16MS plus Coronene										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	0.03	-	<0.02	-	-	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.05	0.33	-	<0.04	-	-	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	0.38	-	<0.04	-	-	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	0.49	-	<0.05	-	-	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	0.28	-	<0.05	-	-	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	0.16	-	<0.07	-	-	-	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	0.36	-	<0.06	-	-	-	mg/kg	0.06	A-T-019s
Coronene$_A$	0.02	0.10	-	<0.01	-	-	-	mg/kg	0.01	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	0.05	-	<0.04	-	-	-	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	0.44	-	<0.08	-	-	-	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.03	0.32	-	<0.03	-	-	-	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	-	<0.03	-	-	-	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.05	0.11	-	<0.03	-	-	-	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	0.42	-	<0.07	-	-	-	mg/kg	0.07	A-T-019s
Total PAH-16MS plus Coronene$_A$	0.15	3.47	-	<0.08	-	-	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 19/07826

Client Project Name: 60 - 86 Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
Speciated PCB-EC7 & WHO12										
PCB BZ 28$_{A}^{M\#}$	-	-	<0.002	-	-	-	-	mg/kg	0.002	A-T-004s
PCB BZ 52$_{A}^{M\#}$	-	-	<0.002	-	-	-	-	mg/kg	0.002	A-T-004s
PCB BZ 81$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 101$_{A}^{M\#}$	-	-	<0.004	-	-	-	-	mg/kg	0.004	A-T-004s
PCB BZ 105$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 114$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 118$_{A}^{M\#}$	-	-	<0.007	-	-	-	-	mg/kg	0.007	A-T-004s
PCB BZ 123$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 126$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 138$_{A}^{M\#}$	-	-	<0.006	-	-	-	-	mg/kg	0.006	A-T-004s
PCB BZ 153$_{A}^{M\#}$	-	-	<0.004	-	-	-	-	mg/kg	0.004	A-T-004s
PCB BZ 156$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 157$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 167$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 169$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 180$_{A}^{M\#}$	-	-	<0.004	-	-	-	-	mg/kg	0.004	A-T-004s
PCB BZ 189$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 77$_{A}$	-	-	<0.005	-	-	-	-	mg/kg	0.005	A-T-004s
Total Speciated PCB-EC7 & WHO12$_{A}$	-	-	<0.007	-	-	-	-	mg/kg	0.002	A-T-004s
TPH Total with ID + GC Trace										
TPH total (>C6-C40)$_{A}^{M\#}$	30	176	-	<10	-	-	-	mg/kg	10	A-T-007s
TPH FID Chromatogram$_{A}$	Appended	Appended	-	Appended	-	-	-			A-T-007s
TPH ID (for FID characterisations)$_{A}$	Concentration too low to identify	Possible PAHs and other unknown heavier hydrocarbons	-	Concentration too low to identify	-	-	-			A-T-007s

Envirolab Job Number: 19/07826

Client Project Name: 60 - 86 Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
VOC										
Dichlorodifluoromethane$_A$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Chloromethane$_A$	-	-	-	-	-	<10	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_A^\#$	-	-	-	-	-	*<1*	-	µg/kg	1	A-T-006s
Bromomethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Chloroethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Trichlorofluoromethane$_A^\#$	-	-	-	-	-	<4	-	µg/kg	1	A-T-006s
1,1-Dichloroethene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Carbon Disulphide$_A^\#$	-	-	-	-	-	1	-	µg/kg	1	A-T-006s
Dichloromethane$_A$	-	-	-	-	-	*<5*	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1-Dichloroethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
2,2-Dichloropropane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromochloromethane$_A^\#$	-	-	-	-	-	<5	-	µg/kg	5	A-T-006s
Chloroform$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1-Dichloropropene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Carbon Tetrachloride$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichloroethane$_A^\#$	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
Benzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Trichloroethene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichloropropane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Dibromomethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromodichloromethane$_A^\#$	-	-	-	-	-	<10	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Toluene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3-Dichloropropane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Tetrachloroethene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Dibromochloromethane$_A^\#$	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s
1,2-Dibromoethane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s

Lab Sample ID	19/07826/1	19/07826/2	19/07826/3	19/07826/4	19/07826/5	19/07826/6	19/07826/7	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES1	ES1	ES1	ES1	ES2	ES3			
Client Sample ID	TP1	BH1	WS1	TP2	WS2	WS2	WS2			
Depth to Top	0.50	0.50	0.40	0.50	0.30	0.80	1.40			
Depth To Bottom										
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AB	8	4AB	4A	4A	5A	5A			
Chlorobenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Ethylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
m & p Xylene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
o-Xylene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Styrene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromoform$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Isopropylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromobenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
n-Propylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
2-Chlorotoluene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
4-Chlorotoluene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
tert-Butylbenzene$_A^\#$	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
sec-Butylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
4-Isopropyltoluene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_A$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
n-Butylbenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_A$	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_A$	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s
Hexachlorobutadiene$_A^\#$	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_A$	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
% Moisture at <40C$_A$	-	-	19.5	-	-	-	20.8	% w/w	0.1	A-T-044
% Stones >10mm$_A$	13.9	3.3	3.7	9.2	21.7	24.2	<0.1	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	9.20	-	8.35	-	-	8.70	8.60	pH	0.01	A-T-031s
Total Organic Carbon$_D$$^{M\#}$	3.25	2.53	-	0.08	0.61	-	-	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	-	-	7	-	-	17	29	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	-	-	0.8	-	-	1.4	0.8	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	-	-	15	-	-	99	104	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	-	-	47	-	-	24	28	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	-	-	<1	-	-	-	<1	mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	-	-	20	-	-	487	302	mg/kg	1	A-T-024s
Mercury$_D$	-	-	<0.17	-	-	1.73	1.73	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	-	-	26	-	-	23	22	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	-	-	<1	-	-	<1	<1	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	-	-	56	-	-	666	124	mg/kg	5	A-T-024s

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	-	NAD	NAD	-	NAD	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	-	N/A	N/A	-	N/A	-	N/A			

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
PAH-16MS plus Coronene										
Acenaphthene$_A^{M\#}$	-	-	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	-	-	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	-	-	<0.02	-	-	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	-	-	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	-	-	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	-	-	<0.05	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	-	-	<0.05	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	-	-	<0.07	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	-	-	<0.06	-	-	-	<0.06	mg/kg	0.06	A-T-019s
Coronene$_A$	-	-	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	-	-	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	-	-	<0.08	-	-	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	-	-	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	-	-	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	-	-	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	-	-	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	-	-	<0.07	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS plus Coronene$_A$	-	-	<0.08	-	-	-	<0.08	mg/kg	0.01	A-T-019s

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
Speciated PCB-EC7 & WHO12										
PCB BZ 28$_{A}^{M\#}$	-	-	-	-	-	<0.002	-	mg/kg	0.002	A-T-004s
PCB BZ 52$_{A}^{M\#}$	-	-	-	-	-	<0.002	-	mg/kg	0.002	A-T-004s
PCB BZ 81$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 101$_{A}^{M\#}$	-	-	-	-	-	<0.004	-	mg/kg	0.004	A-T-004s
PCB BZ 105$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 114$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 118$_{A}^{M\#}$	-	-	-	-	-	<0.007	-	mg/kg	0.007	A-T-004s
PCB BZ 123$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 126$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 138$_{A}^{M\#}$	-	-	-	-	-	<0.006	-	mg/kg	0.006	A-T-004s
PCB BZ 153$_{A}^{M\#}$	-	-	-	-	-	<0.004	-	mg/kg	0.004	A-T-004s
PCB BZ 156$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 157$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 167$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 169$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 180$_{A}^{M\#}$	-	-	-	-	-	<0.004	-	mg/kg	0.004	A-T-004s
PCB BZ 189$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
PCB BZ 77$_{A}$	-	-	-	-	-	<0.005	-	mg/kg	0.005	A-T-004s
Total Speciated PCB-EC7 & WHO12$_{A}$	-	-	-	-	-	<0.007	-	mg/kg	0.002	A-T-004s
TPH Total with ID + GC Trace										
TPH total (>C6-C40)$_{A}^{M\#}$	-	-	84	-	-	-	<10	mg/kg	10	A-T-007s
TPH FID Chromatogram$_{A}$	-	-	Appended	-	-	-	Appended			A-T-007s
TPH ID (for FID characterisations)$_{A}$	-	-	Possible kerosene	-	-	-	N/A			A-T-007s

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
VOC										
Dichlorodifluoromethane$_A$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Chloromethane$_A$	-	<10	-	-	-	-	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Bromomethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Chloroethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Trichlorofluoromethane$_A^\#$	-	<4	-	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Carbon Disulphide$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Dichloromethane$_A$	-	*<5*	-	-	-	-	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
2,2-Dichloropropane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Bromochloromethane$_A^\#$	-	<5	-	-	-	-	-	µg/kg	5	A-T-006s
Chloroform$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloropropene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Carbon Tetrachloride$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloroethane$_A^\#$	-	<2	-	-	-	-	-	µg/kg	2	A-T-006s
Benzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Trichloroethene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloropropane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Dibromomethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Bromodichloromethane$_A^\#$	-	<10	-	-	-	-	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Toluene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,3-Dichloropropane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Tetrachloroethene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Dibromochloromethane$_A^\#$	-	<3	-	-	-	-	-	µg/kg	3	A-T-006s
1,2-Dibromoethane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s

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Lab Sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11	19/07826/12	19/07826/13	19/07826/14	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES3	ES4	ES1	ES2	ES1			
Client Sample ID	WS3	WS3	WS3	WS3	TP3	TP3	BH2			
Depth to Top	0.40	0.80	1.20	2.30	0.30	0.60	0.60			
Depth To Bottom										
Date Sampled	14-Aug-19	14-Aug-19	15-Aug-19	15-Aug-19	14-Aug-19	14-Aug-19	13-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	4A	5AB	5AB			
Chlorobenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Ethylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
m & p Xylene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
o-Xylene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Styrene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Bromoform$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Isopropylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
Bromobenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
n-Propylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
2-Chlorotoluene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
4-Chlorotoluene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
tert-Butylbenzene$_A^\#$	-	<2	-	-	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
sec-Butylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
4-Isopropyltoluene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_A$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
n-Butylbenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_A$	-	<2	-	-	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_A$	-	<3	-	-	-	-	-	µg/kg	3	A-T-006s
Hexachlorobutadiene$_A^\#$	-	<1	-	-	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_A$	-	<3	-	-	-	-	-	µg/kg	3	A-T-006s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

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

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

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

Project: 60 - 86 Royal College Street, London

Clients Project No: 371944

Project No: 19/07826

Date Received: 20/08/2019 (am)

Cool Box Temperatures (°C): 16.0, 15.6

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/08021
Issue Number: 1 **Date:** 09 September, 2019

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

Project Manager: Andrew Tyler
Project Name: Royal College Street, London
Project Ref: 371944
Order No: N/A
Date Samples Received: 27/08/19
Date Instructions Received: 27/08/19
Date Analysis Completed: 09/09/19

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King
Client Manager

Envirolab Job Number: 19/08021

Client Project Name: Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/08021/1	19/08021/2	19/08021/3	19/08021/4	19/08021/5	19/08021/6	19/08021/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	BH1	BH1	BH2	BH2	BH1			
Depth to Top	3.50	4.50	8.50	18.00	12.50	24.50	2.00			
Depth To Bottom			9.00	18.45	13.00	25.00	2.45			
Date Sampled	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	5A	5A	5A	5A	5A	5A	5A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	3.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D^{M\#}$	8.07	7.67	7.69	8.15	7.88	8.23	8.27	pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	-	-	-	-	-	<1.00	mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	-	-	-	-	-	-	14	mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	-	-	-	-	-	<0.4	mg/l	0.4	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	192	2240	2380	678	714	712	124	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.04	0.97	1.94	0.22	0.15	0.22	0.05	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.31	0.61	0.69	0.38	0.75	0.05	% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	-	-	-	-	-	24	mg/l	1	A-T-SOLMETS

Envirolab Job Number: 19/08021

Client Project Name: Royal College Street, London

Client Project Ref: 371944

Lab Sample ID	19/08021/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH2									
Depth to Top	0.50									
Depth To Bottom	1.20									
Date Sampled	15-Aug-19									
Sample Type	Soil - D									
Sample Matrix Code	5A									
% Stones >10mm$_A$	0.6							% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.01							pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00							mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	<7							mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	1.8							mg/l	0.4	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10							mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.06							% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.04							% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	2							mg/l	1	A-T-SOLMETS

REPORT NOTES

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

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

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Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
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NDP indicates No Determination Possible.
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N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
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Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

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

Project: Royal College Street, London

Clients Project No: 371944

Project No: 19/08021

Date Received: 27/08/2019 (am)

Cool Box Temperatures (°C): 19.3

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

APPENDIX K
LABORATORY CERTIFICATES FOR GEOTECHNICAL ANALYSIS

STRUCTURAL SOILS LTD

TEST REPORT

Report No. 584118-01 (00) 1774

Date 10-September-2019 Contract Royal College Street, London

Client RSK
Address 18 Frogmore Rd
Apsley
Hemel Hempstead
Hertfordshire
HP3 9RT
For the Attention of Sammy Al Hilly

Samples submitted by client	21-August-2019	Client Reference	371944
Testing Started	21-August-2019	Client Order No.	n/a
Testing Completed	09-September-2019	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

1.01	Moisture Content (oven drying method) BS1377:Part 2:1990:clause 3.2 (superceded)*
1.03	Liquid Limit (one point method) & Plastic Limit BS1377:Part 2:1990,clause 4.4/5.3*
5.04	Undrained shear strength triaxial compression without pore pressure measurement (definitive method) 100mm diameter specimens BS1377:Part 7:1990,clause 8.4*
4.01	One-dimensional consolidation BS1377:Part 5:1990,clause 3.5 (superseded)*

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of .
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd 18 Frogmore Rd Hemel Hempstead HP3 9RT Tel.01442 416661 e-mail dimitris.xirouchakis@soils.co.uk

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **06/09/2019 08:46:34**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Alan Frost (Deputy Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

	Contract:	Job No:
STRUCTURAL SOILS LTD	**Royal College Street, London**	**584118**

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **10/09/2019 12:19:03**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Sharon Cairns (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

STRUCTURAL SOILS LTD	Contract: **Royal College Street, London**	Job No: **584118**

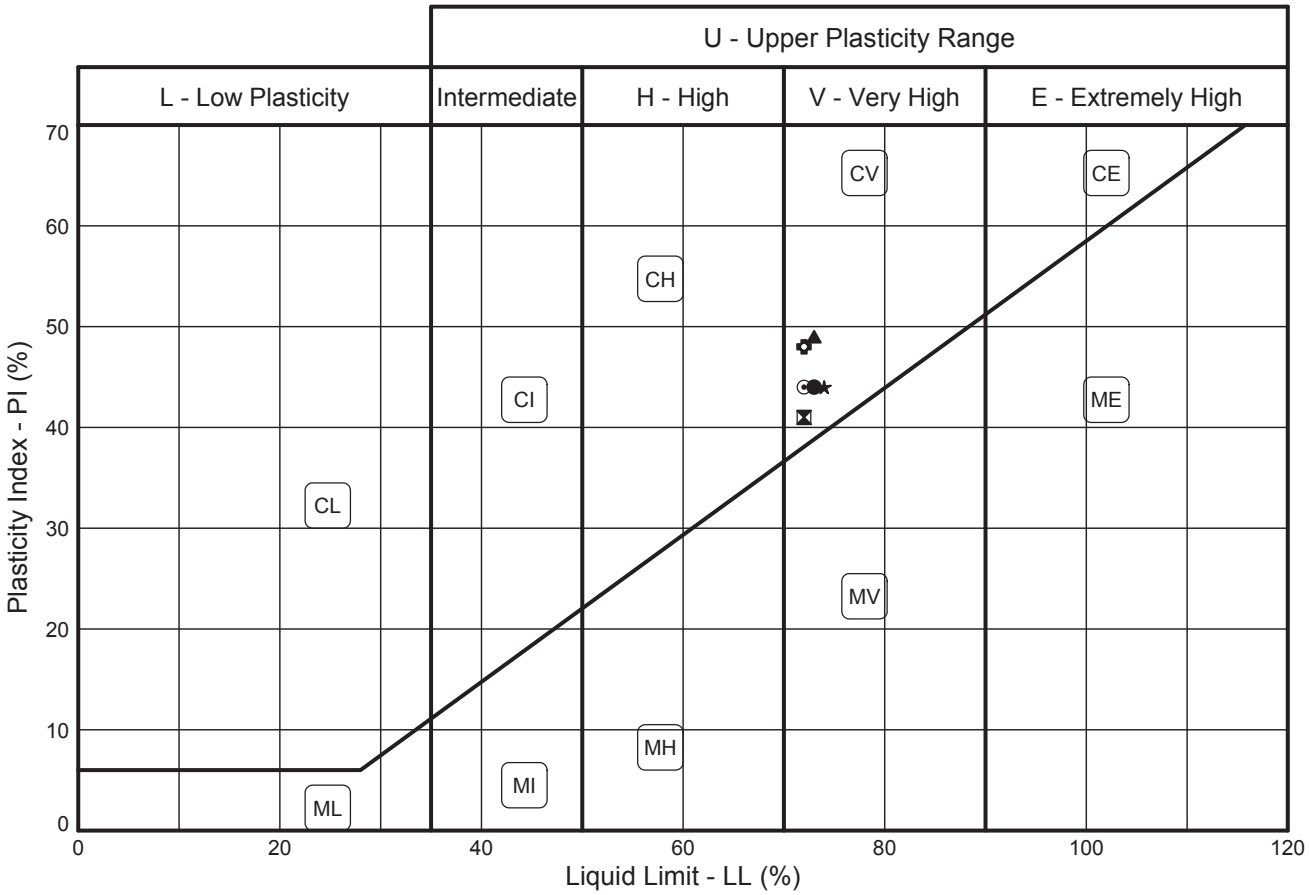
SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH1		U	10.50	25	73	29	44	100	Dark brown silty CLAY with rare selenite crystals
BH1		U	13.50	21	72	31	41	100	Dark brown silty CLAY with rare selenite crystals
BH1		U	22.50	25	73	24	49	100	Dark brown silty CLAY
BH2		U	4.00	31	74	30	44	100	Brown silty CLAY
BH2		U	18.00	26	72	28	44	100	Dark brown silty CLAY with rare selenite crystals
BH2		U	24.00	20	72	24	48	100	Dark brown slightly silty CLAY

PLASTICITY CHART - PI Vs LL

In accordance with BS5930:2015
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC	LL	PL	PI	<425um	Lab location	
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	BH1	U	10.50	3.2/4.4/5.3/5.4	4.2.4	25	73	29	44	100	H	
⊠	BH1	U	13.50	3.2/4.4/5.3/5.4	4.2.4	21	72	31	41	100	H	
▲	BH1	U	22.50	3.2/4.4/5.3/5.4	4.2.4	25	73	24	49	100	H	
★	BH2	U	4.00	3.2/4.4/5.3/5.4	4.2.4	31	74	30	44	100	H	
⊙	BH2	U	18.00	3.2/4.4/5.3/5.4	4.2.4	26	72	28	44	100	H	
✿	BH2	U	24.00	3.2/4.4/5.3/5.4	4.2.4	20	72	24	48	100	H	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
SC	SHARON CAIRNS	10/09/19

