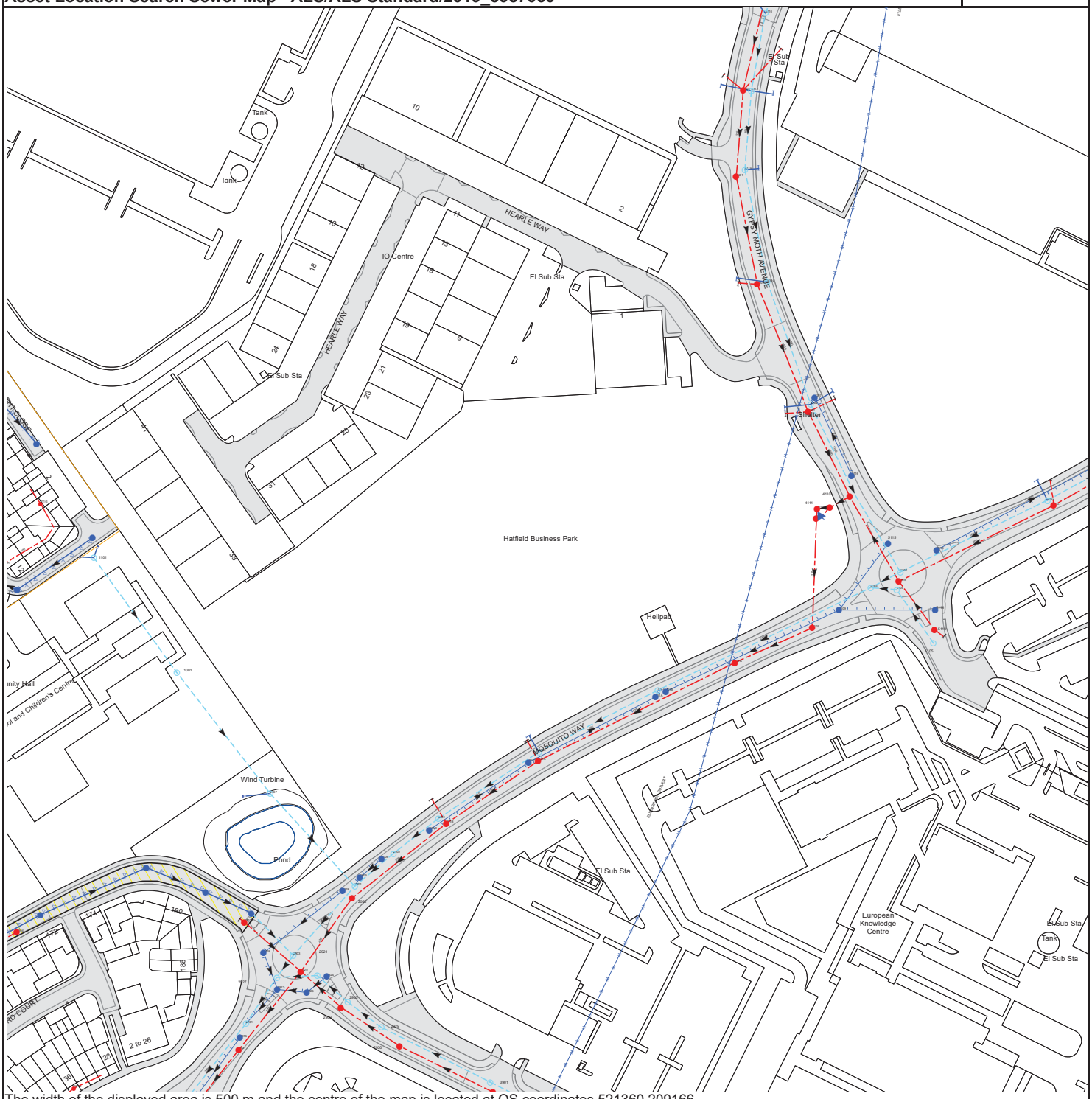
Asset Location Search Sewer Map - ALS/ALS Standard/2019_3957060



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 521360,209166

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4111	74.32	68.11
5107	75.44	69.65
5102	75.35	70.45
4110	75.51	68.43
5116	75.43	73.11
4201	75.77	68.98
4204	75.15	69.94
4207	75.05	72.63
4301	74.92	69.81
4304	74.7	70.18
4401	74.34	70.22
4310	74.4	70.25
4312	74.65	70.35
4305	74.8	70.62
4410	75.02	70.38
3902	n/a	n/a
3901	n/a	n/a
2930	n/a	n/a
2929	n/a	n/a
2003	75.65	69.02
2001	75.43	69.81
2005	75.79	71.63
2006	75.91	74.43
2002	76.02	69.32
301D	75.98	74.71
301B	75.76	71.08
3001	75.89	69.89
301C	75.36	73.77
301A	75.21	71.46
3002	75.21	69.7
401A	74.71	73.03
411B	74.77	72.69
4113	74.77	69.74
411A	74.93	72.34
5105	75.5	71.42
5110	75.41	69.18
4105	75.34	72.48
4109	75.41	73.13
5114	75.46	73.46
5104	75.65	70.75
5103	75.41	69.83
5109	75.59	68.72
5101	75.49	69.82
5113	75.7	73.91
5115	75.52	74.06
411D	74.3	72.86
411C	74.3	73.33
191A	n/a	n/a
2907	75.02	68.46
2915	74.94	72.14
2901	75.45	69.14
2909	75.9	68.97
2905	75.9	70.43
2925	75.38	72.19
2922	75.49	72.08
2927	75.3	69.2
2924	75.29	72.33
2921	75.28	70.41
2920	75.6	68.73
2903	75.8	69.24
2926	75.18	72.36
1904	n/a	n/a
2910	75.2	69.26
1903	75.5	71.82
2904	n/a	n/a
201A	n/a	n/a
2928	75.66	73.19
101A	75	71.47
1105	n/a	n/a
111G	n/a	n/a
111E	n/a	n/a
1101	75.9	71.25
1001	75.19	71.03
2007	75.01	70.8
121D	n/a	n/a

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

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5. In case of dispute TWUL`s terms and conditions shall apply.
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Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

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Search Code

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The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

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TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Web site: www.tpos.co.uk
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

APPENDIX G
SITE RECONNAISSANCE PHOTOGRAPHS

PHOTOGRAPHIC LOG		
Photo no. **1**	**Date:** 26/02/2019	
Description: Western entrance to site with earth bund		

Photo No. **2**	**Date:** 26/02/2019	
Description: Southern entrance to the site with earth bund and paved helipad		

Photo No.	Date:	
3	26/02/2019	
Description: Eastern entrance to site and pumping station		

Photo No.	Date:	
4	26/02/2019	
Description: Pumping station in south east of site with a number of utility service covers		

Photo No.	Date:	
5	26/02/2019	
Description: Service cover and pump in central eastern area of site		

Photo No.	Date:	
6	26/02/2019	
Description: General view of the eastern area of the site		

Photo No.	Date:	
7	26/02/2019	
Description: View across the northern area of the site		

Photo No.	Date:	
8	26/02/2019	
Description: Western area of the site		

APPENDIX H
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 in **Error! Reference source not found.**.

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 I
EXPLORATORY HOLE RECORDS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH01**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19** End: **05.03.19**	**74.48**	**E:521448.6 N:209225.8**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00	12	B				Dark brown slightly gravelly fine to coarse sandy SILT. Gravel is fine to coarse subrounded to subangular chert and occasional brick. (MADE GROUND)	(0.50)	
							0.50	
0.50	13	B				Soft to firm brown mottled orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded chert. Sand is fine to medium. (MADE GROUND)	(0.70)	
							1.20	
1.20-1.58	1	SPT(c)	8,12/18,20,12 for 75mm			Yellowish brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert, concrete and rare brick. (MADE GROUND)		
1.65	14	B					1.65	
2.00-2.38	2	SPT(c)	12,12/16,16,18 for 75mm			Brown very gravelly slightly silty fine to coarse SAND. Gravel is fine to coarse angular to subrounded chert. (LOWESTOFT FORMATION)		
2.50	15	B				. . . Becomes clayey from 2.50m bgl.	(1.80)	
3.00-3.45	3	SPT(c)	N=9				3.45	
3.50	16	B		1		Brown mottled greyish and blackish grey gravelly fine to coarse clayey SAND. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	3.50	
4.00-4.45	4	SPT	N=9			Soft grey mottled brown and black slightly sandy organic CLAY with amorphous black and organic material. (LOWESTOFT FORMATION)		
4.50	17	D				. . . Becomes firm from 4.50m bgl.	(2.50)	
5.00-5.45	5	SPT	N=18			. . . Becomes stiff from 5.0m bgl.		
5.50	1	D		2			6.00	
6.00	2	U				Medium dense to dense brown fine to coarse SAND and GRAVEL with rare fine cobbles. Gravel is angular to subrounded chert. (LOWESTOFT FORMATION)		
6.50	4	D						
6.50	5	B					(1.50)	
6.50-6.95	6	SPT	N=33					
							7.50	
7.50-7.95	7	SPT(c)	N=16			Medium dense brown gravelly slightly silty medium to coarse SAND. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(1.50)	
							9.00	

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 4.00m. Rose to 3.75m after 10 minutes.
4. Groundwater encountered at 6.50m. Rose to 6.0m after 10 minutes.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH01**

Contract Ref:	Start: **04.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **05.03.19**	**74.48**	**E:521448.6 N:209225.8**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45	8	SPT(c)	N=10			Medium dense yellowish brown very sandy angular to subrounded fine to coarse GRAVEL of chert. (LOWESTOFT FORMATION)	(1.50) 10.50	
10.50-10.95	9	SPT(c)	N=12			Medium dense yellowish brown gravelly slightly silty medium to coarse SAND. Gravel is angular to subrounded medium to coarse chert. (LOWESTOFT FORMATION)	(1.00) 11.50	
11.50	6	B				Very stiff dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse chert with fine chalk. Sand is fine to coarse with sand of chalk. (LOWESTOFT FORMATION)	(3.95)	
12.00	7	U						
12.50	8	D						
13.50-13.95	10	SPT	N=37					
14.00	10	B				. . . Rare chert with frequent chalk gravel at 14.00m bgl.		
15.00-15.45	11	SPT	N=50				15.45	
						Hole terminated at 15.45m bgl.		