Contract	Contract Ref:
Royal College Street, London	584118

AGS

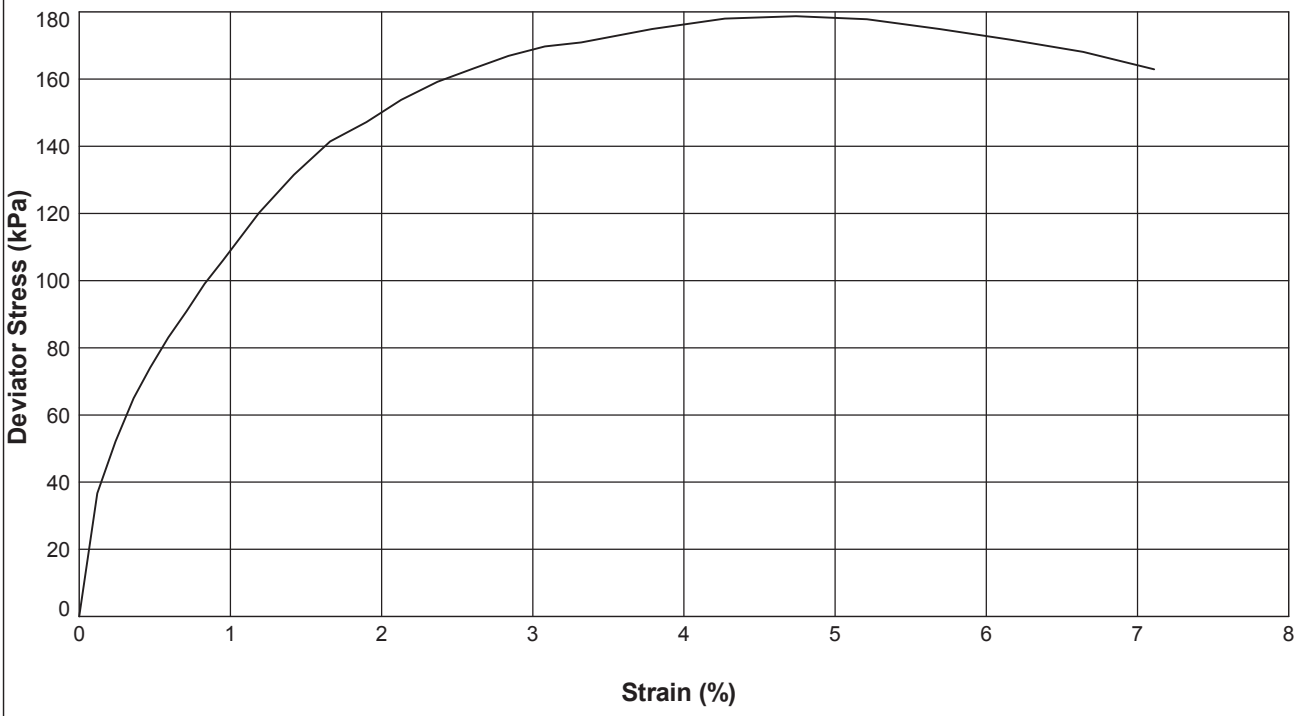
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **5.00**

Description : **Brown mottled dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.27		
	Height	(mm)	210.97		
	Moisture Content	(%)	29		
	Bulk Density	(Mg/m^3)	1.92		
	Dry Density	(Mg/m^3)	1.49		
TEST DETAILS	Membrane Thickness	(mm)	0.12		
	Rate of Axial Displacement	(%/min)	1.00		
	Cell Pressure	(kPa)	100		
	Membrane Correction	(kPa)	0.15		
	Corrected Deviator Stress	(kPa)	179		
	Undrained Shear Strength	(kPa)	89		
	Strain at Failure	(%)	4.7		
	Mode of Failure		Brittle		



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
J.Baker	JONATHAN BAKER	10/09/19

Contract	Contract Ref:
Royal College Street, London	584118

AGS

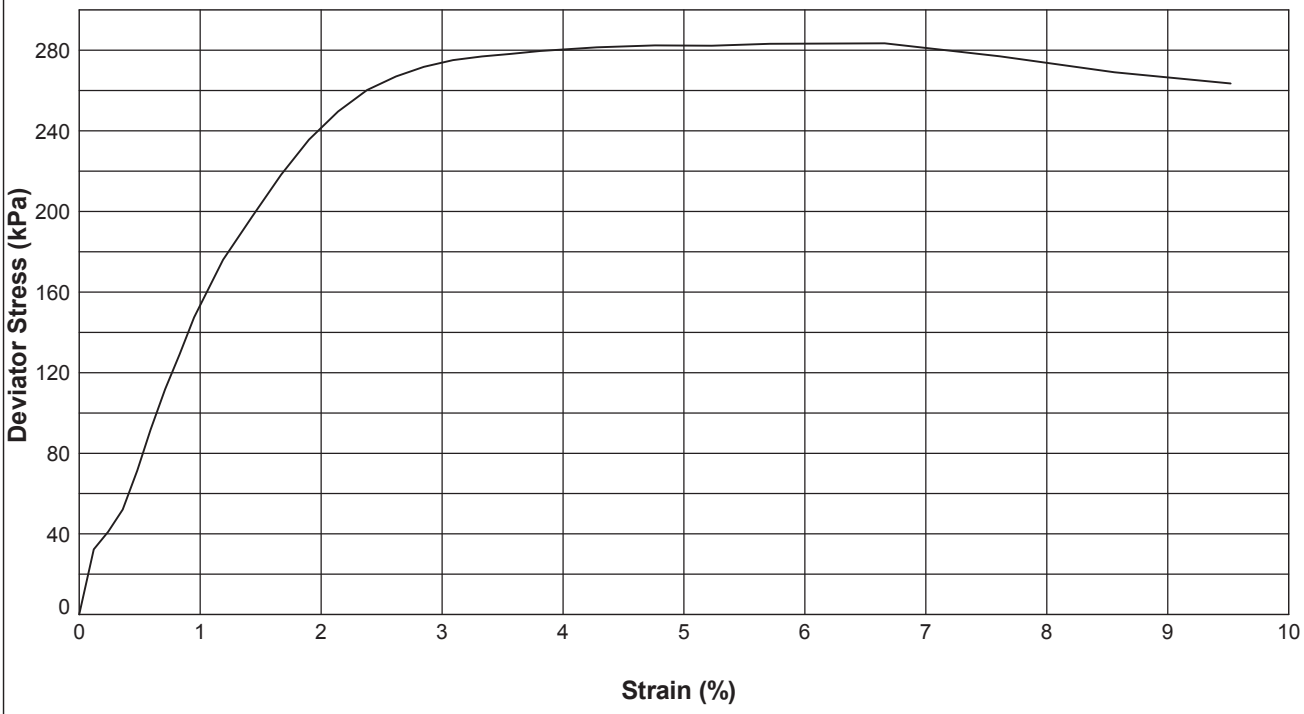
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **10.50**

Description : **Dark brown silty CLAY with rare selenite crystals**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.41		
	Height	(mm)	210.16		
	Moisture Content	(%)	27		
	Bulk Density	(Mg/m^3)	2.02		
	Dry Density	(Mg/m^3)	1.60		
TEST DETAILS	Membrane Thickness	(mm)	0.23		
	Rate of Axial Displacement	(%/min)	0.90		
	Cell Pressure	(kPa)	210		
	Membrane Correction	(kPa)	0.37		
	Corrected Deviator Stress	(kPa)	283		
	Undrained Shear Strength	(kPa)	142		
	Strain at Failure	(%)	6.7		
	Mode of Failure		Brittle		



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
J. Baker	JONATHAN BAKER	10/09/19

Contract	Contract Ref:
Royal College Street, London	584118

AGS

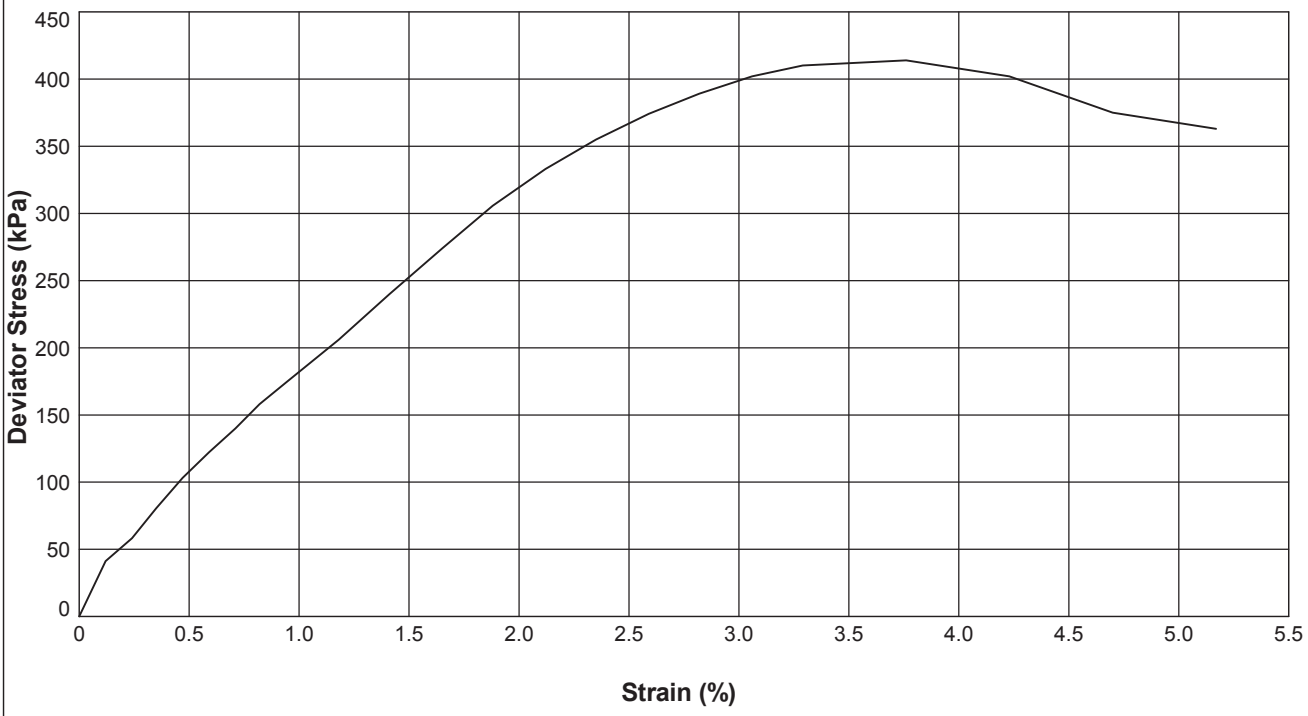
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **13.50**

Description : **Dark brown silty CLAY with rare selenite crystals**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.86		
	Height	(mm)	212.65		
	Moisture Content	(%)	26		
	Bulk Density	(Mg/m^3)	2.02		
	Dry Density	(Mg/m^3)	1.60		
TEST DETAILS	Membrane Thickness	(mm)	0.20		
	Rate of Axial Displacement	(%/min)	0.94		
	Cell Pressure	(kPa)	270		
	Membrane Correction	(kPa)	0.20		
	Corrected Deviator Stress	(kPa)	414		
	Undrained Shear Strength	(kPa)	207		
	Strain at Failure	(%)	3.8		
	Mode of Failure		Brittle		



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
J.Baker	JONATHAN BAKER	10/09/19

Contract	Contract Ref:
Royal College Street, London	584118

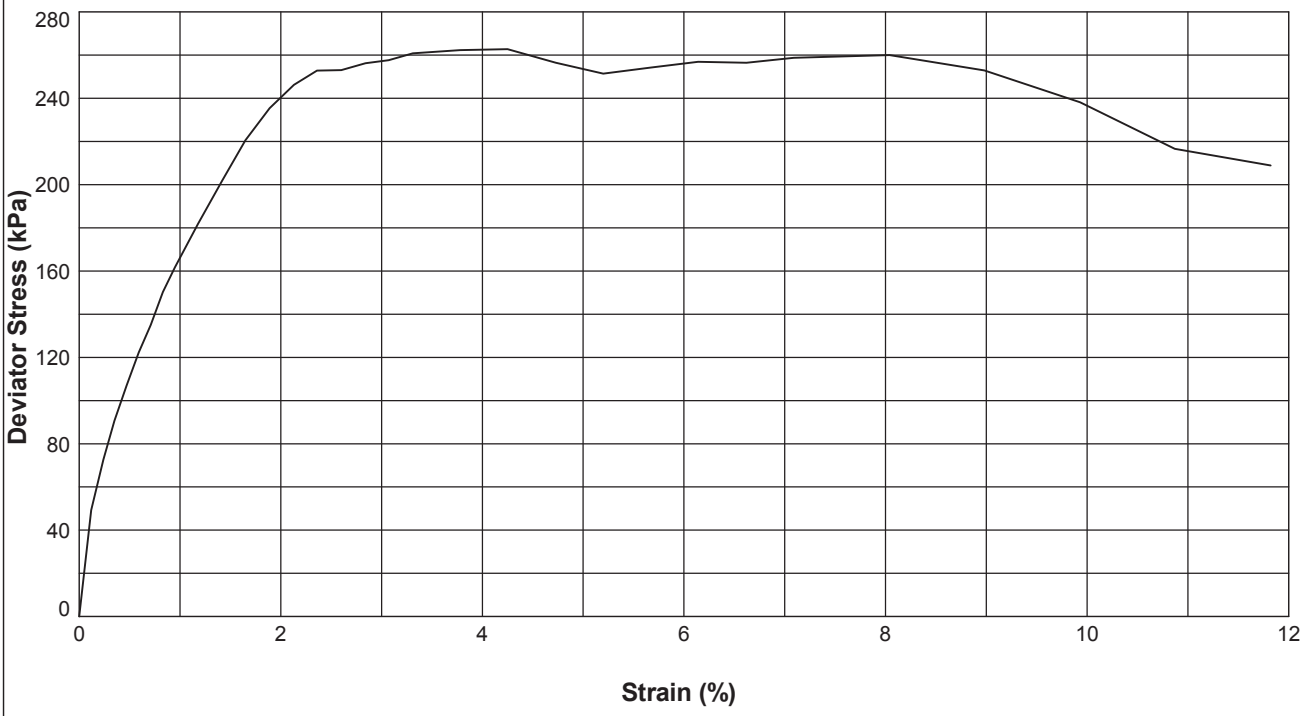
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **16.50**

Description : **Dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.44		
	Height	(mm)	211.57		
	Moisture Content	(%)	30		
	Bulk Density	(Mg/m^3)	1.97		
	Dry Density	(Mg/m^3)	1.51		
TEST DETAILS	Membrane Thickness	(mm)	0.36		
	Rate of Axial Displacement	(%/min)	0.90		
	Cell Pressure	(kPa)	330		
	Membrane Correction	(kPa)	0.41		
	Corrected Deviator Stress	(kPa)	263		
	Undrained Shear Strength	(kPa)	131		
	Strain at Failure	(%)	4.2		
	Mode of Failure		Brittle		



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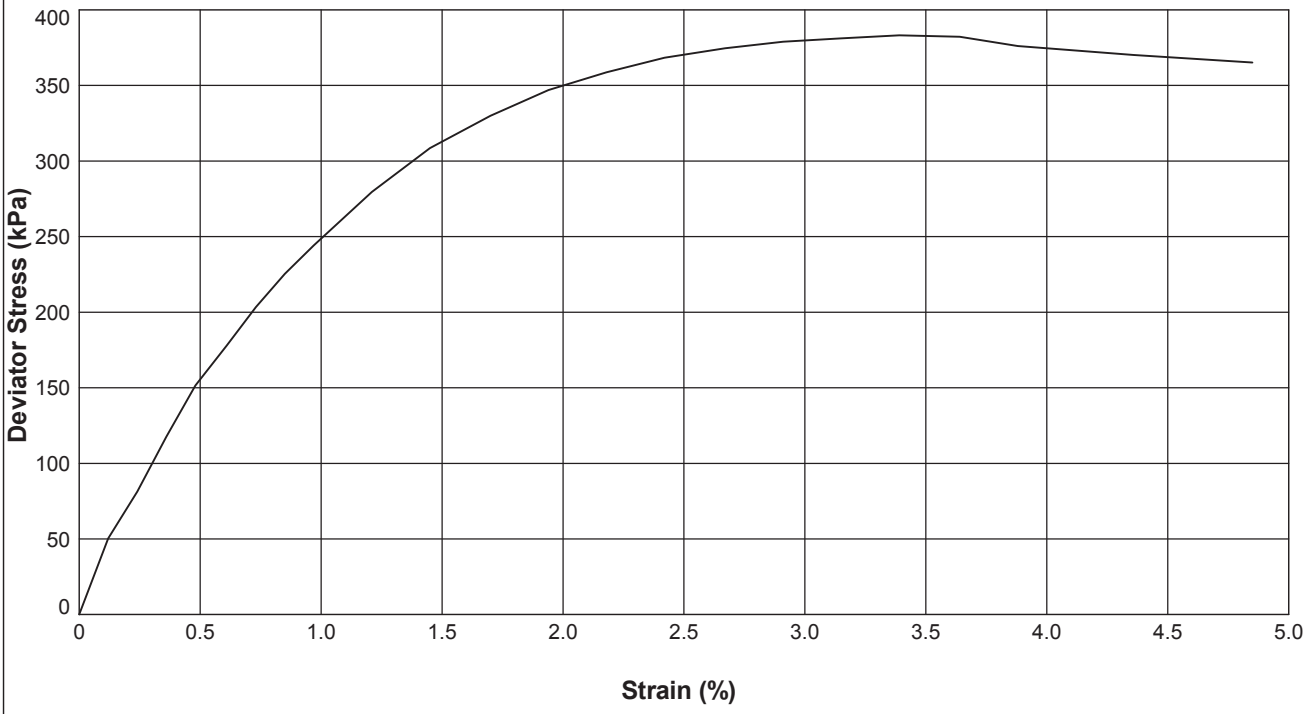
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **19.50**

Description : **Dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.19		
	Height	(mm)	206.29		
	Moisture Content	(%)	28		
	Bulk Density	(Mg/m^3)	1.98		
	Dry Density	(Mg/m^3)	1.54		
TEST DETAILS	Membrane Thickness	(mm)	0.11		
	Rate of Axial Displacement	(%/min)	1.02		
	Cell Pressure	(kPa)	390		
	Membrane Correction	(kPa)	0.10		
	Corrected Deviator Stress	(kPa)	383		
	Undrained Shear Strength	(kPa)	192		
	Strain at Failure	(%)	3.4		
	Mode of Failure		Brittle		



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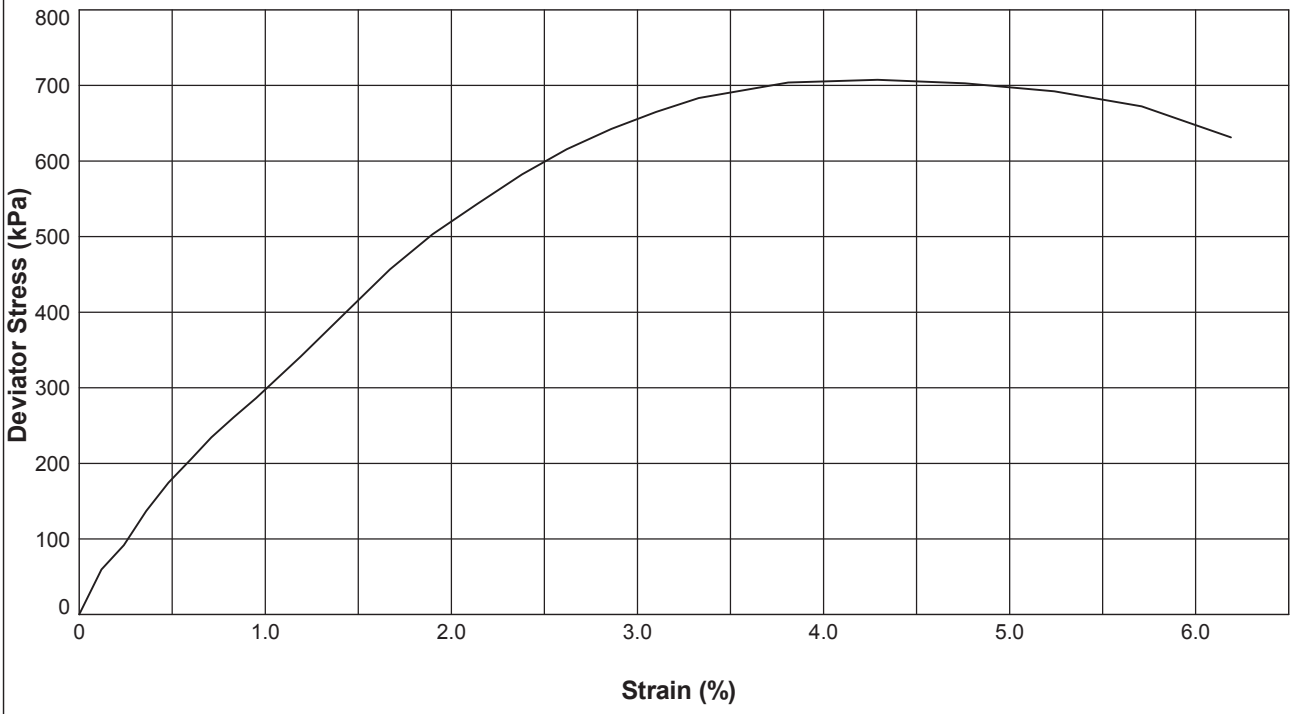
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **22.50**