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

5. Gas and groundwater monitoring well installed 7.00m plain and 3.00m slotted.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH02**

Contract Ref:	Start: **04.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **05.03.19**	**74.69**	**E:521455.0 N:209190.9**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	D				Yellowish grey brown gravelly slightly clayey fine to coarse SAND with occasional rootlets. Gravel is subangular to subrounded fine to coarse flint, chert and chalk. (LOWESTOFT FORMATION)	(1.50)	
0.50	2	B						
1.00	3	D						
1.20-1.65	1	SPT	N=52					
1.20	5	D						
1.50	6	D					1.50	
1.50	7	B				Dense multicoloured sandy angular to subrounded fine to coarse GRAVEL of chert, flint and quartzite. (LOWESTOFT FORMATION)		
2.00-2.39	2	SPT(c)	N:50 for 240mm					
2.00	8	D						
2.50	9	D					(3.00)	
3.00-3.40	3	SPT(c)	N:50 for 245mm					
3.00	10	D						
3.50	11	D		1				
4.00-4.45	4	SPT(c)	N=45					
4.00	12	D		1			4.50	
4.50	13	D				Soft grey mottled black silty slightly sandy CLAY. (LOWESTOFT FORMATION)		
4.50	14	B						
5.00	15	U						
5.00	16	B						
5.50-5.95	5	SPT	N=18			. . . Becoming firm to stiff from 5.5m bgl.	(2.50)	
5.50	17	D						
6.50	18	U						
7.00	19	B					7.00	
						Firm to stiff blueish grey mottled brownish grey slightly silty CLAY with occasional rootlets. (LOWESTOFT FORMATION)	(1.50)	
				2				
8.00-8.45	6	SPT(c)	N=23					
8.00	20	D		2			8.50	
8.50	21	B				*Description on next sheet*		

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 4.50m bgl. Rose to 4.00m in 20 minutes.
4. Groundwater encountered at 8.50m. Rose to 8.0m after 15 minutes.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH02**

Contract Ref:	Start: **04.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **05.03.19**	**74.69**	**E:521455.0 N:209190.9**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	22	D				Medium dense yellowish grey gravelly slightly silty fine to coarse SAND. Gravel is angular to subrounded fine to medium highly weathered chert, flint and quartzite. (LOWESTOFT FORMATION) *(stratum copied from 8.50m from previous sheet)*	(2.50)	
9.50-9.95	7	SPT(c)	N=23					
9.50	23	D						
10.50	24	D					11.00	
11.00-11.45	8	SPT(c)	N=23			Medium dense greyish brown slightly silty fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of chert, flint and quartzite. (LOWESTOFT FORMATION)	(3.00)	
11.00	25	D						
11.00	26	B						
12.00	27	D						
12.50-12.95	9	SPT(c)	N=24					
12.50	28	D						
13.50	29	D					14.00	
14.00-14.45	10	SPT	N=39			Firm to stiff blueish grey mottled greyish brown slightly silty slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine weathered chalk and flint. (LOWESTOFT FORMATION)	(1.00)	
14.00	30	D						
14.00	31	B						
14.90	32	D					15.00	
						Hole terminated at 15.00m bgl.		

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

5. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH03A**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**05.03.19** End: **06.03.19**	**74.44**	**E:521433.1 N:209141.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse chert, concrete and occasional metal. (MADE GROUND)	(1.00) 1.00	
1.20-1.65	1	SPT(c)	N=23			Soft orangish brown slightly gravelly very fine to coarse sandy CLAY. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(0.50) 1.50	
2.00-2.45	2	SPT(c)	N=19			Medium dense brown gravelly slightly silty medium to coarse SAND. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(2.00) 3.50	
2.00	5	D						
2.50	6	D						
3.00-3.45	3	SPT(c)	N=21					
3.00	7	D						
3.50	8	D				Soft light grey mottled blackish grey silty CLAY with organic rich partings. (LOWESTOFT FORMATION)	(1.00) 4.50	
4.00-4.45	4	SPT	N=7					
4.00	9	D						
4.50	10	D				Firm light grey silty CLAY. (LOWESTOFT FORMATION)	(2.90) 7.40	
5.00	11	U						
5.50	12	B				. . . Occasional fissures containing fine sand from 5.50m bgl.		
6.00	13	D				. . . Becomes firm to stiff from 6.00m bgl.		
6.50-6.95	5	SPT	N=22			. . . Some cream mottling from 6.50m bgl.		
6.50	14	D						
7.50	15	D				Dense grey fine to coarse SAND and GRAVEL. Gravel is angular to subangular fine to coarse chert and occasional chalk. (LOWESTOFT FORMATION)		
7.50	16	B						
8.00-8.45	6	SPT(c)	N=43					
8.00	17	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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 7.20m bgl. Rose to 5.60m in 20 minutes.
4. Gas and groundwater monitoring well installed to 5.00m plain and 5.00m slotted.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

AGS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH03A**

Contract Ref:	Start: **05.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **06.03.19**	**74.44**	**E:521433.1 N:209141.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	18	D				Dense grey fine to coarse SAND and GRAVEL. Gravel is angular to subangular fine to coarse chert and occasional chalk. (LOWESTOFT FORMATION)		
9.50-9.95	7	SPT(c)	N=46			*(stratum copied from 7.40m from previous sheet)*		
9.50	19	D				. . . Becoming silty from 9.00m bgl with rare fossills and medium sandstone.		
10.50	20	D				. . . Very gravelly sand as above from 10.50m bgl.		
11.00-11.45	8	SPT(c)	N=47				(7.20)	
11.00	21	D						
12.00	22	D						
12.50-12.95	9	SPT(c)	N=48					
12.50	23	D						
13.50	24	D				. . . Becoming less gravelly at 13.50m bgl.		
14.00-14.45	10	SPT(c)	N=44					
14.00	25	D					14.60	
15.00-15.45	11	SPT	N=32			Stiff dark grey sandy CLAY with occasional fine gravel. Sand is coarse chalk. Gravel is subrounded chalk and chert with rare fossils and iron concretions. (LOWESTOFT FORMATION)	15.00	
15.00	26	D				Hole terminated at 15.00m bgl.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH04**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**06.03.19** End: **06.03.19**	**74.43**	**E:521404.0 N:209176.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly fine to coarse gravelly slightly fine to coarse sandy SILT. Gravel is fine to coarse angular to subrounded chert. (TOPSOIL)	(0.50) 0.50	
0.50	3	D				Yellowish brown sandy angular to subangular fine to coarse GRAVEL of chert. Sand is medium to coarse. (LOWESTOFT FORMATION)		
0.50	4	B						
1.00	5	D						
1.20-1.63	1	SPT(c)	N:50 for 280mm				(1.50)	
1.20	6	D						
1.50	7	D						
							2.00	
2.00-2.45	2	SPT(c)	N=32			Medium dense brown sandy silty angular to subrounded fine to coarse GRAVEL of chert. (LOWESTOFT FORMATION)		
2.00	8	D		1				
2.50	9	D		1				
3.00-3.45	3	SPT(c)	N=13					
3.00	10	D						
3.50	11	D				. . . Contains wisps of silt from 3.50m bgl.	(3.00)	
4.00-4.45	4	SPT(c)	N=26					
4.00	12	D						
4.50	13	D						
4.50	14	B						
							5.00	
5.00-5.45	5	SPT	N=16			Firm dark grey silty CLAY. (LOWESTOFT FORMATION)		
5.00	15	D						
5.50	16	B					(1.50)	
							6.50	
6.50-6.95	6	SPT(c)	N=31			Dense yellowish brown slightly gravelly slightly silty fine to coarse SAND. Angular to subangular chert. Gravel is fine to medium coarse. (LOWESTOFT FORMATION)		
6.50	17	D		2			(1.00)	
				2			7.50	
7.50	18	D				Dense dark grey sandy slightly clayey angular to subrounded fine to coarse GRAVEL of chert. (LOWESTOFT FORMATION)		
7.50	19	B						
8.00-8.45	7	SPT(c)	N=31				(1.50)	
8.00	20	D						
							9.00	

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 3.00m bgl. Rose to 2.50m in 20 minutes.
4. Groundwater encountered at 7.50m. Rose to 7.0m after 15 minutes.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH04**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**06.03.19**	**74.43**	**E:521404.0 N:209176.0**	**2** of **2**
	End: **06.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	21	D				Medium dense to dense dark grey gravelly medium to coarse SAND. Gravel is fine to coarse subangular to subrounded chert, mudstone and rare chalk. (LOWESTOFT FORMATION)		
9.50-9.95	8	SPT(c)	N=26					
9.50	22	D						
10.50	23	D						
11.00-11.45	9	SPT(c)	N=35				(4.50)	
11.00	24	D						
12.00	25	D						
12.50-12.95	10	SPT(c)	N=42			. . . Slightly gravelly with rare fossils at 12.50m bgl.		
12.50	26	D					13.50	
13.50	27	D				Soft to firm dark grey mottled brown slightly gravelly sandy CLAY. Sand present in pockets <5mm. Gravel is rounded to subrounded fine to medium chert and occasional very fine chalk. (LOWESTOFT FORMATION)	(0.50)	
							14.00	
14.00-14.45	11	SPT	N=45			Soft to firm dark grey silty CLAY with occasional fine subrounded to rounded fine chalk gravel. (LOWESTOFT FORMATION)	(1.00)	
14.00	28	D					15.00	
						Hole terminated at 15.00m bgl.		