Description : **Dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.69		
	Height	(mm)	209.99		
	Moisture Content	(%)	24		
	Bulk Density	(Mg/m^3)	2.05		
	Dry Density	(Mg/m^3)	1.66		
TEST DETAILS	Membrane Thickness	(mm)	0.36		
	Rate of Axial Displacement	(%/min)	0.86		
	Cell Pressure	(kPa)	450		
	Membrane Correction	(kPa)	0.41		
	Corrected Deviator Stress	(kPa)	708		
	Undrained Shear Strength	(kPa)	354		
	Strain at Failure	(%)	4.3		
	Mode of Failure		Brittle		



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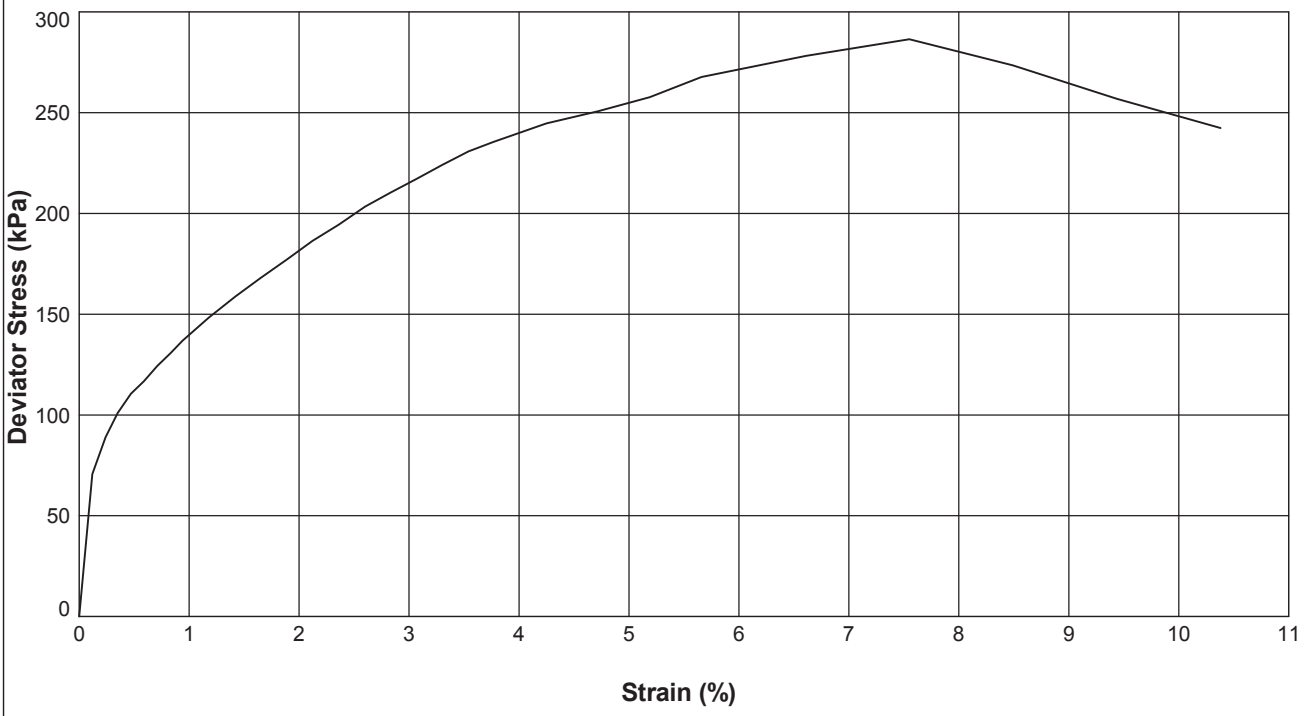
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **28.50**

Description : **Dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.41		
	Height	(mm)	211.93		
	Moisture Content	(%)	26		
	Bulk Density	(Mg/m^3)	2.03		
	Dry Density	(Mg/m^3)	1.62		
TEST DETAILS	Membrane Thickness	(mm)	0.24		
	Rate of Axial Displacement	(%/min)	0.94		
	Cell Pressure	(kPa)	570		
	Membrane Correction	(kPa)	0.43		
	Corrected Deviator Stress	(kPa)	286		
	Undrained Shear Strength	(kPa)	143		
	Strain at Failure	(%)	7.6		
	Mode of Failure		Compound		



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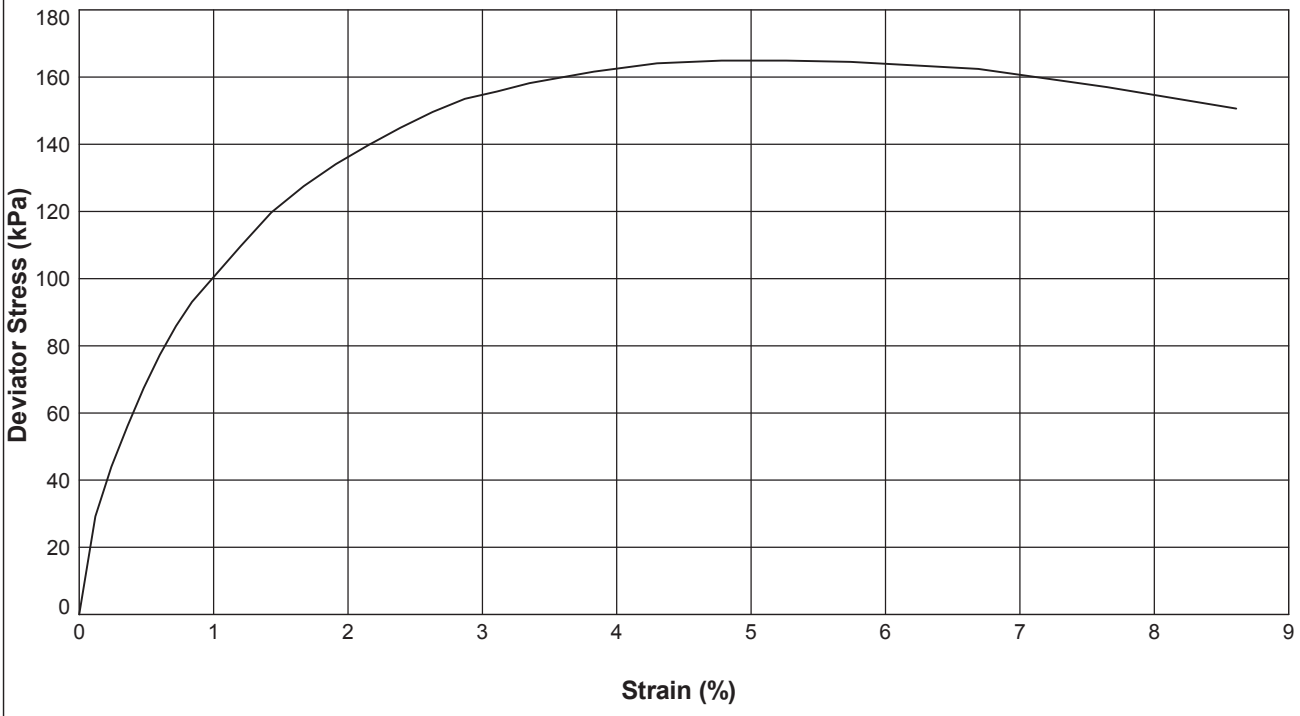
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **4.00**

Description : **Brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.02		
	Height	(mm)	209.13		
	Moisture Content	(%)	31		
	Bulk Density	(Mg/m^3)	2.00		
	Dry Density	(Mg/m^3)	1.53		
TEST DETAILS	Membrane Thickness	(mm)	0.20		
	Rate of Axial Displacement	(%/min)	52.12		
	Cell Pressure	(kPa)	80		
	Membrane Correction	(kPa)	0.26		
	Corrected Deviator Stress	(kPa)	165		
	Undrained Shear Strength	(kPa)	82		
	Strain at Failure	(%)	4.8		
	Mode of Failure		Brittle		



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Compiled By		Date
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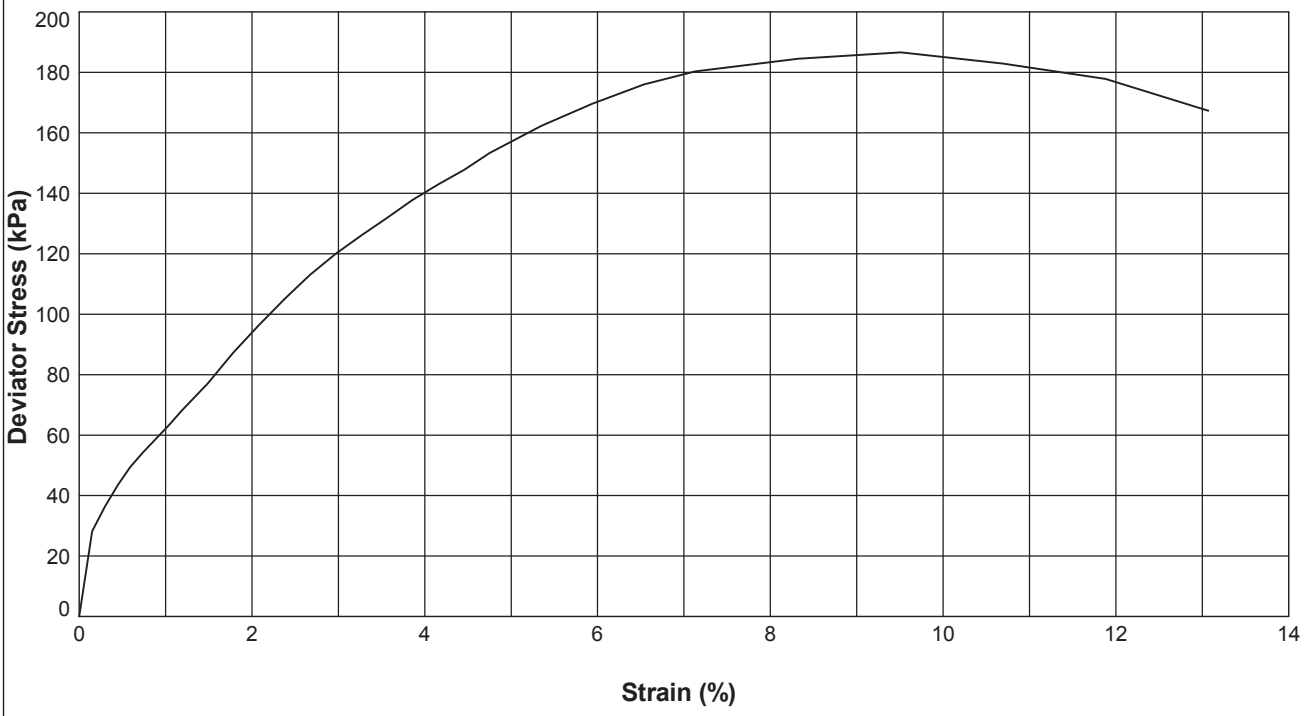
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **6.00**

Description : **Brown silty CLAY (with occasional gypsum)**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.88		
	Height	(mm)	168.32		
	Moisture Content	(%)	28		
	Bulk Density	(Mg/m^3)	2.32		
	Dry Density	(Mg/m^3)	1.81		
TEST DETAILS	Membrane Thickness	(mm)	0.30		
	Rate of Axial Displacement	(%/min)	1.19		
	Cell Pressure	(kPa)	120		
	Membrane Correction	(kPa)	0.64		
	Corrected Deviator Stress	(kPa)	187		
	Undrained Shear Strength	(kPa)	93		
	Strain at Failure	(%)	9.5		
	Mode of Failure		Brittle		



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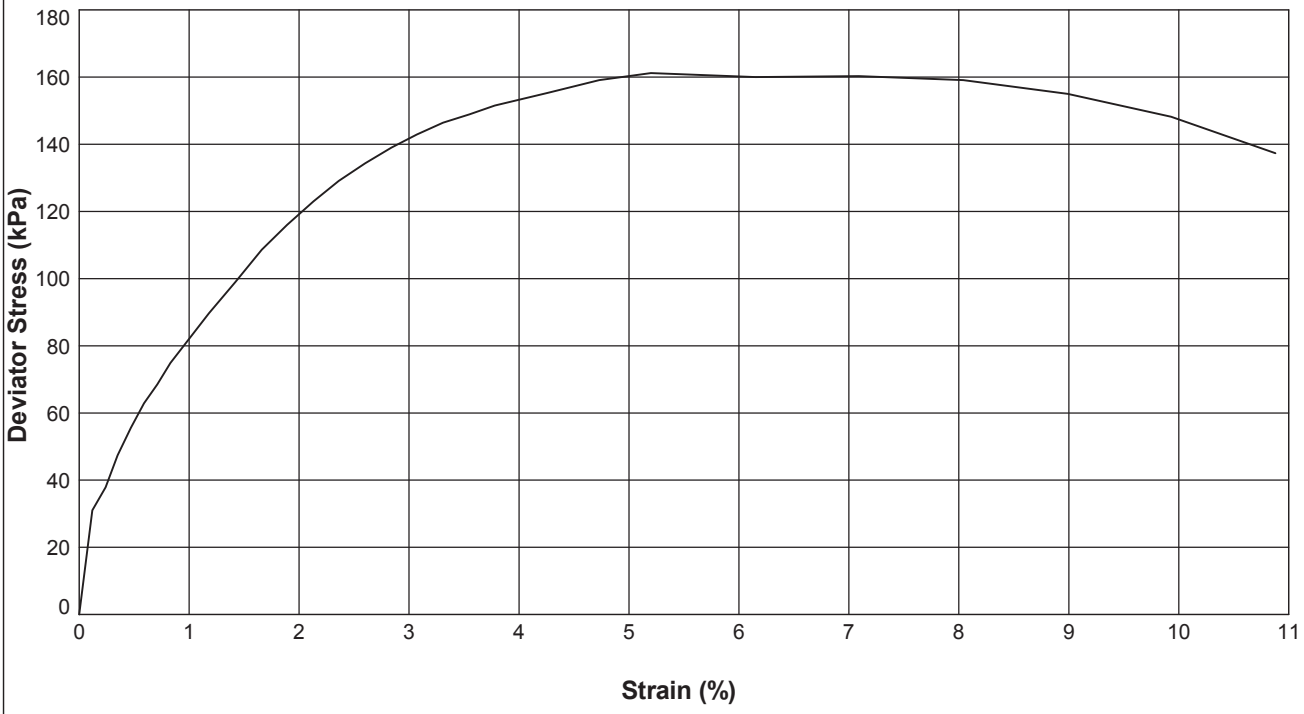
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **9.00**

Description : **Brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.04		
	Height	(mm)	211.42		
	Moisture Content	(%)	30		
	Bulk Density	(Mg/m^3)	2.01		
	Dry Density	(Mg/m^3)	1.54		
TEST DETAILS	Membrane Thickness	(mm)	0.23		
	Rate of Axial Displacement	(%/min)	1.04		
	Cell Pressure	(kPa)	180		
	Membrane Correction	(kPa)	0.32		
	Corrected Deviator Stress	(kPa)	161		
	Undrained Shear Strength	(kPa)	81		
	Strain at Failure	(%)	5.2		
	Mode of Failure		Brittle		



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Contract: **Royal College Street, London**

Contract Ref: **584118**

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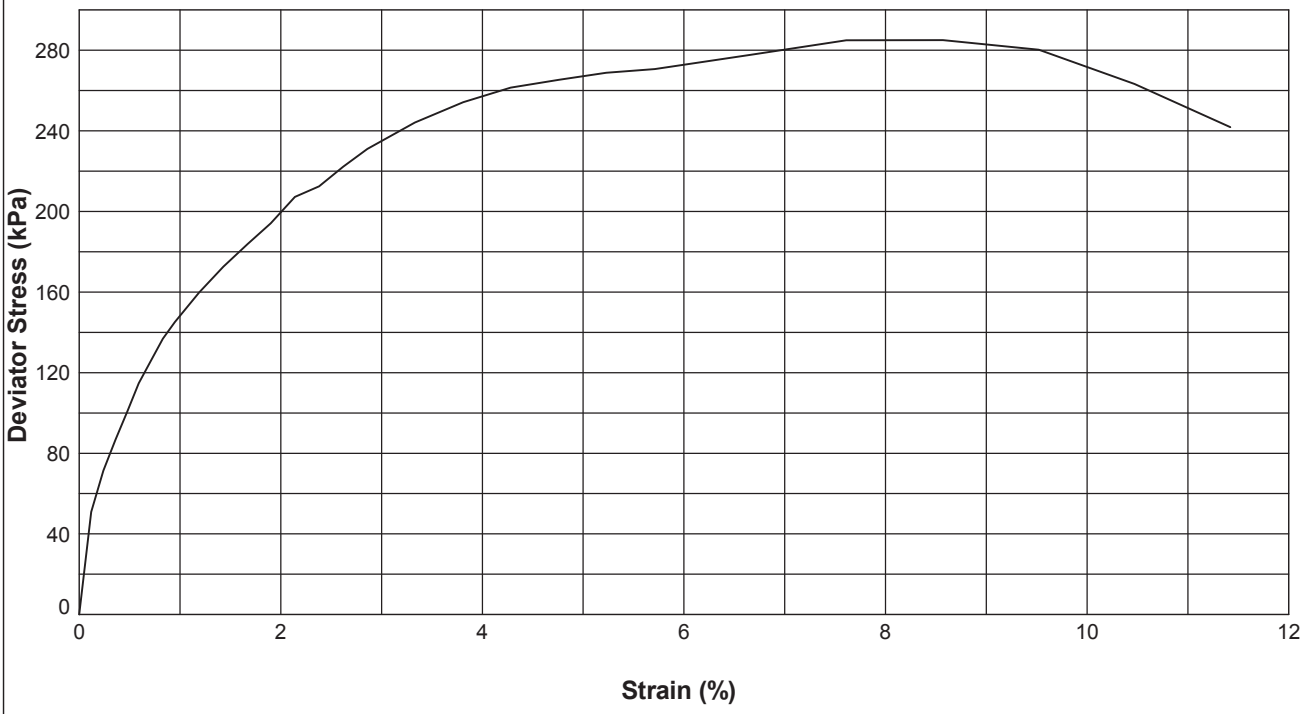
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **12.00**

Description : **Brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.92		
	Height	(mm)	210.13		
	Moisture Content	(%)	28		
	Bulk Density	(Mg/m^3)	1.97		
	Dry Density	(Mg/m^3)	1.54		
TEST DETAILS	Membrane Thickness	(mm)	0.12		
	Rate of Axial Displacement	(%/min)	1.00		
	Cell Pressure	(kPa)	240		
	Membrane Correction	(kPa)	0.24		
	Corrected Deviator Stress	(kPa)	285		
	Undrained Shear Strength	(kPa)	142		
	Strain at Failure	(%)	8.6		
	Mode of Failure		Compound		