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

5. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH05**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**06.03.19** End: **06.03.19**	**74.79**	**E:521401.2 N:209216.2**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00	1	B				Soft dark brown mottled orangish brown slightly sandy silty CLAY with occasional subangular chert. Sand is fine to coarse. (TOPSOIL)	(0.50)	
0.50	2	B				Soft yellowish brown sandy gravelly CLAY. Gravel is angular fine to coarse to subrounded chert. Sand is fine to coarse. (LOWESTOFT FORMATION)	0.50 (1.00)	
1.50-1.95	1	SPT(c)	N=42			Dense yellowish brown fine gravelly silty coarse SAND. Gravel is fine to angular coarse subrounded chert. (LOWESTOFT FORMATION)	1.50	
2.00	3	B						
2.50-2.95	2	SPT(c)	N=38				(3.00)	
3.50-3.95	3	SPT(c)	N=9			. . . Becoming loose from 3.50m bgl		
4.50-4.95	4	SPT	N=14			Firm dark grey silty CLAY with silty partings and occasional pockets of amorphous organic matter 25mm. (LOWESTOFT FORMATION)	4.50 (0.50)	
5.00	5	B				Soft dark grey and orangish brown sandy slightly gravelly silty CLAY. Gravel is fine to angular coarse to subrounded chert. Sand is fine to medium. (LOWESTOFT FORMATION)	5.00 (1.00)	
5.50-5.95	5	SPT	N=7					
6.00	7	B				Yellowish brown gravelly very clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	6.00 (1.00)	
7.00-7.45	6	SPT(c)	N=14			Medium dense yellowish brown slightly silty fine to coarse SAND and angular to subrounded GRAVEL of chert. (LOWESTOFT FORMATION)	7.00	
7.50	8	B						
8.50-8.95	7	SPT(c)	N=15				(4.00)	

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 6.50m bgl. Rose to 6.00m in 20 minutes.
4. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH05**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**06.03.19** End: **06.03.19**	**74.79**	**E:521401.2 N:209216.2**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
10.00-10.45	8	SPT(c)	N=19			Medium dense yellowish brown slightly silty fine to coarse SAND and angular to subrounded GRAVEL of chert. (LOWESTOFT FORMATION) *(stratum copied from 7.00m from previous sheet)*		
10.50	9	B					11.00	
11.50-11.95	9	SPT(c)	N=22			Medium dense yellowish brown slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)		
12.50	10	B					(3.50)	
13.00-13.45	10	SPT	N=25					
14.00	12	B					14.50	
14.50-14.95	11	SPT	N=39			Dense dark grey slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse chert and chalk. (LOWESTOFT FORMATION)	(0.50)	
						Hole terminated at 15.00m bgl.	15.00	

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

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**BSowden**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH06**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**06.03.19** End: **08.03.19**	**75.02**	**E:521306.0 N:209181.9**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	D				Soft orangish grey brown slightly sandy gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(1.20)	
0.50	2	B					1.20	
1.20-1.65	1	SPT	N=35			Dense orangish brown grey very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert, flint and occasional chalk. (LOWESTOFT FORMATION)		
1.20	4	D						
1.50	5	D						
1.50	6	B						
2.00-2.45	2	SPT(c)	N=40				(2.30)	
2.00	7	D						
2.50	8	D						
3.00-3.45	3	SPT(c)	N=48					
3.00	9	D					3.50	
3.50	10	D				Firm to stiff blueish grey CLAY. (LOWESTOFT FORMATION)		
4.00	11	U					(1.50)	
4.50	12	B						
5.00-5.30	4	SPT(c)	N:50 for 151mm				5.00	
5.00	13	D				Very dense orangish brown fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of flint, chert and occasional cobbles of subangular chert. (LOWESTOFT FORMATION)		
5.00	14	B						
6.00	15	D						
6.50-6.80	5	SPT(c)	N:50 for 151mm					
6.50	16	D						
7.50	17	D					(6.00)	
8.00-8.36	6	SPT(c)	N:50 for 205mm					
8.00	18	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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 25.00m bgl.
3. Groundwater not encountered.
4. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH06**

Contract Ref:	Start: **06.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **08.03.19**	**75.02**	**E:521306.0 N:209181.9**	**2** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	19	D				Very dense orangish brown fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of flint, chert and occasional cobbles of subangular chert. (LOWESTOFT FORMATION)		
9.50-9.95	7	SPT(c)	N=28			*(stratum copied from 5.00m from previous sheet)*		
9.50	20	D						
10.50	21	D				. . . Becomes very gravelly SAND from 10.50m bgl.	11.00	
11.00-11.45	8	SPT(c)	N=30			Firm to stiff blueish grey CLAY with pockets of chalk gravel. (LOWESTOFT FORMATION)		
11.00	22	D						
11.50	23	B						
12.00	24	D					(3.00)	
12.50	25	U						
13.50	26	D				. . . Becomes slightly sandy from 13.50m bgl.	14.00	
14.00-14.45	9	SPT(c)	N=43			Dense orangish brown very gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert, flint and chalk. (LOWESTOFT FORMATION)		
14.00	27	D						
14.00	28	B					(1.00)	
15.00	29	D				Dense multicoloured sandy angular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	15.00	
15.50-15.95	10	SPT(c)	N=34					
15.50	30	D					(2.00)	
16.50	31	D					17.00	
17.00-17.45	11	SPT	N=8			Recovered as structureless CHALK composed of cream silty angular to subangular GRAVEL. Gravel is moderately weak high density chalk and occasional flint. (GRADE Dc) (WHITE CHALK SUBGROUP)		
17.00	32	D						
17.50	33	B						

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

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH06**

Contract Ref:	Start: **06.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **08.03.19**	**75.02**	**E:521306.0 N:209181.9**	**3** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
18.00	34	D				Recovered as structureless CHALK composed of cream silty angular to subangular GRAVEL. Gravel is moderately weak high density chalk and occasional flint. (GRADE Dc) (WHITE CHALK SUBGROUP) *(stratum copied from 17.00m from previous sheet)*	(4.50)	
18.50-18.95	12	SPT	N=13					
18.50	35	D						
19.50	36	D						
20.00-20.45	13	SPT	N=14					
20.00	37	D						
21.00	38	D					21.50	
21.50-21.95	14	SPT	N=16			Recovered as structureless CHALK composed of greyish white silty angular to subrounded GRAVEL with occasional flint cobbles. Gravel is moderately weak high density angular to subrounded chalk and angular to subangular fine to coarse flint. (GRADE Dc) (WHITE CHALK SUBGROUP)	(3.50)	
21.50	39	D						
22.50	40	D						
23.00-23.45	15	SPT	N=18					
23.00	41	D						
24.00	42	D						
24.50-24.95	16	SPT	N=18					
24.50	43	D					25.00	
						Hole terminated at 25.00m bgl.		

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

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH07**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **08.03.19**	**74.65**	**E:521327.0 N:209152.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00	1	B				Brown gravelly slightly clayey fine to coarse SAND with occasional rootlets. Gravel is angular to subrounded fine to coarse flint. (TOPSOIL)	(0.50)	
0.50	2	B				Soft brownish grey slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chert. Sand is fine to coarse. (LOWESTOFT FORMATION)	0.50 (0.50)	
1.00	3	B				Greyish brown slightly clayey fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of flint and chert. (LOWESTOFT FORMATION)	1.00 (0.95)	
1.50-1.80	1	SPT(c)	N:50 for 150mm				1.95	
2.00	4	B				Dense orangish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)		
2.50-2.95	2	SPT(c)	N=40	2		. . . Becomes medium dense and very gravelly from 3.00m bgl.		
3.50-3.95	3	SPT(c)	N=19			. . . Becoming clayey from 4.20m bgl.	(3.05)	
4.50	5	U					5.00	
5.00	6	D				Medium dense greyish brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to medium flint and chert. (LOWESTOFT FORMATION)		
5.50-5.95	4	SPT(c)	N=12					
5.50	7	B		1		. . . Becomes yellowish brown from 5.50m bgl.	(2.00)	
6.00	8	B		1			7.00	
7.00-7.45	5	SPT(c)	N=24			Medium dense orangish grey brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)		
7.50	9	B						
8.50-8.95	6	SPT(c)	N=14				(4.00)	

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 15.00m bgl.
3. Groundwater encountered at 3.00m rising to 2.75m in 10 minutes.
4. Groundwater encountered at 6.50m rising to 6.00m in 10 minutes.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH07**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **08.03.19**	**74.65**	**E:521327.0 N:209152.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
10.00-10.45	7	SPT(c)	N=17			Medium dense orangish grey brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION) *(stratum copied from 7.00m from previous sheet)* . . . From 10.00m occasional flint cobbles.	11.00	
11.00	10	B				Greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.50) 11.50	
11.50-11.95	8	SPT	N=21			Blueish grey sandy CLAY. Sand is fine to coarse. (LOWESTOFT FORMATION)		
12.50	12	D				. . . Occasional chalk gravel from 12.50m bgl.	(3.00)	
13.00	13	U						
13.50	14	D						
14.00	15	B					14.50	
14.50-14.95	9	SPT	N=39			Blueish grey mottled orange brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint and chalk. (LOWESTOFT FORMATION)	(0.50) 15.00	
						Hole terminated at 15.00m bgl.		