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Contract	Contract Ref:
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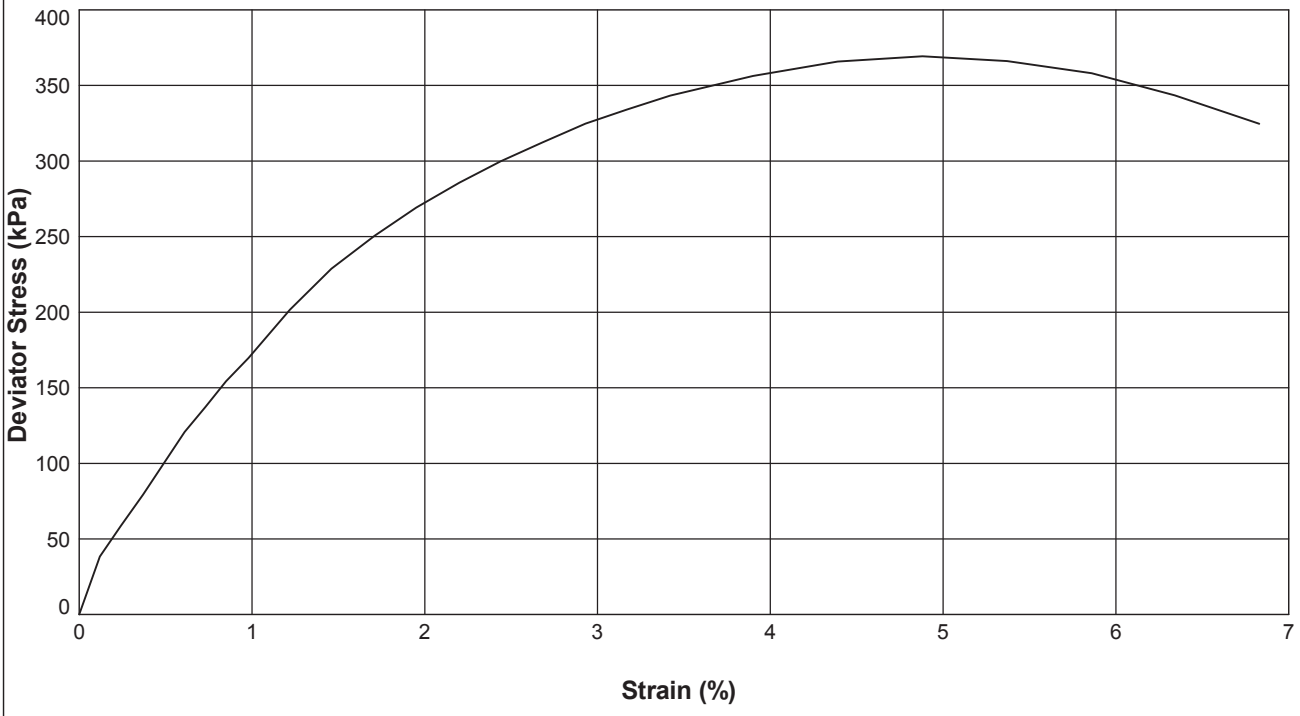
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **15.00**

Description : **Dark brown silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	100.98		
	Height	(mm)	204.89		
	Moisture Content	(%)	28		
	Bulk Density	(Mg/m^3)	1.99		
	Dry Density	(Mg/m^3)	1.56		
TEST DETAILS	Membrane Thickness	(mm)	0.11		
	Rate of Axial Displacement	(%/min)	1.12		
	Cell Pressure	(kPa)	300		
	Membrane Correction	(kPa)	0.15		
	Corrected Deviator Stress	(kPa)	369		
	Undrained Shear Strength	(kPa)	185		
	Strain at Failure	(%)	4.9		
	Mode of Failure		Brittle		



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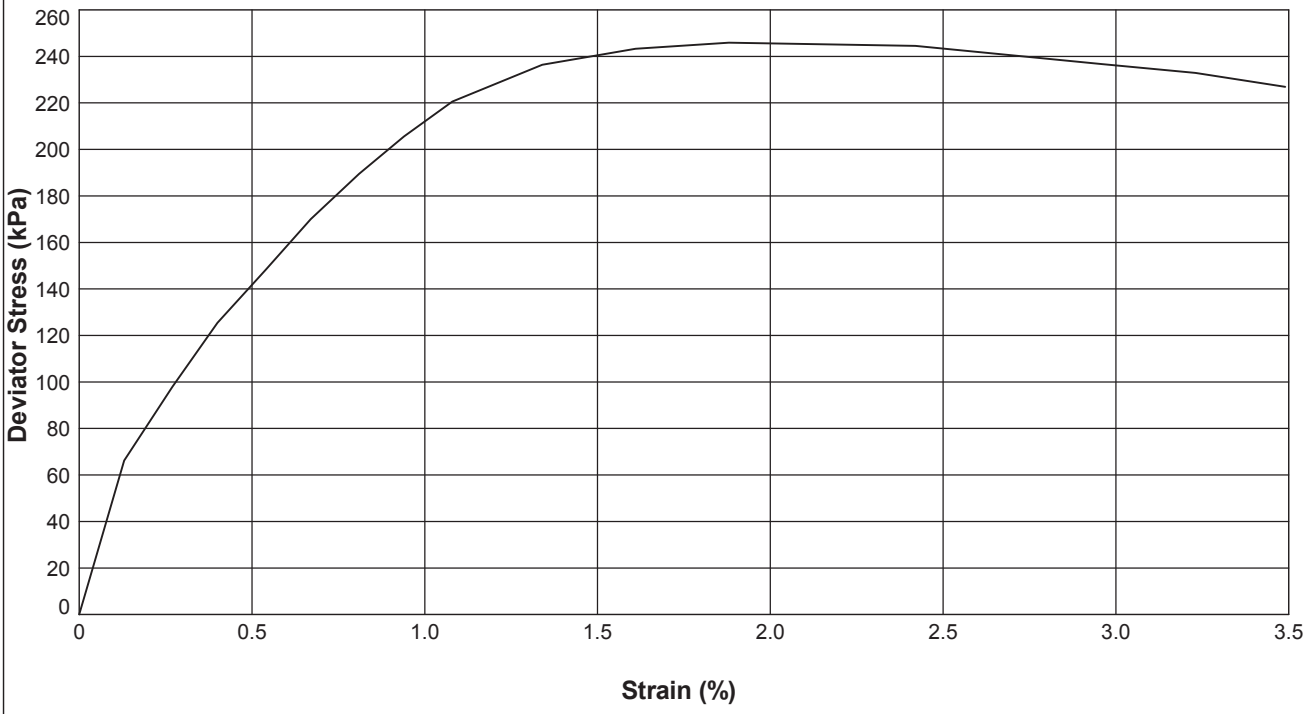
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **18.00**

Description : **Dark brown silty CLAY with rare selenite**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.69		
	Height	(mm)	186.00		
	Moisture Content	(%)	26		
	Bulk Density	(Mg/m^3)	1.99		
	Dry Density	(Mg/m^3)	1.58		
TEST DETAILS	Membrane Thickness	(mm)	0.11		
	Rate of Axial Displacement	(%/min)	1.13		
	Cell Pressure	(kPa)	360		
	Membrane Correction	(kPa)	0.06		
	Corrected Deviator Stress	(kPa)	246		
	Undrained Shear Strength	(kPa)	123		
	Strain at Failure	(%)	1.9		
	Mode of Failure		Brittle		



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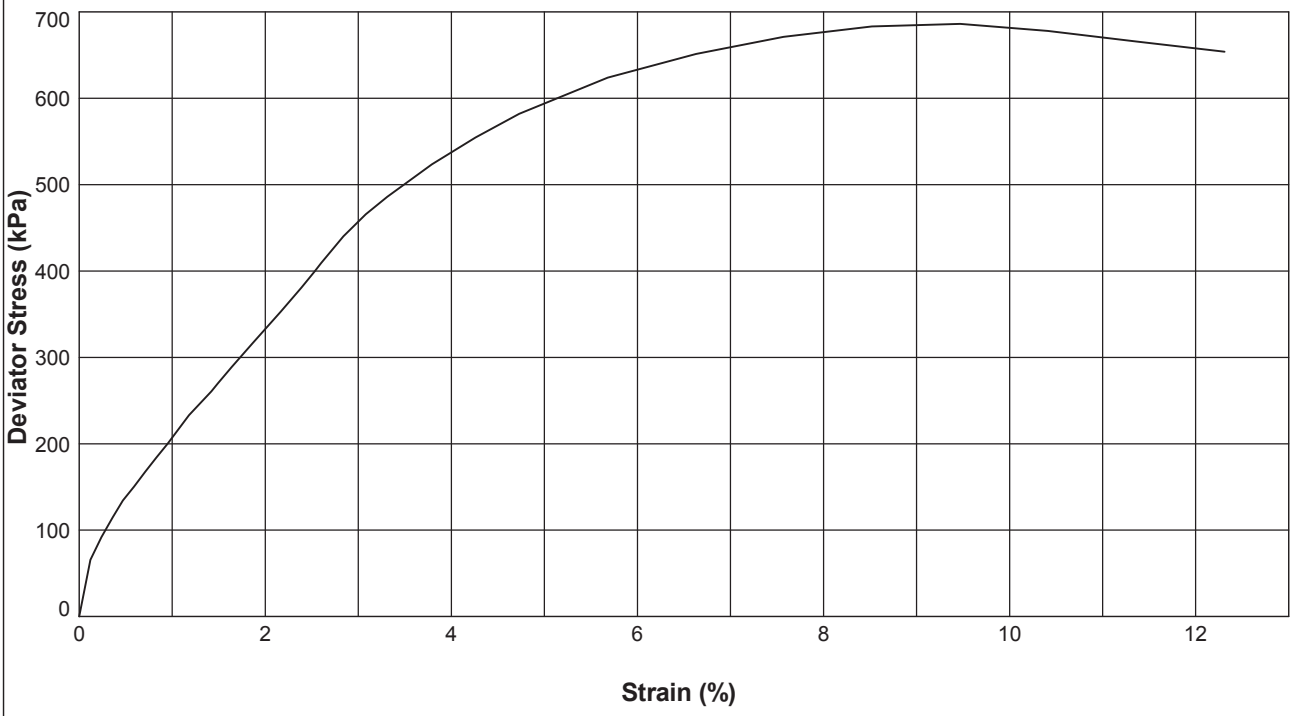
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **24.00**

Description : **Dark brown slightly silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.01		
	Height	(mm)	211.27		
	Moisture Content	(%)	20		
	Bulk Density	(Mg/m^3)	2.11		
	Dry Density	(Mg/m^3)	1.75		
TEST DETAILS	Membrane Thickness	(mm)	0.20		
	Rate of Axial Displacement	(%/min)	0.85		
	Cell Pressure	(kPa)	480		
	Membrane Correction	(kPa)	0.43		
	Corrected Deviator Stress	(kPa)	686		
	Undrained Shear Strength	(kPa)	343		
	Strain at Failure	(%)	9.5		
	Mode of Failure		Plastic		



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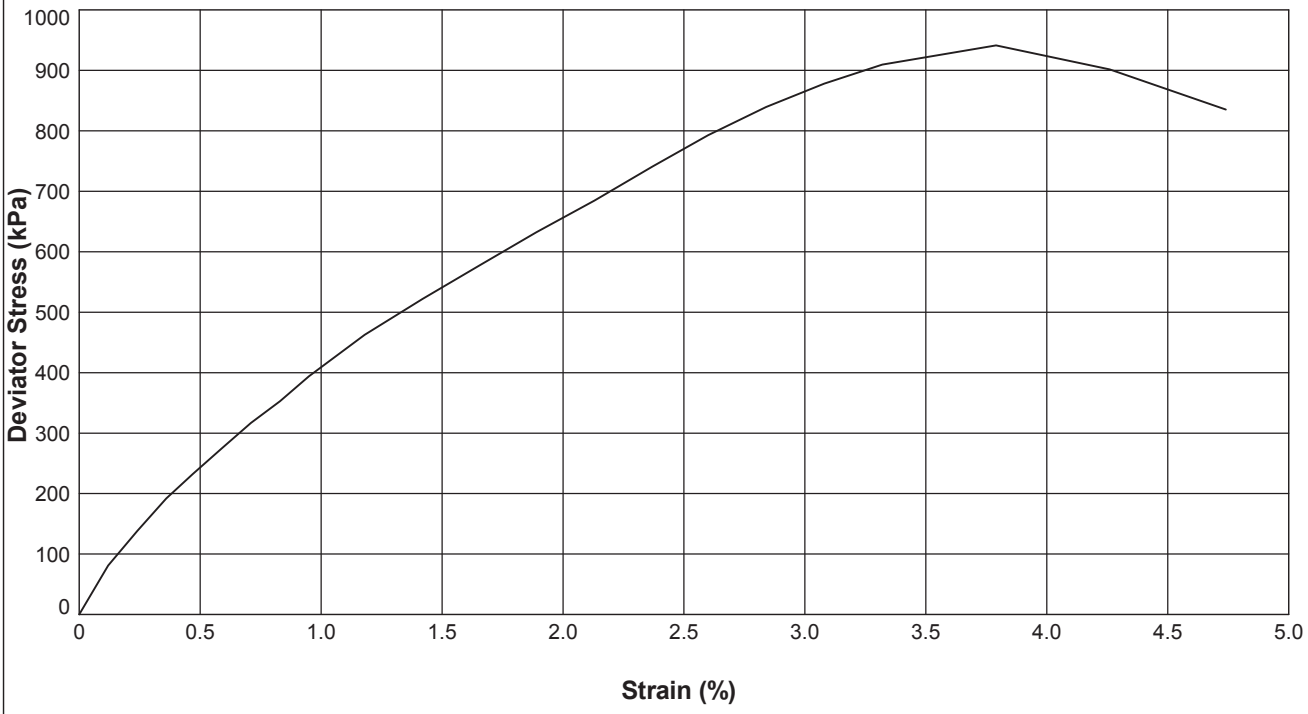
UNCONSOLIDATED QUICK UNDRAINED (SINGLE STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 8

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **27.00**

Description : **Dark brown slightly silty CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.76		
	Height	(mm)	211.13		
	Moisture Content	(%)	22		
	Bulk Density	(Mg/m^3)	2.06		
	Dry Density	(Mg/m^3)	1.68		
TEST DETAILS	Membrane Thickness	(mm)	0.23		
	Rate of Axial Displacement	(%/min)	0.99		
	Cell Pressure	(kPa)	540		
	Membrane Correction	(kPa)	0.23		
	Corrected Deviator Stress	(kPa)	941		
	Undrained Shear Strength	(kPa)	471		
	Strain at Failure	(%)	3.8		
	Mode of Failure		Brittle		



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Compiled By		Date
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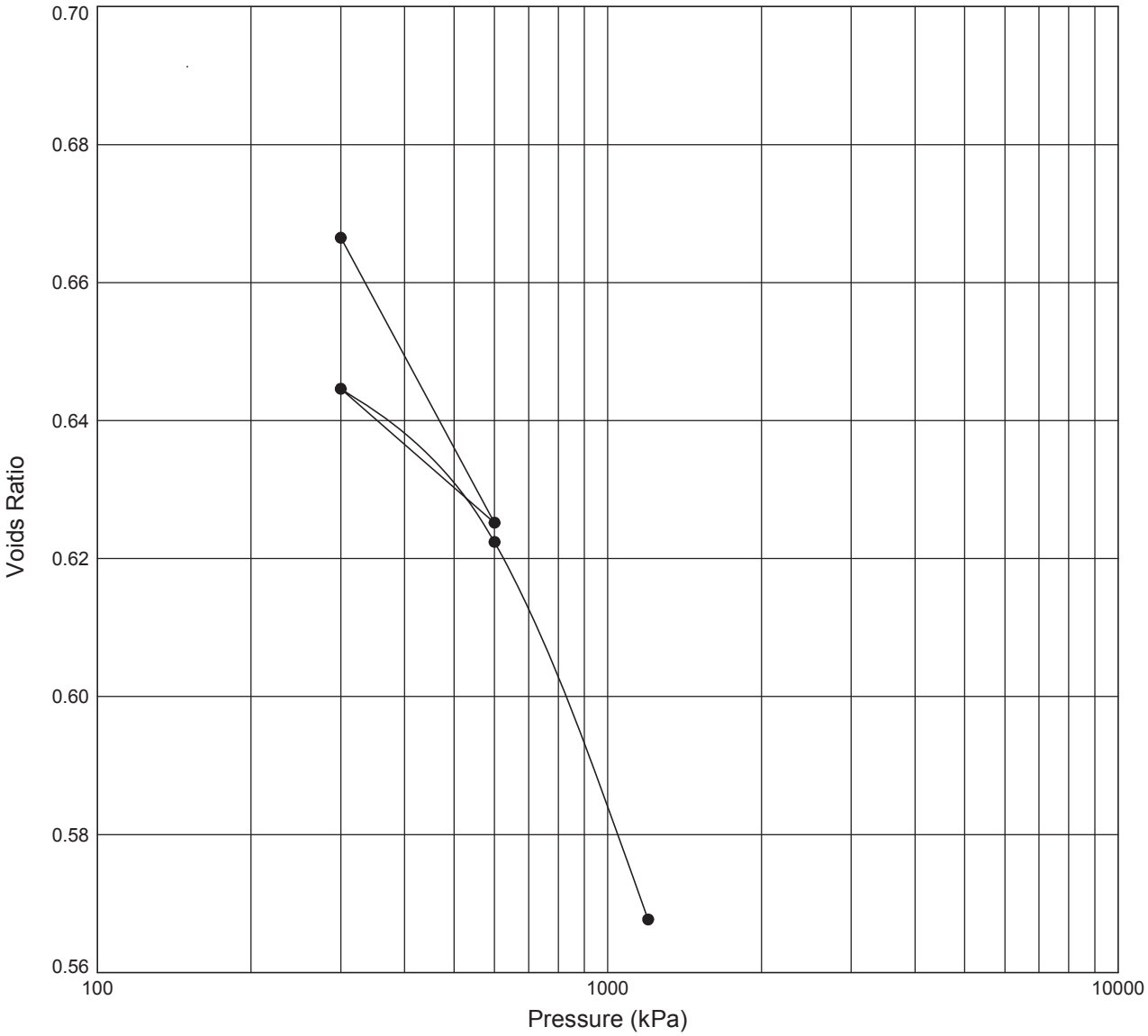
ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole: **BH1** Sample Ref: **-** Sample Type: **U** Depth (m): **7.53**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**28**	Moisture Content (%)	:	**25**
Bulk Density (Mg/m^3)	:	**1.99**	Bulk Density (Mg/m^3)	:	**2.12**
Dry Density (Mg/m^3)	:	**1.55**	Dry Density (Mg/m^3)	:	**1.70**
Void Ratio	:	**0.7052**	Void Ratio	:	**0.5677**

Specimen Details			
Description	Height (mm)	:	**18.93**
Greyish brown CLAY	Diameter (mm)	:	**74.94**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results			
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)	Voids Ratio
0 - 150	**Sample**	**Swelling**	**0.6913**
150 - 300	**0.098**	**4.8**	**0.6665**
300 - 600	**0.083**	**2.7**	**0.6252**
600 - 300	**NA**	**NA**	**0.6446**
300 - 600	**0.045**	**4.9**	**0.6224**
600 - 1200	**0.056**	**2.4**	**0.5677**

Notes: Method of time-setting used: **T90.** Temperature range during test (degC): **19.8 - 22.5.**

STRUCTURAL SOILS
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BS3 4AG

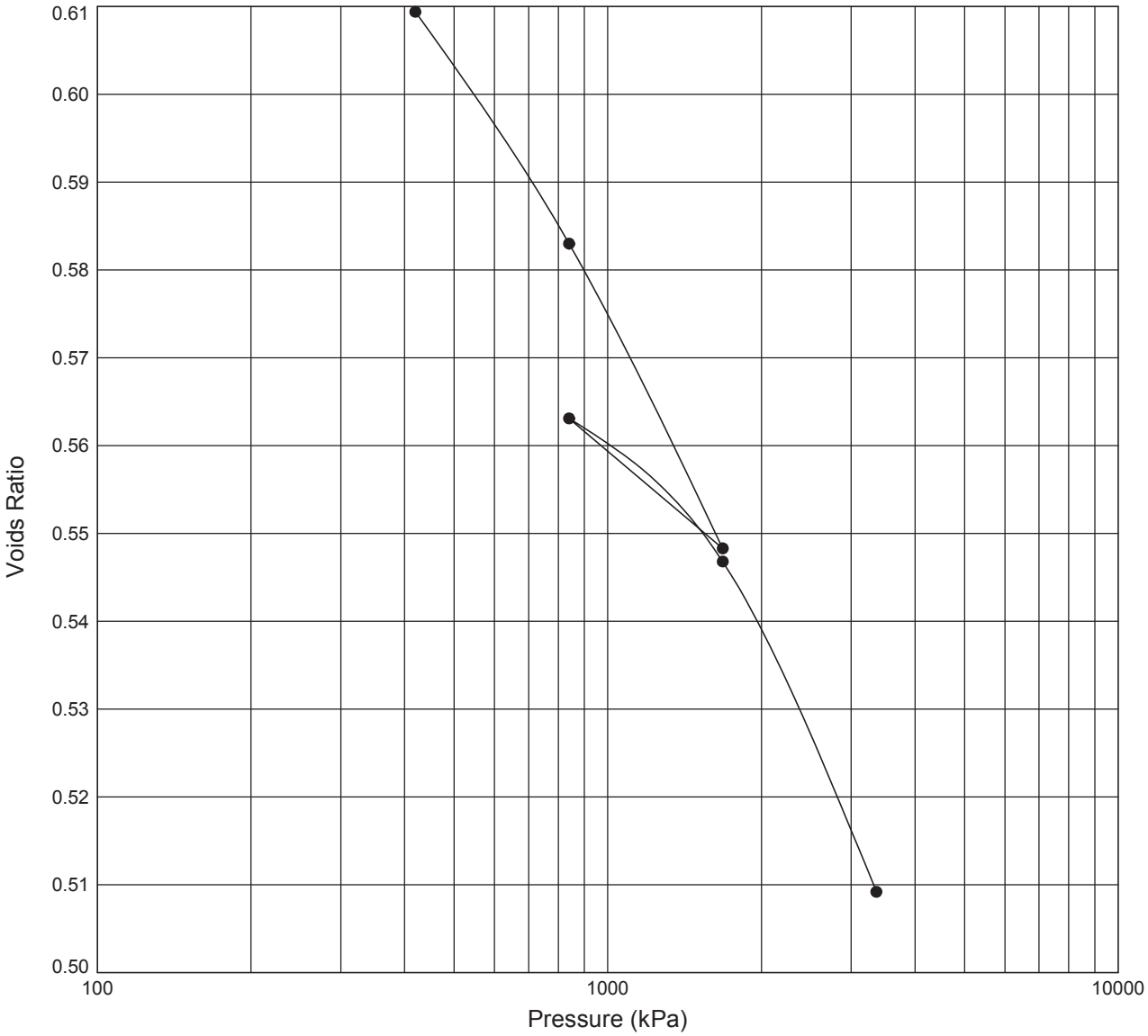
Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**06/09/19**

Contract	Contract Ref:
Royal College Street, London	**584118**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole: **BH2** Sample Ref: **-** Sample Type: **U** Depth (m): **21.11**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**25**	Moisture Content (%)	:	**22**
Bulk Density (Mg/m^3)	:	**2.02**	Bulk Density (Mg/m^3)	:	**2.15**
Dry Density (Mg/m^3)	:	**1.62**	Dry Density (Mg/m^3)	:	**1.76**
Void Ratio	:	**0.6350**	Void Ratio	:	**0.5092**

Specimen Details			
Description	Height (mm)	:	**20.14**
Dark grey silty CLAY	Diameter (mm)	:	**74.97**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results			
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)	Voids Ratio
0 - 420	**0.037**	**8.4**	**0.6094**
420 - 840	**0.039**	**1.5**	**0.5830**
840 - 1680	**0.026**	**1.4**	**0.5483**
1680 - 840	**NA**	**NA**	**0.5631**
840 - 1680	**0.012**	**3.1**	**0.5468**
1680 - 3360	**0.014**	**2.9**	**0.5092**

Notes: Method of time-setting used: **T90.** Temperature range during test (degC): **20 - 22.5.**

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APPENDIX L
GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH

Generic assessment criteria for human health: commercial scenario

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009[1]. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009[2]. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC

In 2014, the publication of Category 4 Screening Levels (C4SL)[3,4], as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)[5] used in the generation of SGVs.

C4SL were published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010[3]). Where a C4SL has been published, the RSK GAC duplicates the C4SL published values using all input parameters within the SP1010 final project report[3] and associated appendices[6], and adopts them as GAC for these six substances.

For all other substances the only C4SL exposure modification relevant to a commercial end use are daily inhalation rates.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015[7] or by the USEPA[14], where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the Contaminated Land Exposure Assessment (CLEA) tool v1.071, supporting EA guidance[5,8,9] and revised exposure scenarios published for the C4SL[3]. The SAC are also termed GAC.

Pathway selection

In accordance with SR3[5] the commercial scenario considers risks to a female worker who works from the age of 16 to 65 years. It should be noted that this end use is not suitable for a workplace nursery but may be appropriate for a sports centre or shopping centre where children are present. In accordance with Box 3.5, SR3[5] the pathways considered for production of the SAC in the commercial scenario are

- direct soil and dust ingestion
- dermal contact with soil both indoors and outdoors
- indoor air inhalation from soil and vapour and outdoor inhalation of soil and vapour.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase[9]. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached[9]. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required[9]:

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits
- Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook[9], this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook[9], which explains how to calculate an effective assessment criterion manually.

SR3[5] states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7[10], the EA TOX[1] reports, the C4SL SP1010 project report and associated appendices[3,6], the 2015 LQM/CIEH report[7] or the USEPA IRIS database[14]. Where a C4SL has been published, the RSK GAC have duplicated the C4SL published values using all input parameters within the SP1010 final project report[3] and associated appendices[6], and has

adopted them as GAC for these six substances. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, methyl tertiary-butyl ether (MTBE), 1,1,2-trichlorethane, 1,1-dichloroethene, 1,2-dichloropropane, 2-chloronaphthalene, chloroethane, chloromethane, cis 1,2-dichloroethene, dichloromethane, hexachloroethane and trans 1,2-dichloroethene were obtained from the CL:AIRE Soil Generic Assessment Criteria report[11].

For TPH, aromatic hydrocarbons C_5–C_8 were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

Physical parameters

For the commercial end use, the CLEA default pre-1970s three-storey office building was used. SR3[5] notes this commercial building type to be the most conservative in terms of protection from vapour intrusion. The default input building parameters presented in Table 3.10 of SR3[5] have been used.

The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3[5]. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for this SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

Summary of modifications to the default CLEA SR3[5] input parameters for a commercial land use

In summary, the RSK commercial GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3[5]. Modifications to the default SR3[5] exposure scenarios based on the C4SL exposure scenarios[3] are presented in Table 2 below. The sole modification to the default commercial input parameters is the updated inhalation rate.

The final selected GAC are presented by pathway in Table 3 with the combined GAC in Table 4.

Figure 1: Conceptual model for CLEA commercial scenario

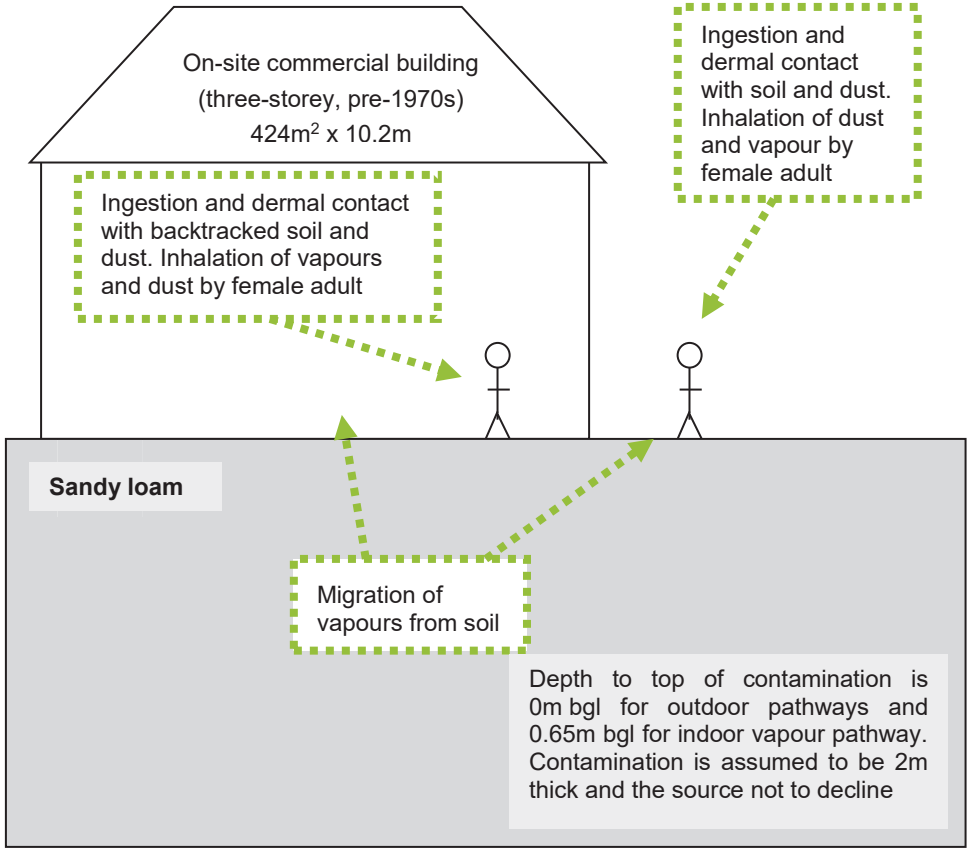

Table 1: Exposure assessment parameters for commercial scenario – inputs for CLEA model

Parameter	Value	Justification
Land use	Commercial	Chosen land use
Receptor	Female worker	Taken as female adult exposed over 49 years from age 16 to 65 years, Box 3.5, SR3[5]
Building	Office (pre-1970)	Key generic assumption given in Box 3.5, SR3[5]. Pre-1970s three-storey office building chosen as it is the most conservative in terms of protection from vapour intrusion (Section 3.4.6, SR3[5])
Soil type	Sandy loam	Most common UK soil type (Section 4.3.1, Table 4.4, SR3[5])
Start age class (AC)	17	AC corresponding to key generic assumption that the critical receptor is a working female adult exposed over a 49-year period from age 16 to 65 years. Assumption given in Box 3.5, SR3[5]
End AC	17	
SOM (%)	6	Representative of sandy loam according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents'[13]
	1	To provide SAC for sites where SOM < 6% as often observed by RSK
	2.5	
pH	7	Model default

Table 2: Commercial – modified receptor inputs

Parameter	Unit	Value	Justification
Inhalation rate (AC17)	m^3 day^{-1}	15.7	Mean value USEPA, 2011[12]; Table 3.2, SP1010[3]

References

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3. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010.

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5. Environment Agency (2009), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).

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11. CL:AIRE (2010), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).

12. USEPA (2011), *Exposure factors handbook*, EPA/600/R-090/052F (Washington, DC: Office of Research and Development).

13. Environment Agency (2009), 'Changes made to the CLEA framework documents after the three-month evaluation period in 2008', released January 2009.

14. USEPA (2010). Hydrogen cyanide and cyanide salts. Integrated Risk Information Systems (IRIS) Chemical Assessment Summary. September 2010. https://www.epa.gov/iris (accessed 9 December 2015)

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - COMMERCIAL

Table 3

Human health generic assessment criteria by pathway for commercial scenario

Compound	Notes	SAC appropriate to pathway SOM 1% (mg/kg)			Soil saturation limit (mg/kg)	SAC appropriate to pathway SOM 2.5% (mg/kg)			Soil saturation limit (mg/kg)	SAC appropriate to pathway SOM 6% (mg/kg)			Soil saturation limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Metals													
Arsenic	(a,b)	6.35E+02	1.25E+03	NR	NR	6.35E+02	1.25E+03	NR	NR	6.35E+02	1.25E+03	NR	NR
Cadmium	(a)	7.73E+02	8.57E+02	4.10E+02	NR	7.73E+02	8.57E+02	4.10E+02	NR	7.73E+02	8.57E+02	4.10E+02	NR
Chromium (III) - trivalent	(c)	3.31E+05	8.57E+03	NR	NR	3.31E+05	8.57E+03	NR	NR	3.31E+05	8.57E+03	NR	NR
Chromium (VI) - hexavalent	(a,d)	9.62E+02	4.91E+01	NR	NR	9.62E+02	4.91E+01	NR	NR	9.62E+02	4.91E+01	NR	NR
Copper		1.89E+05	8.96E+04	6.83E+04	NR	1.89E+05	8.96E+04	6.83E+04	NR	1.89E+05	8.96E+04	6.83E+04	NR
Lead	(a)	2.32E+03	NR	NR	NR	2.32E+03	NR	NR	NR	2.32E+03	NR	NR	NR
Elemental Mercury (Hg^0)	(d)	NR	1.54E+01	NR	4.31E+00	NR	3.26E+01	NR	1.07E+01	NR	5.80E+01	NR	2.58E+01
Inorganic Mercury (Hg^{2+})		1.18E+03	1.97E+04	1.12E+03	NR	1.18E+03	1.97E+04	1.12E+03	NR	1.18E+03	1.97E+04	1.12E+03	NR
Methyl Mercury (Hg^{4+})		3.38E+02	2.13E+03	2.92E+02	7.33E+01	3.38E+02	3.87E+03	3.11E+02	1.42E+02	3.38E+02	7.33E+03	3.23E+02	3.04E+02
Nickel	(d)	3.06E+03	9.83E+02	NR	NR	3.06E+03	9.83E+02	NR	NR	3.06E+03	9.83E+02	NR	NR
Selenium	(b)	1.23E+04	NR	NR	NR	1.23E+04	NR	NR	NR	1.23E+04	NR	NR	NR
Zinc	(b)	7.35E+05	1.97E+08	NR	NR	7.35E+05	1.97E+08	NR	NR	7.35E+05	1.97E+08	NR	NR
Cyanide (free)		6.56E+02	7.51E+04	6.53E+02	NR	6.56E+02	7.51E+04	6.53E+02	NR	6.56E+02	7.51E+04	6.53E+02	NR
Volatile Organic Compounds													
Benzene	(a)	1.09E+03	2.79E+01	2.72E+01	1.22E+03	1.09E+03	5.19E+01	4.96E+01	2.26E+03	1.09E+03	1.08E+02	9.80E+01	4.71E+03
Toluene		4.24E+05	6.49E+04	5.63E+04	8.69E+02	4.24E+05	1.43E+05	1.07E+05	1.92E+03	4.24E+05	3.24E+05	1.84E+05	4.36E+03
Ethylbenzene		1.91E+05	5.89E+03	5.71E+03	5.18E+02	1.91E+05	1.38E+04	1.28E+04	1.22E+03	1.91E+05	3.21E+04	2.75E+04	2.84E+03
Xylene - m		3.43E+05	6.26E+03	6.15E+03	6.25E+02	3.43E+05	1.47E+04	1.41E+04	1.47E+03	3.43E+05	3.44E+04	3.12E+04	3.46E+03
Xylene - o		3.43E+05	6.73E+03	6.60E+03	4.78E+02	3.43E+05	1.57E+04	1.50E+04	1.12E+03	3.43E+05	3.65E+04	3.30E+04	2.62E+03
Xylene - p		3.43E+05	6.03E+03	5.92E+03	5.76E+02	3.43E+05	1.41E+04	1.36E+04	1.35E+03	3.43E+05	3.28E+04	3.00E+04	3.17E+03
Total xylene		3.43E+05	6.03E+03	5.92E+03	6.25E+02	3.43E+05	1.41E+04	1.36E+04	1.47E+03	3.43E+05	3.28E+04	3.00E+04	3.46E+03
Methyl tertiary-Butyl ether (MTBE)		5.72E+05	7.58E+03	7.48E+03	2.04E+04	5.72E+05	1.23E+04	1.21E+04	3.31E+04	5.72E+05	2.34E+04	2.24E+04	6.27E+04
1,1,1,2 Tetrachloroethane		1.10E+04	1.09E+02	1.08E+02	2.60E+03	1.10E+04	2.53E+02	2.47E+02	6.02E+03	1.10E+04	5.88E+02	5.59E+02	1.40E+04
1,1,2,2-Tetrachloroethane		1.10E+04	2.81E+02	2.74E+02	2.67E+03	1.10E+04	5.75E+02	5.46E+02	5.46E+03	1.10E+04	1.26E+03	1.13E+03	1.20E+04
1,1,1-Trichloroethane		1.14E+06	6.60E+02	6.60E+02	1.43E+03	1.14E+06	1.35E+03	1.35E+03	2.92E+03	1.14E+06	2.96E+03	2.95E+03	6.39E+03
1,1,2 Trichloroethane		7.62E+03	9.02E+01	8.91E+01	4.03E+03	7.62E+03	1.84E+02	1.80E+02	8.21E+03	7.62E+03	4.02E+02	3.82E+02	1.80E+04
1,1-Dichloroethene		8.76E+04	2.43E+01	2.43E+01	2.23E+03	8.76E+04	4.30E+01	4.30E+01	3.94E+03	8.76E+04	8.68E+01	8.67E+01	7.94E+03
1,2-Dichloroethane		2.29E+02	6.73E-01	6.71E-01	3.41E+03	2.29E+02	9.71E-01	9.67E-01	4.91E+03	2.29E+02	1.67E+00	1.65E+00	8.43E+03
1,2,4-Trimethylbenzene		NR	3.29E+02	NR	4.74E+02	NR	6.41E+02	NR	1.16E+03	NR	1.04E+03	NR	2.76E+03
1,3,5-Trimethylbenzene	(e)	NR	NR	NR	2.30E+02	NR	NR	NR	5.52E+02	NR	NR	NR	1.30E+03
1,2-Dichloropropane		2.57E+04	3.14E+00	3.13E+00	1.19E+03	2.57E+04	5.54E+00	5.54E+00	2.11E+03	2.57E+04	1.11E+01	1.11E+01	4.24E+03
Carbon Tetrachloride (tetrachloromethane)		7.62E+03	2.87E+00	2.87E+00	1.52E+03	7.62E+03	6.29E+00	6.28E+00	3.32E+03	7.62E+03	1.43E+01	1.42E+01	7.54E+03
Chloroethane		NR	9.01E+02	NR	2.61E+03	NR	1.22E+03	NR	3.54E+03	NR	1.97E+03	NR	5.71E+03
Chloromethane		NR	9.54E-01	NR	1.91E+03	NR	1.11E+00	NR	2.24E+03	NR	1.49E+00	NR	2.99E+03
Cis 1,2 Dichloroethene		1.36E+01	NR	NR	3.94E+03	2.29E+01	NR	NR	6.61E+03	4.44E+01	NR	NR	1.29E+04
Dichloromethane		9.04E+03	2.63E+02	2.57E+02	7.27E+03	9.04E+03	3.50E+02	3.39E+02	9.68E+03	9.04E+03	5.53E+02	5.26E+02	1.53E+04
Tetrachloroethene		1.12E+04	1.86E+01	1.86E+01	4.24E+02	1.12E+04	4.17E+01	4.16E+01	9.51E+02	1.12E+04	9.57E+01	9.49E+01	2.18E+03
Trans 1,2 Dichloroethene		3.23E+04	2.07E+01	NR	3.42E+03	3.23E+04	3.74E+01	NR	6.17E+03	3.23E+04	7.63E+01	NR	1.26E+04
Trichloroethene		9.53E+02	1.23E+00	1.23E+00	1.54E+03	9.53E+02	2.58E+00	2.57E+00	3.22E+03	9.53E+02	5.72E+00	5.69E+00	7.14E+03
Vinyl Chloride (chloroethene)		2.67E+01	5.95E-02	5.94E-02	1.36E+03	2.67E+01	7.70E-02	7.67E-02	1.76E+03	2.67E+01	1.18E-01	1.17E-01	2.69E+03
Semi-Volatile Organic Compounds													
2-Chloronaphthalene		1.53E+05	3.71E+02	3.70E+02	1.14E+02	1.53E+05	9.07E+02	9.02E+02	2.80E+02	1.53E+05	2.13E+03	2.10E+03	6.69E+02
Acenaphthene		1.10E+05	2.75E+06	1.06E+05	5.70E+01	1.10E+05	5.36E+06	1.08E+05	1.41E+02	1.10E+05	8.83E+06	1.08E+05	3.36E+02
Acenaphthylene		1.10E+05	2.68E+06	1.05E+05	8.61E+01	1.10E+05	5.23E+06	1.07E+05	2.12E+02	1.10E+05	8.65E+06	1.08E+05	5.06E+02
Anthracene		5.49E+05	1.13E+07	5.23E+05	1.17E+00	5.49E+05	2.35E+07	5.36E+05	2.91E+00	5.49E+05	4.13E+07	5.42E+05	6.96E+00
Benzo(a)anthracene		2.84E+02	4.08E+02	1.67E+02	1.71E+00	2.84E+02	4.47E+02	1.74E+02	4.28E+00	2.84E+02	4.67E+02	1.76E+02	1.03E+01
Benzo(a)pyrene	(a)	7.68E+01	2.04E+02	5.58E+01	9.11E-01	7.68E+01	2.09E+02	5.61E+01	2.28E+00	7.68E+01	2.11E+02	5.63E+01	5.46E+00
Benzo(b)fluoranthene		7.13E+01	1.17E+02	4.43E+01	1.22E+00	7.13E+01	1.20E+02	4.47E+01	3.04E+00	7.13E+01	1.21E+02	4.49E+01	7.29E+00