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

5. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH08**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **08.03.19**	**74.58**	**E:521344.9 N:209121.0**	**1** of **3**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown gravelly slightly clayey fine to coarse SAND with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert, brick and flint.	(0.50)	
							0.50	
0.50	2	D				(MADE GROUND)	(0.50)	
						Orangish brown sandy angular to subrounded fine to coarse GRAVEL of chert, flint and brick.		
							1.00	
1.00-1.45	1	SPT	N=53			(MADE GROUND)		
1.00	3	D				Dense orangish brown sandy subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	(1.00)	
							2.00	
2.00-2.45	2	SPT	N=39			Dense orangish brown very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)		
2.00	4	D						
2.00	5	B					(1.50)	
3.00-3.45	3	SPT	N=12			. . . Becomes a gravelly SAND from 3.00m bgl.		
3.00	6	D						
							3.50	
						Grey slightly gravelly CLAY. Gravel is angular to subangular fine to medium chert. (LOWESTOFT FORMATION)		
4.00-4.45	4	SPT	N=11					
4.00	7	D						
4.00	8	B				. . . Becomes blueish grey CLAY from 4.50m bgl.		
							(2.80)	
5.00	9	D						
							6.30	
6.30	10	D				Medium dense multicoloured sandy angular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)		
6.50-6.95	5	SPT	N=20					
6.50	11	B						
8.00-8.45	6	SPT	N=24					
8.00	12	D						
8.00	13	B						

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

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hole advanced to 25.00m bgl.
3. Groundwater encountered at 6.50m. Rose to 6.30m in 20 minutes.
4. Hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH08**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **08.03.19**	**74.58**	**E:521344.9 N:209121.0**	**2** of **3**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	14	D				Medium dense multicoloured sandy angular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION) *(stratum copied from 6.30m from previous sheet)*	(5.60)	
9.50-9.95	7	SPT	N=89					
9.50	18	B						
11.00-11.45	8	SPT	N=34					
11.00	19	B						
							11.90	
12.50	20	U				Stiff to firm blueish grey silty CLAY with occasional chalk pockets. (LOWESTOFT FORMATION)		
13.00	21	D					(3.10)	
14.00-14.38	9	SPT	N:50 for 225mm					
14.00	22	B						
							15.00	
15.00	23	D				Medium dense orangish brown very sandy subangular to subrounded fine to coarse GRAVEL of chert, flint and occasional chalk. Sand is fine to coarse. (LOWESTOFT FORMATION)		
15.50-15.95	10	SPT	N=28				(2.30)	
15.50	24	B						
17.00-17.45	11	SPT	N=12					
17.00	25	B						
							17.30	
						Description on next sheet		

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

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**BSL**	**EWild**	MAS

BOREHOLE LOG

Contract:	Client:	Borehole:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**BH08**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **08.03.19**	**74.58**	**E:521344.9 N:209121.0**	**3** of **3**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
18.00	26	D				Recovered as structureless CHALK composed of cream slightly sandy angular to subrounded fine to coarse GRAVEL with occasional flint cobbles. Gravel is moderately weak high density chalk. (GRADE Dc) (WHITE CHALK SUBGROUP) *(stratum copied from 17.30m from previous sheet)*		
18.50-18.95	12	SPT	N=13					
18.50	27	B						
19.00-19.45	13	SPT	N=18					
19.00	28	B						
20.50-20.77	14	SPT	N:50 for 124mm				(6.70)	
20.50	29	B						
22.00-22.45	15	SPT	N=29					
22.00	30	B						
23.00	31	D						
23.50-23.95	16	SPT	N=110					
23.50	32	B					24.00	
24.50-24.95	17	SPT	N=81			Recovered as structureless CHALK composed of cream silty angular to subrounded fine to coarse GRAVEL with rare cobbles. Gravel is moderately weak high density chalk and frequent flint. (GRADE Dc) (WHITE CHALK SUBGROUP)	(1.77)	
25.00	33	D					25.77	
						Hole terminated at 25.77m bgl.		

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

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 3000**	**BSL**	**EWild**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS01**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19**	**74.47**	**E:521458.1 N:209210.1**	**1** of **1**
	End: **07.03.19**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.50	1	ES				Dark brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert, brick and concrete. (MADE GROUND)	0.15	
							Yellowish brown gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert and concrete with rare brick. (MADE GROUND)	(0.65) 0.80	
	1.20-1.65	1	SPT	N=29			Brown with orangish brown black mottling gravelly very clayey medium to coarse SAND. Gravel is angular to subounded fine to coarse chert and subangular red brick. (MADE GROUND)	(0.40) 1.20	
	1.20-1.50	2	B				Dense greyish brown gravelly slightly clayey fine to coarse SAND. Gravel is fine to angular coarse subangular chert. (LOWESTOFT FORMATION)	(0.30) 1.50	
	2.00-2.44	2	SPT	N:50 for 285mm			Very dense yellowish brown fine to coarse SAND and GRAVEL. Gravel is angular fine to coarse subrounded chert. (LOWESTOFT FORMATION)	(0.90) 2.40	
							Window sample hole refused at 2.40m bgl.		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed with 1.00m plain and 1.00m slotted pipe.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**BSowden**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS02**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **07.03.19**	**74.17**	**E:521439.9 N:209173.4**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.30	1	ES				Soft brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium chert. (TOPSOIL)	(0.35) 0.35	
							Soft orange brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	0.60	
							Very dense orange brown fine to coarse SAND and angular to subangular fine to coarse GRAVEL of chert, flint and occasional weathered chalk. (LOWESTOFT FORMATION)	(0.60) 1.20	
	1.20-1.64	1	SPT	N:50 for 290mm			Window sample hole terminated due to SPT refusal at base of inspection pit.		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 0.70m plain and 0.50m slotted pipe.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**EWild**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS03**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **07.03.19**	**74.58**	**E:521387.9 N:209190.8**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.30	1	ES				Dark brown slightly gravelly slightly sandy clayey SILT. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse chert and rare brick. (MADE GROUND)	0.20	
							Soft orangish brown gravelly very sandy CLAY. Sand is medium to coarse.Gravel is subangular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(0.90)	
	1.20-1.64	1	SPT	N:50 for 285mm			Very dense yellowish brown coarse SAND and fine to coarse GRAVEL. Gravel is angular to subangular chert. (LOWESTOFT FORMATION)	1.10 (0.30) 1.40	
							Window sample terminated due to refusal on SPT.		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 1.20m bgl.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**BSowden**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS04**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **07.03.19**	**74.20**	**E:521385.0 N:209120.0**	**1** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel of fine to angular coarse subangular chert. (TOPSOIL)	(0.40) 0.40	
							Medium dense brown mottled orangish brown and black gravelly clayey medium to coarse SAND. Gravel is fine to coarse, angular to subrounded chert. (LOWESTOFT FORMATION)		
							. . . Reddish brown from 0.80m bgl.	(1.40)	
1.20 - 2.00 (45mm dia) 100% rec	1.20-1.65	1	SPT	N=20			. . . From 1.40m bgl occasional grey silty pockets up to 20mm.	1.80	
	2.00-2.45	2	SPT	N=16			Medium dense yellowish brown fine to coarse SAND and angular to subrounded fine to coarse GRAVEL. (LOWESTOFT FORMATION) . . . Wet below 2.00m bgl.		
2.00 - 3.00 (45mm dia) 80% rec								(1.80)	
	3.00-3.45	3	SPT	N=1			. . . Becoming very loose from 3.00m bgl.	3.60	
3.00 - 4.00 (45mm dia) 40% rec							Soft clayey SILT. (LOWESTOFT FORMATION)	3.80	
							Soft light grey silty CLAY with layers of black amorphous organic matter. (LOWESTOFT FORMATION)	4.00	
	4.00-4.45	4	SPT	N=6			Soft to firm grey silty CLAY. (LOWESTOFT FORMATION)		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater encountered at 2.50m bgl.
4. Gas and groundwater monitoring well installed to 4.00m bgl.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**BSowden**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS04**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **07.03.19**	**74.20**	**E:521385.0 N:209120.0**	**2** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	5.00-5.45	5	SPT	N=16			Soft to firm grey silty CLAY. (LOWESTOFT FORMATION) *(stratum copied from 4.00m from previous sheet)*	(1.45)	
								5.45	
							Window sample hole terminated at 5.45m bgl.		

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

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**BSowden**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS05**

Contract Ref:	Start: **07.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **07.03.19**	**74.70**	**E:521330.0 N:209179.0**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is angular to subrounded chert, asphalt and brick. (MADE GROUND)	0.25	
	0.50	2	ES				Orangish brown gravelly silty medium to coarse SAND with occasional cobbles. Gravel is angular fine to coarse to subrounded chert and occasional fine brick. Cobbles are subangular chert. (MADE GROUND)	(0.75)	
	1.00-1.20	3	B					1.00	
	1.20-1.64	1	SPT	N:50 for 290mm			Very dense greyish brown very fine to coarse gravelly coarse SAND. Gravel is fine to coarse, angular to subrounded chert. (LOWESTOFT FORMATION)	1.20	
							Hole terminated at 1.20m bgl.		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 1.20m bgl.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**BSowden**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS06**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **07.03.19**	**74.57**	**E:521320.0 N:209130.0**	**1** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Dark brown slightly sandy slightly gravelly SILT with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium chert and flint. (TOPSOIL)	(0.35) 0.35	
	0.40	1	ES				Soft orangish brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	0.60	
							Soft yellowish grey brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.60)	
							. . . From 1.10m bgl becomes a sandy gravelly CLAY with occasional grey mottle.	1.20	
1.20 - 2.00 (45mm dia) 100% rec	1.20-1.65	1	SPT	N=28			Medium dense greyish brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of flint and chert. (LOWESTOFT FORMATION)		
	1.70	2	D				. . . From 1.30m bgl becomes a very gravelly fine to coarse SAND.		
2.00 - 3.00 (45mm dia) 65% rec	2.00-2.45	2	SPT	N=17			. . . From 2.00m becomes fine to coarse SAND and angular to subounded fine to coarse GRAVEL of chert and flint. Wet below 2.00m bgl.	(1.80)	
							. . . No recovery from 2.65m- 3.00m bgl.	3.00	
3.00 - 4.00 (45mm dia) 100% rec	3.00-3.45	3	SPT	N=3			Very loose multicoloured slightly sandy angular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	(0.45) 3.45	
							Greyish white SILT. (LOWESTOFT FORMATION)	3.55	
							Soft to firm orangish brown very silty CLAY. (LOWESTOFT FORMATION)	(0.35) 3.90	
4.00 - 5.00 (45mm dia) 35% rec	4.00-4.45	4	SPT	N=11			Firm to stiff bluish grey CLAY. (LOWESTOFT FORMATION) . . . No recovery from 4.00m - 4.65m bgl.	(1.10)	

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Hand dug inspection pit to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 3.00m slotted and 1.00m plain pipe.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**EWild**	MAS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**WS06**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**07.03.19** End: **07.03.19**	**74.57**	**E:521320.0 N:209130.0**	**2** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (45mm dia) 35% rec							Firm to stiff bluish grey CLAY. (LOWESTOFT FORMATION) *(stratum copied from 3.90m from previous sheet)*	5.00	
	5.00-5.45	5	SPT	N=16			Hole terminated at 5.00m bgl.		