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - COMMERCIAL

Table 3

Human health generic assessment criteria by pathway for commercial scenario

Compound	Notes	SAC appropriate to pathway SOM 1% (mg/kg)			Soil saturation limit (mg/kg)	SAC appropriate to pathway SOM 2.5% (mg/kg)			Soil saturation limit (mg/kg)	SAC appropriate to pathway SOM 6% (mg/kg)			Soil saturation limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Benzo(g,h,i)perylene		6.29E+03	1.05E+04	3.93E+03	1.54E-02	6.29E+03	1.06E+04	3.95E+03	3.85E-02	6.29E+03	1.07E+04	3.96E+03	9.23E-02
Benzo(k)fluoranthene		1.88E+03	3.11E+03	1.17E+03	6.87E-01	1.88E+03	3.17E+03	1.18E+03	1.72E+00	1.88E+03	3.21E+03	1.19E+03	4.12E+00
Chrysene		5.67E+02	8.89E+02	3.46E+02	4.40E-01	5.67E+02	9.25E+02	3.52E+02	1.10E+00	5.67E+02	9.47E+02	3.55E+02	2.64E+00
Dibenzo(a,h)anthracene		5.67E+00	9.32E+00	3.53E+00	3.93E-03	5.67E+00	9.52E+00	3.55E+00	9.82E-03	5.67E+00	9.64E+00	3.57E+00	2.36E-02
Fluoranthene		2.29E+04	1.89E+06	2.26E+04	1.89E+01	2.29E+04	2.72E+06	2.27E+04	4.73E+01	2.29E+04	3.32E+06	2.27E+04	1.13E+02
Fluorene		7.31E+04	4.55E+05	6.30E+04	3.09E+01	7.31E+04	1.06E+06	6.84E+04	7.65E+01	7.31E+04	2.24E+06	7.08E+04	1.83E+02
Hexachloroethane		2.09E+01	NR	NR	8.17E+00	4.98E+01	NR	NR	2.01E+01	1.11E+02	NR	NR	4.81E+01
Indeno(1,2,3-cd)pyrene		8.10E+02	1.31E+03	5.01E+02	6.13E-02	8.10E+02	1.35E+03	5.06E+02	1.53E-01	8.10E+02	1.37E+03	5.09E+02	3.68E-01
Naphthalene		3.64E+04	1.87E+03	1.78E+03	7.64E+01	3.64E+04	4.39E+03	3.92E+03	1.83E+02	3.64E+04	9.94E+03	7.81E+03	4.32E+02
Phenanthrene		2.28E+04	5.35E+05	2.19E+04	3.60E+01	2.28E+04	1.09E+06	2.24E+04	8.96E+01	2.28E+04	1.86E+06	2.25E+04	2.14E+02
Pyrene		5.49E+04	4.47E+06	5.42E+04	2.20E+00	5.49E+04	6.46E+06	5.44E+04	5.49E+00	5.49E+04	7.91E+06	5.45E+04	1.32E+01
Phenol		1.10E+06	2.65E+04	2.59E+04	2.42E+04	1.10E+06	3.04E+04	2.96E+04	3.81E+04	1.10E+06	3.46E+04	3.35E+04	7.03E+04
Total petroleum hydrocarbons													
Aliphatic hydrocarbons EC5-EC6		4.77E+06	3.19E+03	3.19E+03	3.04E+02	4.77E+06	5.86E+03	5.86E+03	5.58E+02	4.77E+06	1.21E+04	1.21E+04	1.15E+03
Aliphatic hydrocarbons >EC6-EC8		4.77E+06	7.79E+03	7.78E+03	1.44E+02	4.77E+06	1.74E+04	1.74E+04	3.22E+02	4.77E+06	3.97E+04	3.96E+04	7.36E+02
Aliphatic hydrocarbons >EC8-EC10		9.53E+04	2.02E+03	2.00E+03	7.77E+01	9.53E+04	4.91E+03	4.85E+03	1.90E+02	9.53E+04	1.17E+04	1.13E+04	4.51E+02
Aliphatic hydrocarbons >EC10-EC12		9.53E+04	9.97E+03	9.69E+03	4.75E+01	9.53E+04	2.47E+04	2.29E+04	1.18E+02	9.53E+04	5.89E+04	4.73E+04	2.83E+02
Aliphatic hydrocarbons >EC12-EC16		9.53E+04	8.26E+04	5.88E+04	2.37E+01	9.53E+04	2.04E+05	8.17E+04	5.91E+01	9.53E+04	4.81E+05	9.02E+04	1.42E+02
Aliphatic hydrocarbons >EC16-EC35	(b)	1.58E+06	NR	NR	8.48E+00	1.75E+06	NR	NR	2.12E+01	1.83E+06	NR	NR	5.09E+01
Aliphatic hydrocarbons >EC35-EC44	(b)	1.58E+06	NR	NR	8.48E+00	1.75E+06	NR	NR	2.12E+01	1.83E+06	NR	NR	5.09E+01
Aromatic hydrocarbons >EC8-EC10		3.81E+04	3.55E+03	3.46E+03	6.13E+02	3.81E+04	8.66E+03	8.11E+03	1.50E+03	3.81E+04	2.05E+04	1.70E+04	3.58E+03
Aromatic hydrocarbons >EC10-EC12		3.81E+04	1.92E+04	1.62E+04	3.64E+02	3.81E+04	4.69E+04	2.79E+04	8.99E+02	3.81E+04	1.10E+05	3.42E+04	2.15E+03
Aromatic hydrocarbons >EC12-EC16		3.81E+04	2.02E+05	3.62E+04	1.69E+02	3.81E+04	4.76E+05	3.73E+04	4.19E+02	3.81E+04	1.03E+06	3.78E+04	1.00E+03
Aromatic hydrocarbons >EC16-EC21	(b)	2.82E+04	NR	NR	5.37E+01	2.83E+04	NR	NR	1.34E+02	2.84E+04	NR	NR	3.21E+02
Aromatic hydrocarbons >EC21-EC35	(b)	2.84E+04	NR	NR	4.83E+00	2.84E+04	NR	NR	1.21E+01	2.84E+04	NR	NR	2.90E+01
Aromatic hydrocarbons >EC35-EC44	(b)	2.84E+04	NR	NR	4.83E+00	2.84E+04	NR	NR	1.21E+01	2.84E+04	NR	NR	2.90E+01

Notes:

EC - equivalent carbon. GrAC - groundwater screening value. SAC - soil screening value.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.

Calculated SAC exceeds soil saturation limit and may significantly affect the interpretation of any exceedances as the contribution of the indoor and outdoor vapour pathway to total exposure is >10%.

Calculated SAC exceeds soil saturation limit but the exceedance will not affect the SAC significantly as the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.

Calculated SAC does not exceed the soil saturation limit.

The SAC for organic compounds are dependant upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs napthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway (Section 10.1.1, SR3)

(a) SAC for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the C4SL toxicology data.

(b) SAC for selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.

(c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LQM/CIEH 2015 Section 6.8)

(d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.

(e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used.

Table 4
Human Health Generic Assessment Criteria for Commercial Scenario

Compound	SAC for Soil SOM 1% (mg/kg)	SAC for Soil SOM 2.5% (mg/kg)	SAC for Soil SOM 6% (mg/kg)
Metals			
Arsenic	640	640	640
Cadmium	410	410	410
Chromium (III) - trivalent	8,600	8,600	8,600
Chromium (VI) - hexavalent	49	49	49
Copper	68,000	68,000	68,000
Lead	2,300	2,300	2,300
Elemental Mercury (Hg^0)	15 (4)	33 (11)	58 (26)
Inorganic Mercury (Hg^{2+})	1,120	1,120	1,120
Methyl Mercury (Hg^{4+})	290 (73)	310 (142)	320
Nickel	980	980	980
Selenium	12,000	12,000	12,000
Zinc	740,000	740,000	740,000
Cyanide (free)	650	650	650
Volatile Organic Compounds			
Benzene	27	50	98
Toluene	56,000 (869)	107,000 (1,916)	184,000 (4,357)
Ethylbenzene	6,000 (518)	13,000 (1,216)	27,000 (2,844)
Xylene - m	6,200 (625)	14,100 (1,474)	31,200 (3,457)
Xylene - o	6,600 (478)	15,000 (1,120)	33,000 (2,618)
Xylene - p	5,900 (576)	13,600 (1,353)	30,000 (3,167)
Total xylene	5,900 (625)	13,600 (1,474)	30,000 (3,457)
Methyl tertiary-Butyl ether (MTBE)	7,500	12,100	22,400
1,1,1,2 Tetrachloroethane	110	250	560
1,1,2,2-Tetrachloroethane	270	550	1,130
1,1,1-Trichloroethane	700	1,300	3,000
1,1,2 Trichloroethane	89	180	382
1,1-Dichloroethene	24	43	87
1,2-Dichloroethane	0.67	0.97	1.65
1,2,4-Trimethylbenzene	330	640	1,040
1,3,5-Trimethylbenzene	NR	NR	NR
1,2-Dichloropropane	3	6	11
Carbon Tetrachloride (tetrachloromethane)	2.9	6.3	14.2
Chloroethane	901	1,223	1,972
Chloromethane	1.0	1.1	1.5
Cis 1,2 Dichloroethene	14	23	44
Dichloromethane	257	339	526
Tetrachloroethene	20	40	90
Trichloroethene	1	3	6
Trans 1,2 Dichloroethene	21	37	76
Trichloroethene	1	3	6
Vinyl Chloride (chloroethene)	0.06	0.08	0.12
Semi-Volatile Organic Compounds			
2-Chloronaphthalene	370 (114)	902 (280)	2,098 (669)
Acenaphthene	110,000	110,000	110,000
Acenaphthylene	110,000	110,000	110,000
Anthracene	520,000	540,000	540,000
Benzo(a)anthracene	170	170	180
Benzo(a)pyrene	77	77	77
Benzo(b)fluoranthene	44	45	45
Benzo(g,h,i)perylene	3,900	3,900	4,000
Benzo(k)fluoranthene	1,200	1,200	1,200
Chrysene	350	350	350
Dibenzo(a,h)anthracene	3.5	3.6	3.6
Fluoranthene	23,000	23,000	23,000
Fluorene	63,000 (31)	68,000	71,000
Hexachloroethane	21 (8)	50 (20)	111 (48)
Indeno(1,2,3-cd)pyrene	500	510	510
Naphthalene	1,800 (76)	3,900 (183)	7,800 (432)
Phenanthrene	22,000	22,000	23,000
Pyrene	54,000	54,000	54,000
Phenol	440*	690*	1,300*
Total Petroleum Hydrocarbons			
Aliphatic hydrocarbons EC_5-EC_6	3,200 (304)	5,900 (558)	12,100 (1,150)
Aliphatic hydrocarbons >EC_6-EC_8	7,800 (144)	17,400 (322)	39,600 (736)
Aliphatic hydrocarbons >EC_8-EC_{10}	2,000 (78)	4,800 (190)	11,300 (451)
Aliphatic hydrocarbons >EC_{10}-EC_{12}	9,700 (48)	22,900 (118)	47,300 (283)
Aliphatic hydrocarbons >EC_{12}-EC_{16}	59,000 (24)	82,000 (59)	90,000 (142)
Aliphatic hydrocarbons >EC_{16}-EC_{35}	1,000,000**	1,000,000**	1,000,000**
Aliphatic hydrocarbons >EC_{35}-EC_{44}	1,000,000**	1,000,000**	1,000,000**
Aromatic hydrocarbons >EC_8-EC_{10}	3,500 (613)	8,100 (1,503)	17,000 (3,580)
Aromatic hydrocarbons >EC_{10}-EC_{12}	16,000 (364)	28,000 (899)	34,000 (2,150)
Aromatic hydrocarbons >EC_{12}-EC_{16}	36,000 (169)	37,000	38,000
Aromatic hydrocarbons >EC_{16}-EC_{21}	28,000	28,000	28,000
Aromatic hydrocarbons >EC_{21}-EC_{35}	28,000	28,000	28,000
Aromatic hydrocarbons >EC_{35}-EC_{44}	28,000	28,000	28,000
Minerals			
Asbestos	No asbestos detected with ID or <0.001% dry weight[1]		

Notes:

'-' Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data.

NR - SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used

EC - equivalent carbon. GrAC - groundwater assessment criteria. SAC - soil assessment criteria.

* The GAC for Phenol is based on a threshold which is protective of direct contact (SC050021/Phenol SGV report)

** Denoted SAC calculated exceeds 100% contaminant, hence 100% (1,000,000mg/kg) has been taken as SAC

The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58.
1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs napthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3.

(VALUE IN BRACKETS)

RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/CIEH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.

APPENDIX M
GENERIC ASSESSMENT CRITERIA FOR POTABLE WATER SUPPLY PIPES

A range of pipe materials is available and careful selection, design and installation is required to ensure that water supply pipes are satisfactorily installed and meet the requirements of the Water Supply (Water Fittings) Regulations 1999 in England and Wales, the Byelaws 2000 in Scotland and the Northern Ireland Water Regulations. The regulations include a requirement to use only suitable materials when laying water pipes and laying water pipes without protection is not permitted at contaminated sites. The water supply company has a statutory duty to enforce the regulations.

Contaminants in the ground can pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or in specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies.

The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

The report concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for polyethylene (PE) and polyvinyl chloride (PVC) pipes for the organic contaminants of concern. The report also makes recommendations for the procedures to be adopted in the design of site investigations and sampling strategies, and the assessment of data, to ensure that the ground through which water supply pipes will be laid is adequately characterised.

Risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC for this linkage and are reproduced in Table A3 below.

Since water supply pipes are typically laid at a minimum depth of 0.75 m below finished ground levels, sample results from depths between 0.5 m and 1.5 m below finished level are generally considered suitable for assessing risks to water supply. Samples outside these depths can be used, providing the stratum is the same as that in which water supply pipes are likely to be located. The report specifies that sampling should characterise the ground conditions to a minimum of 0.5 m below the proposed depth of the pipe.

It should be noted that the assessment provided in this report is a guide and the method of assessment and recommendations should be checked with the relevant water supply company.

Table Q1: Generic assessment criteria for water supply pipes

		Pipe material	
		GAC (mg/kg)	
	Parameter group	**PE**	**PVC**
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC (Not including compounds within group 1a)	0.5	0.125
1a	• BTEX + MTBE	0.1	0.03
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C_5–C_{10}) (Not including compounds within group 2e and 2f)	2	1.4
2e	• Phenols	2	0.4
2f	• Cresols and chlorinated phenols	2	0.04
3	Mineral oil C_{11}–C_{20}	10	Suitable
4	Mineral oil C_{21}–C_{40}	500	Suitable
5	Corrosive (conductivity, redox and pH)	Suitable	Suitable
Specific suite identified as relevant following site investigation			
2a	Ethers	0.5	1
2b	Nitrobenzene	0.5	0.4
2c	Ketones	0.5	0.02
2d	Aldehydes	0.5	0.02
6	Amines	Not suitable	Suitable
Notes: where indicated as ‘suitable’, the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR.			

APPENDIX N
GQRA DATA SCREENING TABLES – SOILS

Project name	Royal College Street, London
Project code	371944
Client name	Rocco Ventures
Address	
NGR	
Land use	Commercial Scenario
SOM	2.5%
GAC version	2018_01

Notes

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Lab sample ID									19/07826/2	19/07826/14	19/07826/1	19/07826/4	19/07826/12	19/07826/13	19/07826/3	19/07826/5	19/07826/6	19/07826/7
Client sample ID									BH1	BH2	TP1	TP2	TP3	TP3	WS1	WS2	WS2	WS2
Depth to top									0.5	0.6	0.5	0.5	0.3	0.6	0.4	0.3	0.8	1.4
Depth to bottom																		
Date sampled									15/08/19	13/08/19	15/08/19	15/08/19	14/08/19	14/08/19	15/08/19	15/08/19	15/08/19	15/08/19
Metals and Inorganics																		
Arsenic	mg/kg	640		29	3	7	7	0	6	29	22	3		17		4		
Cadmium	mg/kg	410		1.4	<0.5	7	4	3	<0.5	0.8	0.8	<0.5		1.4		<0.5		
Chromium	mg/kg	8600	49	48	6	7	7	0	48	28	14	6		24		11		
Chromium (hexavalent)	mg/kg	49			<1	5	0	5	<1	<1	<1	<1						
Copper	mg/kg	68000		104	3	7	7	0	24	104	43	3		99		22		
Lead	mg/kg	2300		514	13	7	7	0	72	302	514	13		487		17		
Mercury	mg/kg	1120	33	1.73	<0.17	7	4	3	0.26	1.73	0.78	<0.17		1.73		<0.17		
Nickel	mg/kg	980		41	3	7	7	0	41	22	37	3		23		9		
Selenium	mg/kg	12000			<1	7	0	7	<1	<1	<1	<1		<1		<1		
Zinc	mg/kg	740000		666	10	7	7	0	58	124	215	10		666		26		
Asbestos																		
Asbestos in soil						10	0	10	NAD	NAD	NAD	NAD	NAD		NAD	NAD	NAD	
Petroleum Hydrocarbons																		
TPH total (>C6-C40)	mg/kg			176	<10	5	3	2	176	<10	30	<10						
TPH ID (for FID characterisations)						5			Possible PAHs	N/A	Concentration	Concentration too low to identify						
TPH FID Chromatogram						5			Appended	Appended	Appended	Appended						
Polycyclic aromatic hydrocarbons																		
Acenaphthene	mg/kg	110000			<0.01	5	0	5	<0.01	<0.01	<0.01	<0.01						
Acenaphthylene	mg/kg	110000			<0.01	5	0	5	<0.01	<0.01	<0.01	<0.01						
Anthracene	mg/kg	540000		0.03	<0.02	5	1	4	0.03	<0.02	<0.02	<0.02						
Benzo(a)anthracene	mg/kg	170		0.33	<0.04	5	2	3	0.33	<0.04	0.05	<0.04						
Benzo(a)pyrene	mg/kg	77		0.38	<0.04	5	1	4	0.38	<0.04	<0.04	<0.04						
Benzo(b)fluoranthene	mg/kg	45		0.49	<0.05	5	1	4	0.49	<0.05	<0.05	<0.05						
Benzo(ghi)perylene	mg/kg	3900		0.28	<0.05	5	1	4	0.28	<0.05	<0.05	<0.05						
Benzo(k)fluoranthene	mg/kg	1200		0.16	<0.07	5	1	4	0.16	<0.07	<0.07	<0.07						
Chrysene	mg/kg	350		0.36	<0.06	5	1	4	0.36	<0.06	<0.06	<0.06						
Dibenzo(ah)anthracene	mg/kg	3.6		0.05	<0.04	5	1	4	0.05	<0.04	<0.04	<0.04						
Fluoranthene	mg/kg	23000		0.44	<0.08	5	1	4	0.44	<0.08	<0.08	<0.08						
Fluorene	mg/kg	68000			<0.01	5	0	5	<0.01	<0.01	<0.01	<0.01						
Indeno(123-cd)pyrene	mg/kg	510		0.32	<0.03	5	2	3	0.32	<0.03	0.03	<0.03						
Naphthalene	mg/kg	3900	183		<0.03	5	0	5	<0.03	<0.03	<0.03	<0.03						
Phenanthrene	mg/kg	22000		0.11	<0.03	5	2	3	0.11	<0.03	0.05	<0.03						
Pyrene	mg/kg	54000		0.42	<0.07	5	1	4	0.42	<0.07	<0.07	<0.07						
Total PAH-16MS plus Coronene	mg/kg			3.47	<0.08	5	2	3	3.47	<0.08	0.15	<0.08						
Volatile Organic Compounds (VOC)																		
1,1,1,2-Tetrachloroethane	mg/kg	250			<0.001	2	0	2									<0.001	
1,1,1-Trichloroethane	mg/kg	1300			<0.001	2	0	2									<0.001	
1,1,2,2-Tetrachloroethane	mg/kg	550			<0.001	2	0	2									<0.001	
1,1,2-Trichloroethane	mg/kg	180			<0.001	2	0	2									<0.001	
1,1-Dichloroethane	mg/kg				<0.001	2	0	2									<0.001	
1,1-Dichloroethene	mg/kg	43			<0.001	2	0	2									<0.001	
1,1-Dichloropropene	mg/kg				<0.001	2	0	2									<0.001	
1,2,3-Trichlorobenzene	mg/kg				<0.003	2	0	2									<0.003	