Drilling Progress and Water Observations

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

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Premier Compact 110**	**DSUK LTD**	**EWild**	MAS

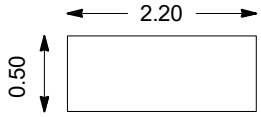
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP01**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19**	**74.36**	**E:521438.6 N:209216.3**	**1** of **1**
	End: **04.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over dark brown sandy slightly gravelly SILT. Sand is fine to medium. Gravel is angular to subrounded fine to coarse concrete, chert and asphalt. (MADE GROUND)	0.10 (0.30)	
0.30	1	ES				Brown gravelly very silty fine to medium SAND with gravel bands of angular to subrounded, fine to coarse brick, asphalt, concrete, chert and hardcore. (MADE GROUND)	0.40	
0.40	2	ES				. . . Metal picket at 0.10m bgl.		
						Yellowish brown silty fine to coarse SAND and angular to subrounded, fine to coarse GRAVEL of chert. (LOWESTOFT FORMATION)		
						. . . Old land drain at 0.80m bgl.	(1.70)	
1.40	3	B				. . . Becoming very gravelly SAND at 1.40m bgl.		
2.00	4	B					2.10	
						Yellowish brown fine SAND and subangular to subrounded, fine to medium GRAVEL of chert and mudstone with pockets of reddish brown and grey gravelly clay. (LOWESTOFT FORMATION)	(0.40) 2.50	
						Orangish brown slighlty silty fine to medium SAND. (LOWESTOFT FORMATION)	(1.10)	
							3.60	
						Hole terminated at 3.60m bgl as sides becoming unstable.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.60m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**BSowden**	MAS

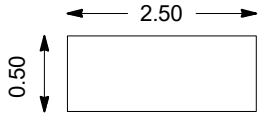
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP02**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19** End: **04.03.19**	**74.20**	**E:521434.2 N:209192.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse brick, quartzite and hardcore with frequent rootlets. (MADE GROUND)	(0.30) 0.30	
						Reddish brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite, chert and flint. (LOWESTOFT FORMATION)	(0.40) 0.70	
1.20-1.40	2	B				Yellowish brown very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert, flint and quartzite. (LOWESTOFT FORMATION) . . . Infrequent cobbles of chert from 1.50m bgl.	(1.60) 2.30	
2.20-2.50	3	B				Greyish yellow brown sandy subangular to subrounded fine to coarse GRAVEL of chert, flint and quartzite. Sand is fine to coarse. (LOWESTOFT FORMATION)	(0.70) 3.00	
3.00-3.30	4	B				Grey brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to medium quartizte, flint and chert. (LOWESTOFT FORMATION)	(0.30) 3.30	
						Hole terminated at 3.30m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.30m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	

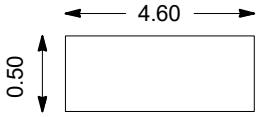
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP03**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19** End: **04.03.19**	**74.59**	**E:521474.9 N:209191.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Dark brown silty fine to medium sandy slightly fine to coarse gravelly SILT. Gravel is subangular to subrounded chert, plastic, metal and brick. (MADE GROUND)	(0.35) 0.35	
						Orangish brown gravelly cobbly SAND. Gravel and cobbles are angular to subrounded chert, asphalt, concrete, rare metal, tile and rebar. (MADE GROUND)	0.60	
						. . . Concrete obstruction at 0.55m bgl, pit extended to the north.		
						Pale greyish brown gravelly very fine to coarse sandy CLAY. Gravel is fine to coarse angular to subangular chert and demolition waste of brick, concrete, rebar and plastic. Contains occasional fine to coarse cobbles of concrete and brick. (MADE GROUND)	(0.40) 1.00	
						. . . Concrete boulder at 1.00m bgl. Trial pit terminated at 1.00m bgl due to a concrete boulder.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 1.00m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.
5. Pit sides remained stable.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**BSowden**	MAS

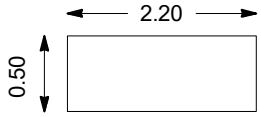
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP04**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19**	**74.29**	**E:521452.9 N:209169.0**	**1** of **1**
	End: **04.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded chert, concrete and brick. (MADE GROUND)	0.05	
						Concrete. (MADE GROUND)		
						Trial pit terminated at 0.05m bgl due to concrete obstruction.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 0.05m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

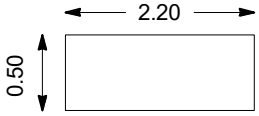
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP05**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**11.03.19**	**---**	**E:521419.0 N:209144.0**	**1** of **1**
	End: **11.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft brown slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert. (TOPSOIL)	0.15	
						Brown slightly gravelly slightly clayey fine to coarse SAND with occasional rootlets. Gravel is subangular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(0.30) 0.45	
0.50	1	ES				Soft brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chert. Sand is fine to coarse. (LOWESTOFT FORMATION)	(0.55) 1.00	
1.50	2	B				Yellowish grey brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION) . . . Becomes occasionally clayey from 1.70m bgl. (pockets of clay)	(1.20) 2.20	
						Hole terminated at 2.20m bgl. Soakaway carried out at base of pit.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 2.20m bgl.
3. Groundwater not encountered.
4. Soakaway carried out at base of trial pit.
5. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

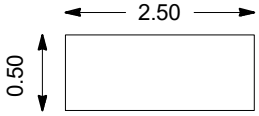
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP06**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**11.03.19** End: **11.03.19**	**74.43**	**E:521399.8 N:209159.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium chert. (TOPSOIL)	0.25	
						Red brown mottled greyish white slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(1.35)	
							1.60	
2.00	2	B				Yellowish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse flint and chert. (LOWESTOFT FORMATION)	(0.75)	
							2.35	
						Hole terminated at 2.35m bgl. Soakaway carried out at base of trial pit.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 2.35m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.
5. Soakaway carried out in the base of the trial pit.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

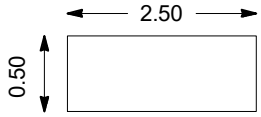
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP07**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19**	**74.17**	**E:521401.0 N:209140.0**	**1** of **1**
	End: **04.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over dark brown gravelly clayey SILT. (TOPSOIL)	0.15	
0.30-0.50	1	B				Soft brown mottled orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse chert. (LOWESTOFT FORMATION)	(0.45) 0.60	
						Yellowish and greyish brown very gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert. Contains pockets of silty fine to medium sand up to 200m across. (LOWESTOFT FORMATION)	(1.40) 2.00	
2.10-2.30	2	B				Reddish brown slightly silty fine to coarse SAND and angular to subangular fine to coarse GRAVEL of chert. (LOWESTOFT FORMATION) . . . Becoming wet at 2.30m bgl.	(0.90) 2.90	
						Soft to firm orangish brown and grey mottled dark grey silty CLAY. (LOWESTOFT FORMATION)	(0.30) 3.20	
						Trial pit terminated at 3.20m bgl due to pit sides becoming slightly unstable.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR pior to breaking gound. No services encountered.
2. Trial pit hole advanced to 3.20m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**BSowden**	MAS

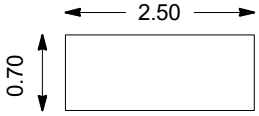
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP08**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**04.03.19** End: **04.03.19**	**74.58**	**E:521403.9 N:209204.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Soft brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and chert. (TOPSOIL)	(0.30) 0.30	
0.50-0.70	2	B				Yellowish brown slightly clayey gravelly fine to coarse SAND with occasional rootlets. Gravel is subangular to subrounded fine to coarse flint and chert. (LOWESTOFT FORMATION)	(0.40) 0.70	
						Yellowish grey brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of flint and chert. (LOWESTOFT FORMATION)	(0.30) 1.00	
1.30	3	B				Yellowish brown gravelly fine to coarse SAND. Gravel is fine to coarse, subangular to subrounded chert. (LOWESTOFT FORMATION) . . . Becomes very gravelly fine to coarse SAND from 2.20m bgl.	(1.50) 2.50	
2.60-3.00	4	B		≈		Greyish brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of flint and chert. (LOWESTOFT FORMATION)	(1.00) 3.50	
						Hole terminated at 3.50m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.50m bgl.
3. Groundwater seepage encountered at 2.90m bgl.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

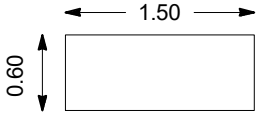
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP09**