Project name	Royal College Street, London
Project code	371944
Client name	Rocco Ventures
Address	
NGR	
Land use	Commercial Scenario
SOM	2.5%
GAC version	2018_01

Lab sample ID									19/07826/8	19/07826/9	19/07826/10	19/07826/11
Client sample ID									WS3	WS3	WS3	WS3
Depth to top									0.4	0.8	1.2	2.3
Depth to bottom												
Date sampled									14/08/19	14/08/19	15/08/19	15/08/19
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Metals and Inorganics												
Arsenic	mg/kg	640		29	3	7	7	0			7	
Cadmium	mg/kg	410		1.4	<0.5	7	4	3			0.8	
Chromium	mg/kg	8600	49	48	6	7	7	0			47	
Chromium (hexavalent)	mg/kg	49			<1	5	0	5			<1	
Copper	mg/kg	68000		104	3	7	7	0			15	
Lead	mg/kg	2300		514	13	7	7	0			20	
Mercury	mg/kg	1120	33	1.73	<0.17	7	4	3			<0.17	
Nickel	mg/kg	980		41	3	7	7	0			26	
Selenium	mg/kg	12000			<1	7	0	7			<1	
Zinc	mg/kg	740000		666	10	7	7	0			56	
Asbestos												
Asbestos in soil						10	0	10		NAD	NAD	
Petroleum Hydrocarbons												
TPH total (>C6-C40)	mg/kg			176	<10	5	3	2			84	
TPH ID (for FID characterisations)						5					Possible kerosene	
TPH FID Chromatogram						5					Appended	
Polycyclic aromatic hydrocarbons												
Acenaphthene	mg/kg	110000			<0.01	5	0	5			<0.01	
Acenaphthylene	mg/kg	110000			<0.01	5	0	5			<0.01	
Anthracene	mg/kg	540000		0.03	<0.02	5	1	4			<0.02	
Benzo(a)anthracene	mg/kg	170		0.33	<0.04	5	2	3			<0.04	
Benzo(a)pyrene	mg/kg	77		0.38	<0.04	5	1	4			<0.04	
Benzo(b)fluoranthene	mg/kg	45		0.49	<0.05	5	1	4			<0.05	
Benzo(ghi)perylene	mg/kg	3900		0.28	<0.05	5	1	4			<0.05	
Benzo(k)fluoranthene	mg/kg	1200		0.16	<0.07	5	1	4			<0.07	
Chrysene	mg/kg	350		0.36	<0.06	5	1	4			<0.06	
Dibenzo(ah)anthracene	mg/kg	3.6		0.05	<0.04	5	1	4			<0.04	
Fluoranthene	mg/kg	23000		0.44	<0.08	5	1	4			<0.08	
Fluorene	mg/kg	68000			<0.01	5	0	5			<0.01	
Indeno(123-cd)pyrene	mg/kg	510		0.32	<0.03	5	2	3			<0.03	
Naphthalene	mg/kg	3900	183		<0.03	5	0	5			<0.03	
Phenanthrene	mg/kg	22000		0.11	<0.03	5	2	3			<0.03	
Pyrene	mg/kg	54000		0.42	<0.07	5	1	4			<0.07	
Total PAH-16MS plus Coronene	mg/kg			3.47	<0.08	5	2	3			<0.08	
Volatile Organic Compounds (VOC)												
1,1,1,2-Tetrachloroethane	mg/kg	250			<0.001	2	0	2		<0.001		
1,1,1-Trichloroethane	mg/kg	1300			<0.001	2	0	2		<0.001		
1,1,2,2-Tetrachloroethane	mg/kg	550			<0.001	2	0	2		<0.001		
1,1,2-Trichloroethane	mg/kg	180			<0.001	2	0	2		<0.001		
1,1-Dichloroethane	mg/kg				<0.001	2	0	2		<0.001		
1,1-Dichloroethene	mg/kg	43			<0.001	2	0	2		<0.001		
1,1-Dichloropropene	mg/kg				<0.001	2	0	2		<0.001		
1,2,3-Trichlorobenzene	mg/kg				<0.003	2	0	2		<0.003		

									Lab sample ID	19/07826/2	19/07826/14	19/07826/1	19/07826/4	19/07826/12	19/07826/13	19/07826/3	19/07826/5	19/07826/6	19/07826/7
									Client sample ID	BH1	BH2	TP1	TP2	TP3	TP3	WS1	WS2	WS2	WS2
									Depth to top	0.5	0.6	0.5	0.5	0.3	0.6	0.4	0.3	0.8	1.4
									Depth to bottom										
									Date sampled	15/08/19	13/08/19	15/08/19	15/08/19	14/08/19	14/08/19	15/08/19	15/08/19	15/08/19	15/08/19
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
1,2,3-Trichloropropane	mg/kg				<0.001	2	0	2										<0.001	
1,2,4-Trichlorobenzene	mg/kg				<0.003	2	0	2										<0.003	
1,2,4-Trimethylbenzene	mg/kg	640			<0.001	2	0	2										<0.001	
1,2-Dibromo-3-chloropropane	mg/kg				<0.002	2	0	2										<0.002	
1,2-Dibromoethane	mg/kg				<0.001	2	0	2										<0.001	
1,2-Dichlorobenzene	mg/kg				<0.001	2	0	2										<0.001	
1,2-Dichloroethane	mg/kg	0.97			<0.002	2	0	2										<0.002	
1,2-Dichloropropane	mg/kg	6			<0.001	2	0	2										<0.001	
1,3,5-Trimethylbenzene	mg/kg	640			<0.001	2	0	2										<0.001	
1,3-Dichlorobenzene	mg/kg				<0.001	2	0	2										<0.001	
1,3-Dichloropropane	mg/kg				<0.001	2	0	2										<0.001	
1,4-Dichlorobenzene	mg/kg				<0.001	2	0	2										<0.001	
2,2-Dichloropropane	mg/kg				<0.001	2	0	2										<0.001	
2-Chlorotoluene	mg/kg				<0.001	2	0	2										<0.001	
4-Chlorotoluene	mg/kg				<0.001	2	0	2										<0.001	
4-Isopropyltoluene	mg/kg				<0.001	2	0	2										<0.001	
Benzene	mg/kg	50			<0.001	2	0	2										<0.001	
Bromobenzene	mg/kg				<0.001	2	0	2										<0.001	
Bromochloromethane	mg/kg				<0.005	2	0	2										<0.005	
Bromodichloromethane	mg/kg				<0.01	2	0	2										<0.01	
Bromoform	mg/kg				<0.001	2	0	2										<0.001	
Bromomethane	mg/kg				<0.001	2	0	2										<0.001	
Carbon Disulphide	mg/kg			0.001	<0.001	2	1	1										0.001	
Carbon Tetrachloride	mg/kg	6.3			<0.001	2	0	2										<0.001	
Chlorobenzene	mg/kg				<0.001	2	0	2										<0.001	
Chloroethane	mg/kg	1223			<0.001	2	0	2										<0.001	
Chloroform	mg/kg				<0.001	2	0	2										<0.001	
Chloromethane	mg/kg	1.1			<0.01	2	0	2										<0.01	
cis 1,2-Dichloroethene	mg/kg	23			<0.001	2	0	2										<0.001	
cis 1,3-Dichloropropene	mg/kg				<0.001	2	0	2										<0.001	
Dibromochloromethane	mg/kg				<0.003	2	0	2										<0.003	
Dibromomethane	mg/kg				<0.001	2	0	2										<0.001	
Dichlorodifluoromethane	mg/kg				<0.001	2	0	2										<0.001	
Dichloromethane	mg/kg	339			<0.005	2	0	2										<0.005	
Ethylbenzene	mg/kg	13000	1216		<0.001	2	0	2										<0.001	
Hexachlorobutadiene	mg/kg				<0.001	2	0	2										<0.001	
Isopropylbenzene	mg/kg				<0.001	2	0	2										<0.001	
m & p Xylene	mg/kg	13600	1353		<0.001	2	0	2										<0.001	
n-Butylbenzene	mg/kg				<0.001	2	0	2										<0.001	
n-Propylbenzene	mg/kg				<0.001	2	0	2										<0.001	
o-Xylene	mg/kg	15000	1120		<0.001	2	0	2										<0.001	
sec-Butylbenzene	mg/kg				<0.001	2	0	2										<0.001	
Styrene	mg/kg				<0.001	2	0	2										<0.001	
tert-Butylbenzene	mg/kg				<0.002	2	0	2										<0.002	
Tetrachloroethene	mg/kg	40			<0.001	2	0	2										<0.001	
Toluene	mg/kg	107000	1916		<0.001	2	0	2										<0.001	
trans 1,2-Dichloroethene	mg/kg	37			<0.001	2	0	2										<0.001	
trans 1,3-Dichloropropene	mg/kg				<0.001	2	0	2										<0.001	
Trichloroethene	mg/kg	3			<0.001	2	0	2										<0.001	
Trichlorofluoromethane	mg/kg				<0.004	2	0	2										<0.004	
Vinyl Chloride	mg/kg	0.08			<0.001	2	0	2										<0.001	
PCBs																			
PCB BZ 101	mg/kg				<0.004	2	0	2						<0.004	<0.004				
PCB BZ 105	mg/kg				<0.005	2	0	2						<0.005	<0.005				
PCB BZ 114	mg/kg				<0.005	2	0	2						<0.005	<0.005				
PCB BZ 118	mg/kg				<0.007	2	0	2						<0.007	<0.007				

								Lab sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11
								Client sample ID	WS3	WS3	WS3	WS3
								Depth to top	0.4	0.8	1.2	2.3
								Depth to bottom				
								Date sampled	14/08/19	14/08/19	15/08/19	15/08/19
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
1,2,3-Trichloropropane	mg/kg				<0.001	2	0	2		<0.001		
1,2,4-Trichlorobenzene	mg/kg				<0.003	2	0	2		<0.003		
1,2,4-Trimethylbenzene	mg/kg	640			<0.001	2	0	2		<0.001		
1,2-Dibromo-3-chloropropane	mg/kg				<0.002	2	0	2		<0.002		
1,2-Dibromoethane	mg/kg				<0.001	2	0	2		<0.001		
1,2-Dichlorobenzene	mg/kg				<0.001	2	0	2		<0.001		
1,2-Dichloroethane	mg/kg	0.97			<0.002	2	0	2		<0.002		
1,2-Dichloropropane	mg/kg	6			<0.001	2	0	2		<0.001		
1,3,5-Trimethylbenzene	mg/kg	640			<0.001	2	0	2		<0.001		
1,3-Dichlorobenzene	mg/kg				<0.001	2	0	2		<0.001		
1,3-Dichloropropane	mg/kg				<0.001	2	0	2		<0.001		
1,4-Dichlorobenzene	mg/kg				<0.001	2	0	2		<0.001		
2,2-Dichloropropane	mg/kg				<0.001	2	0	2		<0.001		
2-Chlorotoluene	mg/kg				<0.001	2	0	2		<0.001		
4-Chlorotoluene	mg/kg				<0.001	2	0	2		<0.001		
4-Isopropyltoluene	mg/kg				<0.001	2	0	2		<0.001		
Benzene	mg/kg	50			<0.001	2	0	2		<0.001		
Bromobenzene	mg/kg				<0.001	2	0	2		<0.001		
Bromochloromethane	mg/kg				<0.005	2	0	2		<0.005		
Bromodichloromethane	mg/kg				<0.01	2	0	2		<0.01		
Bromoform	mg/kg				<0.001	2	0	2		<0.001		
Bromomethane	mg/kg				<0.001	2	0	2		<0.001		
Carbon Disulphide	mg/kg			0.001	<0.001	2	1	1		<0.001		
Carbon Tetrachloride	mg/kg	6.3			<0.001	2	0	2		<0.001		
Chlorobenzene	mg/kg				<0.001	2	0	2		<0.001		
Chloroethane	mg/kg	1223			<0.001	2	0	2		<0.001		
Chloroform	mg/kg				<0.001	2	0	2		<0.001		
Chloromethane	mg/kg	1.1			<0.01	2	0	2		<0.01		
cis 1,2-Dichloroethene	mg/kg	23			<0.001	2	0	2		<0.001		
cis 1,3-Dichloropropene	mg/kg				<0.001	2	0	2		<0.001		
Dibromochloromethane	mg/kg				<0.003	2	0	2		<0.003		
Dibromomethane	mg/kg				<0.001	2	0	2		<0.001		
Dichlorodifluoromethane	mg/kg				<0.001	2	0	2		<0.001		
Dichloromethane	mg/kg	339			<0.005	2	0	2		<0.005		
Ethylbenzene	mg/kg	13000	1216		<0.001	2	0	2		<0.001		
Hexachlorobutadiene	mg/kg				<0.001	2	0	2		<0.001		
Isopropylbenzene	mg/kg				<0.001	2	0	2		<0.001		
m & p Xylene	mg/kg	13600	1353		<0.001	2	0	2		<0.001		
n-Butylbenzene	mg/kg				<0.001	2	0	2		<0.001		
n-Propylbenzene	mg/kg				<0.001	2	0	2		<0.001		
o-Xylene	mg/kg	15000	1120		<0.001	2	0	2		<0.001		
sec-Butylbenzene	mg/kg				<0.001	2	0	2		<0.001		
Styrene	mg/kg				<0.001	2	0	2		<0.001		
tert-Butylbenzene	mg/kg				<0.002	2	0	2		<0.002		
Tetrachloroethene	mg/kg	40			<0.001	2	0	2		<0.001		
Toluene	mg/kg	107000	1916		<0.001	2	0	2		<0.001		
trans 1,2-Dichloroethene	mg/kg	37			<0.001	2	0	2		<0.001		
trans 1,3-Dichloropropene	mg/kg				<0.001	2	0	2		<0.001		
Trichloroethene	mg/kg	3			<0.001	2	0	2		<0.001		
Trichlorofluoromethane	mg/kg				<0.004	2	0	2		<0.004		
Vinyl Chloride	mg/kg	0.08			<0.001	2	0	2		<0.001		
PCBs												
PCB BZ 101	mg/kg				<0.004	2	0	2				
PCB BZ 105	mg/kg				<0.005	2	0	2				
PCB BZ 114	mg/kg				<0.005	2	0	2				
PCB BZ 118	mg/kg				<0.007	2	0	2				

								Lab sample ID	19/07826/2	19/07826/14	19/07826/1	19/07826/4	19/07826/12	19/07826/13	19/07826/3	19/07826/5	19/07826/6	19/07826/7
								Client sample ID	BH1	BH2	TP1	TP2	TP3	TP3	WS1	WS2	WS2	WS2
								Depth to top	0.5	0.6	0.5	0.5	0.3	0.6	0.4	0.3	0.8	1.4
								Depth to bottom										
								Date sampled	15/08/19	13/08/19	15/08/19	15/08/19	14/08/19	14/08/19	15/08/19	15/08/19	15/08/19	15/08/19
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
PCB BZ 123	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 126	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 138	mg/kg				<0.006	2	0	2						<0.006	<0.006			
PCB BZ 153	mg/kg				<0.004	2	0	2						<0.004	<0.004			
PCB BZ 156	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 157	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 167	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 169	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 180	mg/kg				<0.004	2	0	2						<0.004	<0.004			
PCB BZ 189	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 28	mg/kg				<0.002	2	0	2						<0.002	<0.002			
PCB BZ 52	mg/kg				<0.002	2	0	2						<0.002	<0.002			
PCB BZ 77	mg/kg				<0.005	2	0	2						<0.005	<0.005			
PCB BZ 81	mg/kg				<0.005	2	0	2						<0.005	<0.005			
Other analytes																		
% Moisture	% w/w			20.8	6.3	5	5	0	8.6	20.8	12.4	6.3						
% Stones >10mm	% w/w			54.2	<0.1	14	11	3	<0.1	<0.1	30.1	30.8	21.7	24.2	17.1	54.2	6.7	<0.1
Coronene	mg/kg			0.1	<0.01	5	2	3	0.1	<0.01	0.02	<0.01						
pH	pH			12.91	8.35	8	8	0	12.91	8.6	8.85	11.34		8.7		12.33		
Total Organic Carbon	% w/w			3.25	0.08	6	6	0					0.61		0.23			0.41
Converted to SOM (x / 0.58)	% w/w			5.603448	0.137931	6	6	0					1.05172414		0.39655172			0.70689655
Total Speciated PCB-EC7 & WHO12	mg/kg				<0.007	2	0	2						<0.007	<0.007			

								Lab sample ID	19/07826/8	19/07826/9	19/07826/10	19/07826/11
								Client sample ID	WS3	WS3	WS3	WS3
								Depth to top	0.4	0.8	1.2	2.3
								Depth to bottom				
								Date sampled	14/08/19	14/08/19	15/08/19	15/08/19
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
PCB BZ 123	mg/kg				<0.005	2	0	2				
PCB BZ 126	mg/kg				<0.005	2	0	2				
PCB BZ 138	mg/kg				<0.006	2	0	2				
PCB BZ 153	mg/kg				<0.004	2	0	2				
PCB BZ 156	mg/kg				<0.005	2	0	2				
PCB BZ 157	mg/kg				<0.005	2	0	2				
PCB BZ 167	mg/kg				<0.005	2	0	2				
PCB BZ 169	mg/kg				<0.005	2	0	2				
PCB BZ 180	mg/kg				<0.004	2	0	2				
PCB BZ 189	mg/kg				<0.005	2	0	2				
PCB BZ 28	mg/kg				<0.002	2	0	2				
PCB BZ 52	mg/kg				<0.002	2	0	2				
PCB BZ 77	mg/kg				<0.005	2	0	2				
PCB BZ 81	mg/kg				<0.005	2	0	2				
Other analytes												
% Moisture	% w/w			20.8	6.3	5	5	0			19.5	
% Stones >10mm	% w/w			54.2	<0.1	14	11	3	13.9	3.3	3.7	9.2
Coronene	mg/kg			0.1	<0.01	5	2	3			<0.01	
pH	pH			12.91	8.35	8	8	0	9.2		8.35	
Total Organic Carbon	% w/w			3.25	0.08	6	6	0	3.25	2.53		0.08
Converted to SOM (x / 0.58)	% w/w			5.603448	0.137931	6	6	0	5.60344828	4.36206897		0.13793103
Total Speciated PCB-EC7 & WHO12	mg/kg				<0.007	2	0	2				

APPENDIX O
WM3 ASSESSMENT

envirolab

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

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TP/WS/BH		TP1	BH1	WS1	TP2	WS2	WS2	WS2	WS3	WS3
Depth (m)		0.50	0.50	0.40	0.50	0.30	0.80	1.40	0.40	0.80
Envirolab reference										
% Moisture	%	12.4	8.6		6.3					
pH (soil)		8.85	12.91		11.34	12.33			9.20	
pH (leachate)										
Arsenic	mg/kg	22	6		3	4				
Cadmium	mg/kg	0.8	<0.5		<0.5	<0.5				
Copper	mg/kg	43	24		3	22				
CrVI or Chromium	mg/kg	14	48		6	11				
Lead	mg/kg	514	72		13	17				
Mercury	mg/kg	0.78	0.26		<0.17	<0.17				
Nickel	mg/kg	37	41		3	9				
Selenium	mg/kg	<1	<1		<1	<1				
Zinc	mg/kg	215	58		10	26				
Barium	mg/kg									
Beryllium	mg/kg									
Vanadium	mg/kg									
Cobalt	mg/kg									
Manganese	mg/kg									
Molybdenum	mg/kg									
Antimony	mg/kg									
Aluminium	mg/kg									
Bismuth	mg/kg									
CrIII	mg/kg									
Iron	mg/kg									
Strontium	mg/kg									
Tellurium	mg/kg									
Thallium	mg/kg									
Titanium	mg/kg									
Tungsten	mg/kg									
Ammoniacal N	mg/kg									
ws Boron	mg/kg									
PAH (Input Total PAH **OR** individual PAH results)										
Acenaphthene	mg/kg	<0.01	<0.01		<0.01					
Acenaphthylene	mg/kg	<0.01	<0.01		<0.01					
Anthracene	mg/kg	<0.02	0.03		<0.02					
Benzo(a)anthracene	mg/kg	0.05	0.33		<0.04					
Benzo(a)pyrene	mg/kg	<0.04	0.38		<0.04					
Benzo(b)fluoranthene	mg/kg	<0.05	0.49		<0.05					
Benzo(ghi)perylene	mg/kg	<0.05	0.28		<0.05					
Benzo(k)fluoranthene	mg/kg	<0.07	0.16		<0.07					
Chrysene	mg/kg	<0.06	0.36		<0.06					
Dibenzo(ah)anthracene	mg/kg	<0.04	0.05		<0.04					
Fluoranthene	mg/kg	<0.08	0.44		<0.08					
Fluorene	mg/kg	<0.01	<0.01		<0.01					
Indeno(123cd)pyrene	mg/kg	0.03	0.32		<0.03					
Naphthalene	mg/kg	<0.03	<0.03		<0.03					
Phenanthrene	mg/kg	0.05	0.11		<0.03					
Pyrene	mg/kg	<0.07	0.42		<0.07					
Coronene	mg/kg	0.02	0.10		<0.01					
Total PAHs (16 or 17)	mg/kg	0.15	3.47		<0.08					
TPH										
Petrol	mg/kg									
Diesel	mg/kg									
Lube Oil	mg/kg									
Crude Oil	mg/kg									
White Spirit / Kerosene	mg/kg									
Creosote	mg/kg									
Unknown TPH with ID	mg/kg									
Unknown TPHCWG	mg/kg									
Total Sulphide	mg/kg									
Complex Cyanide	mg/kg									
Free (or Total) Cyanide	mg/kg									
Thiocyanate	mg/kg									
Elemental/Free Sulphur	mg/kg									
Phenols Input Total Phenols HPLC **OR** individual Phenol results.										
Phenol	mg/kg									
Cresols	mg/kg									
Xylenols	mg/kg									
Resourcinol	mg/kg									
Phenols Total by HPLC	mg/kg									
BTEX Input Total BTEX **OR** individual BTEX results.										
Benzene	mg/kg									
Toluene	mg/kg									
Ethylbenzene	mg/kg									
Xylenes	mg/kg									
Total BTEX	mg/kg									
PCBs (POPs)										
PCBs Total (eg EC7/WHO12)	mg/kg			<0.007						
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

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TP/WS/BH		TP1	BH1	WS1	TP2	WS2	WS2	WS2	WS3	WS3
Depth (m)		0.50	0.50	0.40	0.50	0.30	0.80	1.40	0.40	0.80
Envirolab reference										
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.										
2,3,7,8-TeCDD	mg/kg									
1,2,3,7,8-PeCDD	mg/kg									
1,2,3,4,7,8-HxCDD	mg/kg									
1,2,3,6,7,8-HxCDD	mg/kg									
1,2,3,7,8,9-HxCDD	mg/kg									
1,2,3,4,6,7,8-HpCDD	mg/kg									
OCDD	mg/kg									
2,3,7,8-TeCDF	mg/kg									
1,2,3,7,8-PeCDF	mg/kg									
2,3,4,7,8-PeCDF	mg/kg									
1,2,3,4,7,8-HxCDF	mg/kg									
1,2,3,6,7,8-HxCDF	mg/kg									
2,3,4,6,7,8-HxCDF	mg/kg									
1,2,3,7,8,9-HxCDF	mg/kg									
1,2,3,4,6,7,8-HpCDF	mg/kg									
1,2,3,4,7,8,9-HpCDF	mg/kg									
OCDF	mg/kg									
Total Dioxins and Furans	mg/kg									
Some Pesticides (POPs unless otherwise stated)										
Aldrin	mg/kg									
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg									
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg									
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg									
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg									
Dieldrin	mg/kg									
Endrin	mg/kg									
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg									
Heptachlor	mg/kg									
Hexachlorobenzene	mg/kg									
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg									
p,p'-DDT ***OR*** *Total DDT*	mg/kg									
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg									
Chlordecone (kepone)	mg/kg									
Pentachlorobenzene	mg/kg									
Mirex	mg/kg									
Toxaphene (camphechlor)	mg/kg									
Tin										
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg									
Organotin										
Dibutyltin; DiBT	mg/kg									
Tributyltin; TriBT	mg/kg									
Triphenyltin; TriPT	mg/kg									
Tetrabutyltin; TeBT	mg/kg									
Tin excluding Organotin										
Tin excl Organotin	mg/kg									

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	Thresholds								
TP/WS/BH		TP1	BH1	WS1	TP2	WS2	WS2	WS2	WS3	WS3
Depth (m)		0.50	0.50	0.40	0.50	0.30	0.80	1.40	0.40	0.80
Envirolab reference										
Asbestos in Soil										
Asbestos detected in Soil (enter Y or N)	Y									
		If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7								
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%								
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
		If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.								
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y									

If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05.
Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value	If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.								
Corrosive HP8	≥5%	<1%	0.00490	0.00915	0.00000	0.00145	0.00264	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00680	0.00320	0.00000	0.00069	0.00301	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	#VALUE!	#VALUE!	0.00000	#VALUE!	0.00430	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00001	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00655	0.00842	0.00000	0.00108	0.00211	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥10%		#VALUE!	#VALUE!	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Aspiration Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00261	0.00075	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	#VALUE!	#VALUE!	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00007	0.00002	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00235	0.00842	0.00000	0.00108	0.00211	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00007	#VALUE!	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00249	#VALUE!	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	#VALUE!	#VALUE!	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.05583	0.01663	0.00000	0.00210	0.00600	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.04503	0.00842	0.00000	0.00122	0.00211	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00001	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		8.85	12.91	0.00	11.34	12.33	0.00	0.00	9.20	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		8.85	12.91	0.00	11.34	12.33	0.00	0.00	9.20	0.00
Toxic for Reproduction HP10	≥0.3%		0.04503	0.00757	0.00000	0.00122	0.00182	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.00235	0.00842	0.00000	0.00108	0.00211	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00235	0.00842	0.00000	0.00108	0.00211	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00655	0.00757	0.00000	0.00057	0.00182	0.00000	0.00000	0.00000	0.00000
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00655	0.00842	0.00000	0.00108	0.00211	0.00000	0.00000	0.00000	0.00000

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TP/WS/BH			TP1	BH1	WS1	TP2	WS2	WS2	WS2	WS3	WS3
Depth (m)			0.50	0.50	0.40	0.50	0.30	0.80	1.40	0.40	0.80
Envirolab reference											
Ecotoxic HP14 amended v6	≥25%	<0.1%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

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TP/WS/BH		WS3	WS3	TP3	TP3	BH2				
Depth (m)		1.20	2.30	0.30	0.60	0.60				
Envirolab reference										
% Moisture	%	19.5				20.8				
pH (soil)		8.35			8.70	8.60				
pH (leachate)										
Arsenic	mg/kg	7			17	29				
Cadmium	mg/kg	0.8			1.4	0.8				
Copper	mg/kg	15			99	104				
CrVI or Chromium	mg/kg	47			24	28				
Lead	mg/kg	20			487	302				
Mercury	mg/kg	<0.17			1.73	1.73				
Nickel	mg/kg	26			23	22				
Selenium	mg/kg	<1			<1	<1				
Zinc	mg/kg	56			666	124				
Barium	mg/kg									
Beryllium	mg/kg									
Vanadium	mg/kg									
Cobalt	mg/kg									
Manganese	mg/kg									
Molybdenum	mg/kg									
Antimony	mg/kg									
Aluminium	mg/kg									
Bismuth	mg/kg									
CrIII	mg/kg									
Iron	mg/kg									
Strontium	mg/kg									
Tellurium	mg/kg									
Thallium	mg/kg									
Titanium	mg/kg									
Tungsten	mg/kg									
Ammoniacal N	mg/kg									
ws Boron	mg/kg									
PAH (Input Total PAH **OR** individual PAH results)										
Acenaphthene	mg/kg	<0.01				<0.01				
Acenaphthylene	mg/kg	<0.01				<0.01				
Anthracene	mg/kg	<0.02				<0.02				
Benzo(a)anthracene	mg/kg	<0.04				<0.04				
Benzo(a)pyrene	mg/kg	<0.04				<0.04				
Benzo(b)fluoranthene	mg/kg	<0.05				<0.05				
Benzo(ghi)perylene	mg/kg	<0.05				<0.05				
Benzo(k)fluoranthene	mg/kg	<0.07				<0.07				
Chrysene	mg/kg	<0.06				<0.06				
Dibenzo(ah)anthracene	mg/kg	<0.04				<0.04				
Fluoranthene	mg/kg	<0.08				<0.08				
Fluorene	mg/kg	<0.01				<0.01				
Indeno(123cd)pyrene	mg/kg	<0.03				<0.03				
Naphthalene	mg/kg	<0.03				<0.03				
Phenanthrene	mg/kg	<0.03				<0.03				
Pyrene	mg/kg	<0.07				<0.07				
Coronene	mg/kg	<0.01				<0.01				
Total PAHs (16 or 17)	mg/kg	<0.08				<0.08				
TPH										
Petrol	mg/kg									
Diesel	mg/kg									
Lube Oil	mg/kg									
Crude Oil	mg/kg									
White Spirit / Kerosene	mg/kg									
Creosote	mg/kg									
Unknown TPH with ID	mg/kg									
Unknown TPHCWG	mg/kg									
Total Sulphide	mg/kg									
Complex Cyanide	mg/kg									
Free (or Total) Cyanide	mg/kg									
Thiocyanate	mg/kg									
Elemental/Free Sulphur	mg/kg									
Phenols Input Total Phenols HPLC **OR** individual Phenol results.										
Phenol	mg/kg									
Cresols	mg/kg									
Xylenols	mg/kg									
Resourcinol	mg/kg									
Phenols Total by HPLC	mg/kg									
BTEX Input Total BTEX **OR** individual BTEX results.										
Benzene	mg/kg									
Toluene	mg/kg									
Ethylbenzene	mg/kg									
Xylenes	mg/kg									
Total BTEX	mg/kg									
PCBs (POPs)										
PCBs Total (eg EC7/WHO12)	mg/kg				<0.007					
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

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TP/WS/BH		WS3	WS3	TP3	TP3	BH2				
Depth (m)		1.20	2.30	0.30	0.60	0.60				
Envirolab reference										
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.										
2,3,7,8-TeCDD	mg/kg									
1,2,3,7,8-PeCDD	mg/kg									
1,2,3,4,7,8-HxCDD	mg/kg									
1,2,3,6,7,8-HxCDD	mg/kg									
1,2,3,7,8,9-HxCDD	mg/kg									
1,2,3,4,6,7,8-HpCDD	mg/kg									
OCDD	mg/kg									
2,3,7,8-TeCDF	mg/kg									
1,2,3,7,8-PeCDF	mg/kg									
2,3,4,7,8-PeCDF	mg/kg									
1,2,3,4,7,8-HxCDF	mg/kg									
1,2,3,6,7,8-HxCDF	mg/kg									
2,3,4,6,7,8-HxCDF	mg/kg									
1,2,3,7,8,9-HxCDF	mg/kg									
1,2,3,4,6,7,8-HpCDF	mg/kg									
1,2,3,4,7,8,9-HpCDF	mg/kg									
OCDF	mg/kg									
Total Dioxins and Furans	mg/kg									
Some Pesticides (POPs unless otherwise stated)										
Aldrin	mg/kg									
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg									
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg									
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg									
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg									
Dieldrin	mg/kg									
Endrin	mg/kg									
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg									
Heptachlor	mg/kg									
Hexachlorobenzene	mg/kg									
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg									
p,p'-DDT ***OR*** *Total DDT*	mg/kg									
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg									
Chlordecone (kepone)	mg/kg									
Pentachlorobenzene	mg/kg									
Mirex	mg/kg									
Toxaphene (camphechlor)	mg/kg									
Tin										
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg									
Organotin										
Dibutyltin; DiBT	mg/kg									
Tributyltin; TriBT	mg/kg									
Triphenyltin; TriPT	mg/kg									
Tetrabutyltin; TeBT	mg/kg									
Tin excluding Organotin										
Tin excl Organotin	mg/kg									

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TP/WS/BH		WS3	WS3	TP3	TP3	BH2				
Depth (m)		1.20	2.30	0.30	0.60	0.60				
Envirolab reference										
Asbestos in Soil	Thresholds									
Asbestos detected in Soil (enter Y or N)	Y									
		If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7								
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%								
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
		If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.								
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y									

If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05.
Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value	If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.								
Corrosive HP8	≥5%	<1%	0.00801	0.00000	0.00000	0.00685	0.00729	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00211	0.00000	0.00000	0.01343	0.01234	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	#VALUE!	0.00000	0.00000	0.01583	#VALUE!	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00726	0.00000	0.00000	0.00465	0.00426	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥10%		#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Aspiration Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	#VALUE!	0.00000	0.00000	0.00242	0.00317	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	#VALUE!	0.00000	0.00000	0.00017	0.00014	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00726	0.00000	0.00000	0.00461	0.00426	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00006	0.00000	0.00000	0.00014	0.00006	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	#VALUE!	0.00000	0.00000	0.00492	0.00446	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.00720	0.00000	0.00000	0.06453	0.03675	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.00726	0.00000	0.00000	0.04870	0.02392	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		8.35	0.00	0.00	8.70	8.60	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		8.35	0.00	0.00	8.70	8.60	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00423	0.00000	0.00000	0.04870	0.02392	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.00726	0.00000	0.00000	0.00461	0.00426	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00726	0.00000	0.00000	0.00461	0.00426	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00423	0.00000	0.00000	0.00465	0.00352	0.00000	0.00000	0.00000	0.00000
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00726	0.00000	0.00000	0.00465	0.00426	0.00000	0.00000	0.00000	0.00000

envirolab

Haswaste, developed by Dr. Iain Haslock.

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

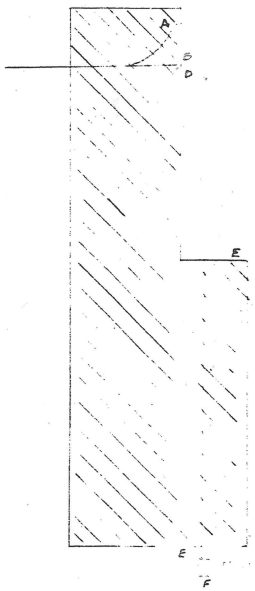
371944 60 - 86 Royal College Street, London

TP/WS/BH			WS3	WS3	TP3	TP3	BH2				
Depth (m)			1.20	2.30	0.30	0.60	0.60				
Envirolab reference											
Ecotoxic HP14 amended v6	≥25%	<0.1%	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	#VALUE!	0.00000	0.00000	#VALUE!	#VALUE!	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

APPENDIX P
ARCHIVE DRAWINGS

Directions for Making Plan.

Plan—8 feet to an inch. The plan to be in ink, and the drains are to be shown in red. Existing drains in blue.



SCALE OF 10 5 0 20 30 40 FEET.

N.B.—The Plan must show all the following particulars, viz.:—

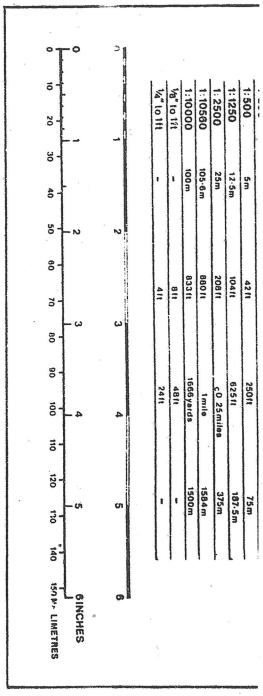
A. *Water Closets.* **B.** *Rain Water Pipes.* **C.** *Sinks to Yards and Area.* **D.** *Sinks to Kitchens, Scullories, and Washhouses.* **E.** *Ventilating Pipes.* **F.** *Interceptor Syphon Trap.*

Depth of Sewer below surface of Street 10ft Depth of basement floor X Sizes of Drains 6"

Examined 5/6/94 *Sanitary Inspector.*

Approved *Medical Officer of Health.* 8/6/94 *Engineer and Surveyor.*

Completed 23/6/94 *Sanitary Inspector.*



72-86 ROYAL COLLEGE STREET, FORMALLY ROYAL COLLEGE SERVICE STATION

Situation of Premises. 60/70, Royal College Street, St. Pancras.

Whether under Intimation. Whether New Building. Yes.

Depth of Sewer below. ~~Not applicable~~ 8ft–8 ft. Depth of Basement Floor below Street. None.

Size of Sewer. ~~Not applicable~~ 18'. 6"

Position of Sewer to be shown on Plan. Condition of Outlet in Sewer. Condition of Outlet on Premises.

DRAINAGE TO DISCHARGE INTO EXISTING SYSTEM IN OWNERS ADJOINING PROPERTY.

6" pipe, good, valve on outlet. This is a new connection, which was made on

0/C7A

SHELL-MEX AND B.P. LTD

Distributors for the Shell and BP Groups

LONDON DIVISION

P.O. BOX NO. 197, NUMBER ONE KINGSWAY, LONDON, W.C.2

Telephone: Temple Bar 8456 *Telegrams: Shellondiv Estrand London*

The Public Health Department,
Metropolitan Borough of St. Pancras,
Town Hall,
Euston Road,
LONDON, N.W.1.

Your ref.

Our ref.

Date 1st August, 1961.

Dear Sirs,

H.Q. TRAINING CENTRE : 60/70, ROYAL COLLEGE ST., [illegible] ST. PANCRAS.

Following the writer's recent meeting with your Mr. [illegible] we enclose, in duplicate, forms and drawings illustrating our proposals for the drainage of the above premises.

We should be pleased to receive your approval of these as soon as possible.

Yours faithfully,
for SHELL-MEX AND B.P. LTD.

ENGINEER : LONDON DIVISION.

Enc.

Registered Users of Trade Marks

The **plans and sections** must be indelibly made on a **durable material** to scale, preferably one inch to eight feet, and must be deposited in duplicate, and show, amongst other things, **the whole of the premises** and the position of existing buildings in black ink, any proposed new building or new w.c. in light pink (otherwise clearly shown as new), existing drains in blue, and proposed drains in red, also the points of the compass, the names of the streets and numbers of the houses immediately adjoining the premises, the levels of the different parts of the premises, and the lines, sizes, depths, and inclinations of the proposed drainage (including sections along the line of the drains, the fall of the drains being stated also in figures), and the position and form of every appliance, fitting, means of access, and construction in connection with, or discharging into, the drainage system of the premises.

INITIAL LETTERS FOR REFERENCE.

S=Sink.	**Tap**=Drawtap over.	**T**=Trap or Syphon Trap.	**Bt**=Basement.
L=Lavatory.	**WC**=Water-closet.	**FAI**=Fresh Air Inlet.	**Grd**=Ground.
B=Bath.	**U**=Urinal.	**CA**=Clearing Arm.	**Flr**=Floor (*e.g.* Bt. Flr. 1st Flr., &c.).
WP=Wastepipe.	**SP**=Soilpipe.	**PA**=Plunging Arm.	Open space, open under, open over, to be stated.
RWP=Rainwater Pipe.	**V**=Vent or Vent Pipe.	**WH**=Washhouse.	
G=Gully.	**MH**=Manhole or Inspection Chamber.	**Sc**=Scullery.	

Plans and Sections and existing drain openings examined and Date.

Public Health Inspector and Date 3/8/61

Drainage completed as approved and Date.

Public Health Inspector and Date

Plans of proposed drainage approved.

Medical Officer of Health. Date. 3. 8. 61.

Engineer and Surveyor. Date. 4-8-61