Contract Ref:	Start: **04.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **04.03.19**	**75.04**	**E:521349.6 N:209215.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert, flint and concrete. (MADE GROUND)	(0.30) 0.30	
						Red brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert and flint. (MADE GROUND) . . . Cobbles of asphalt from 0.30m bgl.	(0.50) 0.80	
0.80	2	B				Greyish brown mottled orange brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine chalk. (LOWESTOFT FORMATION)	(1.10) 1.90	
1.50	3	B						
2.00	4	B				Yellowish grey brown very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite, flint, chert and chalk. (LOWESTOFT FORMATION)	(0.60) 2.50	
				≈		Greyish orange brown sandy subangular to subrounded fine to coarse GRAVEL of flint, chert and quartzite. (LOWESTOFT FORMATION)	(0.80) 3.30	
						Hole terminated at 3.30m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.30m bl.
3. Groundwater seepage at 3.10m bgl.
4. Gravel from 2.50m is wet.
5. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

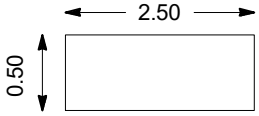
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP10**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**11.03.19**	**74.74**	**E:521351.3 N:209192.5**	**1** of **1**
	End: **11.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				Soft brown slightly sandy gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert. (TOPSOIL)	0.15	
0.70	2	D				Red brown very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert and flint with occasional clay pockets. (LOWESTOFT FORMATION)	(1.35)	
							1.50	
						Yellowish grey brown gravelly fine to coarse SAND with pockets of white grey clayey fine to coarse sand. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.70)	
							2.20	
						Hole terminated at 2.20m bgl. Soakaway carried out in base of trial pit.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 2.20m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.
5. Soakaway carried out in the base of the trial pit.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

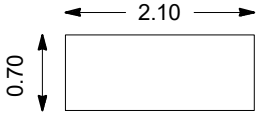
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP11**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**08.03.19** End: **08.03.19**	**74.58**	**E:521365.0 N:209172.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly gravelly slightly clayey fine to coarse SAND with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert and flint. (TOPSOIL)	(0.30) 0.30	
0.50	1	ES				Greyish brown slightly clayey sandy angular to subrounded fine to coarse GRAVEL of flint and chert. (LOWESTOFT FORMATION)	(0.60) 0.90	
1.00-1.20	2	B				Greyish yellow fine to coarse SAND and subangular subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	(0.90) 1.80	
1.90-2.20	3	B		≈		Yellowish grey brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	(1.70) 3.50	
						Hole terminated at 3.50m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to beaking ground. No services encountered.
2. Trial pit hole advanced to 3.50m bgl.
3. Groundwater seepage encountered at 3.50m bgl.
4. Material wet from 2.00m bgl.
5. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

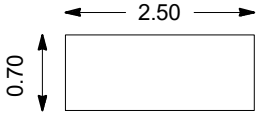
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP12**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**08.03.19** End: **08.03.19**	**74.94**	**E:521304.7 N:209157.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown silty slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert. (TOPSOIL)	(0.30) 0.30	
0.40	1	ES				Soft sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.40) 0.70	
0.80-1.00	2	B				Yellowish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.50) 1.20	
1.60-2.00	3	B				Soft to firm greyish white mottled orange brown silty CLAY. (LOWESTOFT FORMATION)	(0.80) 2.00	
						Yellowish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	(0.90) 2.90	
						Greyish brown fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)	(0.50) 3.40	
						Hole terminated at 3.40m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.40m bgl.
3. Groundwater not encountered.
4. Material wet at 3.00m bgl.
5. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

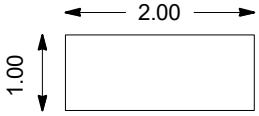
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP13**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**08.03.19** End: **08.03.19**	**74.70**	**E:521336.0 N:209115.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert. (MADE GROUND)	0.20	
						Pit terminated due to concrete obstruction.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 0.20m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

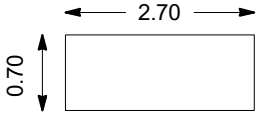
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP14**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**08.03.19** End: **08.03.19**	**75.38**	**E:521342.6 N:209087.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				Brown gravelly slightly clayey fine to coarse SAND with frequent rootlets. Gravel is angular to rounded fine to coarse concrete, brick, wood and chert. (MADE GROUND)	(0.50) 0.50	
						Brown sandy slightly clayey angular to subrounded fine to coarse GRAVEL of concrete, chert, flint, wood, brick and textile. (MADE GROUND)	(0.40) 0.90	
1.00	2	ES				Orange brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of chert and flint. (LOWESTOFT FORMATION)		
1.50	3	B					(1.40)	
						. . . Becomes grey brown from 2.20m bgl.	2.30	
2.60	4	D				Greyish brown slightly sandy clayey subangular to subrounded fine to coarse GRAVEL of flint. (LOWESTOFT FORMATION)	(0.50) 2.80	
						Yellowish brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert and flint. (LOWESTOFT FORMATION)	3.00	
						Soft grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and chert. (LOWESTOFT FORMATION)	(0.30) 3.30	
3.30	5	D				. . . Becomes very gravelly at 3.20m bgl.		
						Hole terminated at 3.30 due to pipe at base.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit hole advanced to 3.30m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

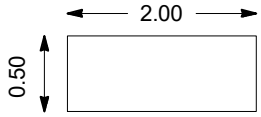
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP15**

Contract Ref:	Start: **11.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **11.03.19**	**74.61**	**E:521358.0 N:209096.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly clayey slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert. (MADE GROUND)	0.20	
						Trial pit hole terminated due to service shingle located at 0.20m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trail pit hole advanced to 0.20m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

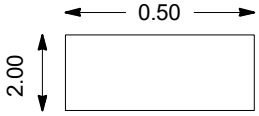
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Hatfield Plot 5100	**Baynham Meikle Partnership**	**TP15A**

Contract Ref:	Start:	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	**11.03.19**	**---**	**---**	**1** of **1**
	End: **11.03.19**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	D				Brown slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick, concrete, ceramic, flint and chert. (MADE GROUND)	(0.80) 0.80	
						Light brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse chert and flint. (MADE GROUND)	1.00	
						Trial pit terminated due to potential buried service.		

Plan (Not to Scale)



General Remarks

1. Location scanned with CAT and genny. services checked priot to digging.
2. Trial pit hole advanced to 1.00m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

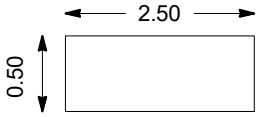
Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Hatfield Plot 5100		**Baynham Meikle Partnership**		**TP15B**
Contract Ref:	Start: **11.03.19**	Ground Level:	National Grid Co-ordinate:	Sheet:
314394	End: **11.03.19**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Soft brown silty slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse chert. (TOPSOIL)	(0.35) 0.35	
						Soft light brown slightly sandy gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chert and flint. (MADE GROUND)	(0.55) 0.90	
						Yellowish grey brown very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chert and flint. (MADE GROUND)	(1.10) 2.00	
						Hole terminated at 2.00m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with CAT and genny. services checked priot to digging.
2. Trial pit hole advanced to 2.00m bgl.
3. Groundwater not encountered.
4. Trial pit hole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**EWild**	MAS

APPENDIX J
GROUND GAS MONITORING DATA

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**-0.02**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **10:44** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
BH1	**50mm**	**1**	Pump Run Time (seconds)								**5.90**	**9.93**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	1.7	19.1	15	0				
			30	0	0	1.8	17.8	15	0				
			60	0	0	1.8	17.5	15	0				
			90	0	0	1.8	17.6	14	0				
			120	0	0	1.8	17.6	14	0				
			180	0	0	1.8	17.6	14	0				
			240	0	0	1.8	17.5	13	0				
			300	0	0	1.8	17.5	13	0				
			360										
			420										
			480										
			540										
			600										

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.20**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**10:13** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
BH1	**50mm**	**2**	Pump Run Time (seconds)								**5.87**	**9.93**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	2.0	17.5	4	0				
			30	0	0	2.3	16.0	4	0				
			60	0	0	2.2	15.7	4	0				
			90	0	0	2.2	15.8	4	0				
			120	0	0	2.2	15.8	4	0				
			180	0	0	2.2	15.8	4	0				
			240	0	0	2.2	15.8	4	0				
			300	0	0	2.2	15.8	4	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:24** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**5.85**	**9.93**	
BH1	**50mm**	**3**	0	0	0	0.1	20.9	0	0				
			15	0	0	1.7	18.5	0	0				
			30	0	0	2.0	17.0	0	0				
			60	0	0	2.0	15.9	0	0				
			90	0	0	2.0	15.9	0	0				
			120	0	0	2.0	15.9	0	0				
			180	0	0	2.0	15.9	0	0				
			240	0	0	2.0	15.9	0	0				
			300	0	0	2.0	15.9	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.00**			
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **7:14** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
BH1	**50mm**	**4**	Pump Run Time (seconds)								**5.87**	**9.93**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	1.5	19.5	11	0					
			30	0	0	1.5	17.7	11	0					
			60	0	0	1.6	16.9	11	0					
			90	0	0	1.6	16.1	9	0					
			120	0	0	1.7	16.1	9	0					
			180	0	0	1.7	16.1	9	0					
			240	0	0	1.7	16.1	8	0					
			300	0	0	1.7	16.1	8	0					
			360											
			420											
			480											
			540											
			600											

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.11**	Ground Conditions: **WET**	Wind: **STRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure	**992**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.03**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **10:15** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
BH3	**50mm**	**1**	Pump Run Time (seconds)								**5.87**	**9.54**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.8	19.8	39	0					
			30	0	0	0.7	19.4	37	0					
			60	0	0	0.5	19.7	25	0					
			90	0	0	0.4	19.9	20	0					
			120	0	0	0.4	20.1	15	0					
			180	0	0	0.4	20.2	12	0					
			240	0	0	0.3	20.4	11	0					
			300	0	0	0.3	20.3	9	0					
			360											
			420											
			480											
			540											
			600											

Date of	Compiled By:	Checked By:	Page:
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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.11**	Ground Conditions: **DRY**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure	**1019**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **9:45** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**5.89**	**9.54**		
BH3	**50mm**	**2**	0	0	0	0.1	20.9	0	0					
			15	0	0	0.2	20.6	0	0					
			30	0	0	0.2	20.6	0	0					
			60	0	0	0.2	20.6	0	0					
			90	0	0	0.1	20.7	0	0					
			120	0	0	0.1	20.7	0	0					
			180	0	0	0.1	20.7	0	0					
			240	0	0	0.1	20.7	0	0					
			300	0	0	0.1	20.7	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.11**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure	**1031**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.01**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:00** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
BH3	**50mm**	**3**	Pump Run Time (seconds)								**5.87**	**9.54**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.1	20.7	0	0				
			30	0	0	0.1	20.7	0	0				
			60	0	0	0.2	20.7	0	0				
			90	0	0	0.2	20.7	0	0				
			120	0	0	0.1	20.7	0	0				
			180	0	0	0.1	20.7	0	0				
			240	0	0	0.1	20.7	0	0				
			300	0	0	0.1	20.7	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.11**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **6:50** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**5.85**	**9.54**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.7	19.7	0	0					
			30	0	0	0.5	19.4	0	0					
			60	0	0	0.5	19.7	0	0					
			90	0	0	0.4	19.9	0	0					
			120	0	0	0.4	20.2	0	0					
BH3	**50mm**	**4**	180	0	0	0.3	20.2	0	0					
			240	0	0	0.3	20.3	0	0					
			300	0	0	0.3	20.3	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.10**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.22**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **10:53** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**6.25**	**8.75**	
BH5	**50mm**	**1**	0	0	0	0.1	20.9	0	0				
			15	0	0	1.5	17.7	0	0				
			30	0	0	1.7	15.8	0	0				
			60	0	0	1.7	15.2	0	0				
			90	0	0	1.7	15.1	0	0				
			120	0	0	1.7	15.1	0	0				
			180	0	0	1.7	15.0	0	0				
			240	0	0	1.7	15.0	0	0				
			300	0	0	1.7	15.0	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.10**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.05**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**10:21** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
BH5	**50mm**	**2**	Pump Run Time (seconds)								**6.21**	**8.75**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.3	20.0	0	0					
			30	0	0	0.5	19.5	0	0					
			60	0	0	0.5	19.4	0	0					
			90	0	0	0.5	19.4	0	0					
			120	0	0	0.5	19.4	0	0					
			180	0	0	0.5	19.4	0	0					
			240	0	0	0.5	19.4	0	0					
			300	0	0	0.5	19.4	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.10**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.03**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:35** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**6.19**	**8.75**	
BH5	**50mm**	**3**	0	0	0	0.1	20.9	0	0				
			15	0	0	0.2	20.1	0	0				
			30	0	0	0.4	19.7	0	0				
			60	0	0	0.4	19.5	0	0				
			90	0	0	0.4	19.5	0	0				
			120	0	0	0.4	19.5	0	0				
			180	0	0	0.4	19.5	0	0				
			240	0	0	0.4	19.5	0	0				
			300	0	0	0.4	19.5	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.10**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**		Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **7:22** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
BH5	**50mm**	**4**	Pump Run Time (seconds)								**6.21**	**8.75**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.7	19.3	0	0					
			30	0	0	0.7	19.3	0	0					
			60	0	0	0.7	19.3	0	0					
			90	0	0	0.7	19.3	0	0					
			120	0	0	0.7	19.3	0	0					
			180	0	0	0.7	19.3	0	0					
			240	0	0	0.7	19.3	0	0					
			300	0	0	0.7	19.3	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - S**UNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.19**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**-0.05**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **11:41** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**6.21**	**11.20**	
BH08	**50mm**	**1**	0	0	0	0.1	20.9	0	0				
			15	0	0	0.1	20.8	4	0				
			30	0	0	0.1	20.5	5	0				
			60	0	0	0.1	20.5	5	0				
			90	0	0	0.1	20.5	5	0				
			120	0	0	0.1	20.4	5	0				
			180	0	0	0.1	20.4	5	0				
			240	0	0	0.1	20.4	5	0				
			300	0	0	0.1	20.4	5	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.19**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**10:53** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
BH08	**50mm**	**2**	Pump Run Time (seconds)								**6.2**	**11.2**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.2	20.3	4	0				
			30	0	0	0.2	20.1	4	0				
			60	0	0	0.2	20.1	4	0				
			90	0	0	0.2	20.5	4	0				
			120	0	0	0.2	20.5	4	0				
			180	0	0	0.2	20.5	4	0				
			240	0	0	0.2	20.5	4	0				
			300	0	0	0.2	20.7	4	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING	Site Conditions/Weather - **CLOUDY**			Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.19**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.02**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **10:11** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
BH08	**50mm**	**3**	Pump Run Time (seconds)								**6.17**	**11.2**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.2	20.5	0	0				
			30	0	0	0.2	20.3	0	0				
			60	0	0	0.2	20.2	0	0				
			90	0	0	0.2	20.4	0	0				
			120	0	0	0.2	20.5	0	0				
			180	0	0	0.2	20.5	0	0				
			240	0	0	0.2	20.5	0	0				
			300	0	0	0.2	20.5	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.19**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**-0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**7:54** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
BH08	**50mm**	**4**	Pump Run Time (seconds)								**6.20**	**11.20**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.2	20.5	0	0					
			30	0	0	0.2	20.5	0	0					
			60	0	0	0.2	20.5	0	0					
			90	0	0	0.2	20.5	0	0					
			120	0	0	0.2	20.5	0	0					
			180	0	0	0.2	20.5	0	0					
			240	0	0	0.2	20.5	0	0					
			300	0	0	0.2	20.5	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **WET**	Wind: **STRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.03**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **10:31** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS1	**50mm**	**1**	Pump Run Time (seconds)								**DRY**	**2.15**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.2	20.9	0	0				
			30	0	0	0.3	20.7	0	0				
			60	0	0	0.5	20.2	0	0				
			90	0	0	0.8	19.7	0	0				
			120	0	0	1.3	18.5	0	0				
			180	0	0	2.0	17.2	0	0				
			240	0	0	3.1	14.7	0	0				
			300	0	0	3.5	14.1	0	0				
			360	0	0	3.4	14.0	0	0				
			420	0	0	3.5	14.0	0	0				
			480	0	0	3.5	13.9	0	0				
			540	0	0	3.5	14.0	0	0				
			600	0	0	3.5	14.0	0	0				

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**1 0:01** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
WS1	**50mm**	**2**	Pump Run Time (seconds)								**DRY**	**2.15**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.1	20.8	0	0					
			30	0	0	0.1	20.7	0	0					
			60	0	0	0.2	20.5	0	0					
			90	0	0	0.5	19.9	0	0					
			120	0	0	1.3	18.5	0	0					
			180	0	0	2.0	17.0	0	0					
			240	0	0	2.5	16.3	0	0					
			300	0	0	2.5	16.0	0	0					
			360	0	0	2.5	15.7	0	0					
			420	0	0	2.5	15.7	0	0					
			480	0	0	2.5	15.9	0	0					
			540	0	0	2.5	15.9	0	0					
			600	0	0	2.5	15.8	0	0					

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.02**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **9:16** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**DRY**	**2.15**	
WS1	**50mm**	**3**	0	0	0	0.1	20.9	0	0				
			15	0	0	1.1	19.9	0	0				
			30	0	0	2.0	18.0	0	0				
			60	0	0	2.2	16.2	0	0				
			90	0	0	2.2	15.9	0	0				
			120	0	0	2.2	15.9	0	0				
			180	0	0	2.2	15.9	0	0				
			240	0	0	2.2	15.9	0	0				
			300	0	0	2.2	15.9	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**		Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **7:06** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
WS1	**50mm**	**4**	Pump Run Time (seconds)								**DRY**	**2.15**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.3	20.1	0	0					
			30	0	0	0.5	19.0	0	0					
			60	0	0	0.9	18.3	0	0					
			90	0	0	0.9	17.9	0	0					
			120	0	0	1.1	17.9	0	0					
			180	0	0	1.1	17.9	0	0					
			240	0	0	1.1	17.9	0	0					
			300	0	0	1.1	17.9	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method: SOME PLASTIC OBSTRUCTION AT 1.27M
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **WET**	Wind: **STRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.07**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **10:23** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS2	**50mm**	**1**	Pump Run Time (seconds)								**DRY**	**1.27**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.4	20.6	0	0				
			30	0	0	0.5	20.4	0	0				
			60	0	0	0.6	20.4	0	0				
			90	0	0	0.6	20.5	0	0				
			120	0	0	0.6	20.6	0	0				
			180	0	0	0.6	20.5	0	0				
			240	0	0	0.6	20.6	0	0				
			300	0	0	0.6	20.5	0	0				
			360										
			420										
			480										
			540										
			600										

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.07**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:53** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS2	**50mm**	**2**	Pump Run Time (seconds)								**DRY**	**1.27**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.3	20.1	0	0				
			30	0	0	0.7	19.7	0	0				
			60	0	0	0.9	19.0	0	0				
			90	0	0	0.9	18.7	0	0				
			120	0	0	0.9	18.7	0	0				
			180	0	0	0.9	18.8	0	0				
			240	0	0	0.9	18.8	0	0				
			300	0	0	0.9	18.9	0	0				
			360										
			420										
			480										
			540										
			600										

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.02**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:08** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
WS2	**50mm**	**3**	Pump Run Time (seconds)								**DRY**	**1.27**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.2	20.0	0	0					
			30	0	0	0.5	19.1	0	0					
			60	0	0	0.7	18.7	0	0					
			90	0	0	0.7	18.7	0	0					
			120	0	0	0.7	18.9	0	0					
			180	0	0	0.7	18.9	0	0					
			240	0	0	0.7	18.9	0	0					
			300	0	0	0.7	18.9	0	0					
			360											
			420											
			480											
			540											
			600											

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.17**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.03**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **6:58** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
WS2	**50mm**	**4**	Pump Run Time (seconds)								**DRY**	**1.27**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.4	20.5	0	0					
			30	0	0	0.5	20.5	0	0					
			60	0	0	0.5	20.5	0	0					
			90	0	0	0.5	20.5	0	0					
			120	0	0	0.5	20.5	0	0					
			180	0	0	0.5	20.5	0	0					
			240	0	0	0.5	20.5	0	0					
			300	0	0	0.5	20.5	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **RAIN**		Samples taken / Sampling method: SOME OBSTRUCTION AT 1.18M
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.18**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **11:02** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS3	**50mm**	**1**	Pump Run Time (seconds)								**DRY**	**1.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.2	20.9	0	0				
			30	0	0	0.3	20.9	0	0				
			60	0	0	0.3	20.9	0	0				
			90	0	0	0.4	20.8	0	0				
			120	0	0	0.4	20.8	0	0				
			180	0	0	0.4	20.8	0	0				
			240	0	0	0.4	20.7	0	0				
			300	0	0	0.4	20.7	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.18**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.20**		Differential Pressure (mbar)		**0.05**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**1 0:30** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS3	**50mm**	**2**	Pump Run Time (seconds)								**DRY**	**1.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.5	20.5	0	0				
			30	0	0	0.5	20.1	0	0				
			60	0	0	0.6	19.8	0	0				
			90	0	0	0.6	19.7	0	0				
			120	0	0	0.6	19.7	0	0				
			180	0	0	0.6	19.7	0	0				
			240	0	0	0.6	19.7	0	0				
			300	0	0	0.6	19.7	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.18**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.02**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:45** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS3	**50mm**	**3**	Pump Run Time (seconds)								**DRY**	**1.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.3	20.3	0	0				
			30	0	0	0.4	19.9	0	0				
			60	0	0	0.5	19.9	0	0				
			90	0	0	0.5	19.9	0	0				
			120	0	0	0.5	19.9	0	0				
			180	0	0	0.5	19.9	0	0				
			240	0	0	0.5	19.9	0	0				
			300	0	0	0.5	19.9	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.18**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **7:30** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS3	**50mm**	**4**	Pump Run Time (seconds)								**DRY**	**1.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.5	20.5	0	0				
			30	0	0	0.5	20.0	0	0				
			60	0	0	0.5	19.9	0	0				
			90	0	0	0.5	19.9	0	0				
			120	0	0	0.5	19.9	0	0				
			180	0	0	0.5	19.9	0	0				
			240	0	0	0.5	19.9	0	0				
			300	0	0	0.5	19.9	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - S**UNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**0.00**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **11:49** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS04	**50mm**	**1**	Pump Run Time (seconds)								**1.89**	**3.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.1	20.7	0	0				
			30	0	0	0.1	20.7	0	0				
			60	0	0	0.1	20.7	0	0				
			90	0	0	0.1	20.7	0	0				
			120	0	0	0.1	20.7	0	0				
			180	0	0	0.2	20.6	0	0				
			240	0	0	0.2	20.6	0	0				
			300	0	0	0.3	20.5	0	0				
			360										
			420										
			480										
			540										
			600										

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GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **11:00** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS04	**50mm**	**2**	Pump Run Time (seconds)								**1.87**	**3.18**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	0.4	20.4	1	0				
			30	0	0	0.7	19.7	1	0				
			60	0	0	0.7	19.5	1	0				
			90	0	0	0.7	19.2	1	0				
			120	0	0	0.8	19.0	1	0				
			180	0	0	0.9	18.5	1	0				
			240	0	0	1.1	18.0	1	0				
			300	0	0	1.1	17.6	1	0				
			360	0	0	1.1	17.7	1	0				
			420	0	0	1.1	17.7	1	0				
			480	0	0	1.1	17.7	1	0				
			540	0	0	1.1	17.7	1	0				
			600	0	0	1.1	17.7	1	0				

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STRUCTURAL SOILS LTD

RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING	Site Conditions/Weather - **CLOUDY**			Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **1 0:20** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**1.85**	**3.18**		
WS04	**50mm**	**3**	0	0	0	0.1	20.9	0	0					
			15	0	0	0.3	20.2	0	0					
			30	0	0	0.5	19.5	0	0					
			60	0	0	0.9	18.7	0	0					
			90	0	0	0.9	17.9	0	0					
			120	0	0	0.9	17.9	0	0					
			180	0	0	0.9	17.9	0	0					
			240	0	0	0.9	17.9	0	0					
			300	0	0	0.9	17.9	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING	Site Conditions/Weather - **SUNNY**			Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.15**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**8:01** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**1.88**	**3.18**		
WS04	**50mm**	**4**	0	0	0	0.1	20.9	0	0					
			15	0	0	0.3	20.1	0	0					
			30	0	0	0.5	19.1	0	0					
			60	0	0	0.7	18.5	0	0					
			90	0	0	0.7	17.9	0	0					
			120	0	0	0.7	17.9	0	0					
			180	0	0	0.7	17.9	0	0					
			240	0	0	0.8	17.9	0	0					
			300	0	0	0.8	17.9	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - S**UNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.14**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**-0.07**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **11:11** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS5	**50mm**	**1**	Pump Run Time (seconds)								**DRY**	**1.26**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	1.3	17.0	0	0				
			30	0	0	1.5	15.9	0	0				
			60	0	0	1.7	15.0	0	0				
			90	0	0	2.2	14.4	0	0				
			120	0	0	2.5	13.7	0	0				
			180	0	0	2.7	13.5	0	0				
			240	0	0	2.9	13.3	0	0				
			300	0	0	3.1	13.0	0	0				
			360	0	0	3.2	13.0	0	0				
			420	0	0	3.2	13.0	0	0				
			480	0	0	3.3	12.9	0	0				
			540	0	0	3.3	12.9	0	0				
			600	0	0	3.3	12.9	0	0				

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.14**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**-0.02**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**10:38** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**DRY**	**1.26**	
WS5	**50mm**	**2**	0	0	0	0.1	20.9	0	0				
			15	0	0	0.1	20.9	0	0				
			30	0	0	0.2	20.7	0	0				
			60	0	0	0.3	20.5	0	0				
			90	0	0	2.5	17.0	0	0				
			120	0	0	4.7	13.3	0	0				
			180	0	0	4.9	12.9	0	0				
			240	0	0	5.0	12.8	0	0				
			300	0	0	5.0	12.8	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.14**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.00**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **9:54** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS5	**50mm**	**3**	Pump Run Time (seconds)								**DRY**	**1.26**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	1.0	19.7	0	0				
			30	0	0	2.5	17.5	0	0				
			60	0	0	3.5	15.1	0	0				
			90	0	0	4.9	14.2	0	0				
			120	0	0	4.9	13.9	0	0				
			180	0	0	4.9	13.7	0	0				
			240	0	0	4.9	13.5	0	0				
			300	0	0	4.9	13.5	0	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.14**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.00**		Steady Gas Flow (l/hr)		**0.00**		Differential Pressure (mbar)		**-0.03**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**7:38** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
WS5	**50mm**	**4**	Pump Run Time (seconds)								**DRY**	**1.26**		
			0	0	0	0.1	20.9	0	0					
			15	0	0	0.9	20.0	0	0					
			30	0	0	2.2	18.9	0	0					
			60	0	0	3.5	17.1	0	0					
			90	0	0	4.0	15.9	0	0					
			120	0	0	4.0	14.0	0	0					
			180	0	0	4.0	13.9	0	0					
			240	0	0	4.0	13.9	0	0					
			300	0	0	4.0	13.9	0	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.21**	Ground Conditions: **WET**	Wind: S**TRONG** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**992**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.03**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring **11:29** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
			Pump Run Time (seconds)								**1.07**	**2.80**	
WS6	**50mm**	**1**	0	0	0	0.1	20.9	0	0				
			15	0	0	0.1	19.4	8	0				
			30	0	0	0.0	17.0	9	0				
			60	0	0	0.0	15.7	11	0				
			90	0	0	0.0	15.3	11	0				
			120	0	0	0.0	15.4	9	0				
			180	0	0	0.0	15.5	9	0				
			240	0	0	0.0	15.5	9	0				
			300	0	0	0.0	15.4	9	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **CLOUDY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.21**	Ground Conditions: **DRY**	Wind:**MEDIUM** None / Light Medium / Strong	Air Temperature: **7C**

Atmospheric Pressure (mbar)	**1019**		Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.20**		Differential Pressure (mbar)		**0.14**	
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**10:45** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)	
WS6	**50mm**	**2**	Pump Run Time (seconds)								**1.05**	**2.8**	
			0	0	0	0.1	20.9	0	0				
			15	0	0	1.7	19.0	12	0				
			30	0	0	2.1	17.0	8	0				
			60	0	0	2.7	15.7	4	0				
			90	0	0	2.7	15.4	4	0				
			120	0	0	2.8	15.4	3	0				
			180	0	0	2.9	15.4	2	0				
			240	0	0	3.1	15.4	1	0				
			300	0	0	3.1	15.4	1	0				
			360										
			420										
			480										
			540										
			600										

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING	Site Conditions/Weather - **CLOUDY**			Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.21**	Ground Conditions: **DAMP/ WET**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature: **4C**

Atmospheric Pressure (mbar)	**1031**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.07**		
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring: **1 0:03** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**1.02**	**2.8**		
WS6	**50mm**	**3**	0	0	0	0.1	20.9	0	0					
			15	0	0	1.3	19.3	9	0					
			30	0	0	2.0	17.1	7	0					
			60	0	0	2.9	15.5	5	0					
			90	0	0	2.9	15.7	3	0					
			120	0	0	2.9	15.7	1	0					
			180	0	0	2.9	15.7	1	0					
			240	0	0	2.9	15.7	1	0					
			300	0	0	2.9	15.7	1	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

GAS MONITORING RESULTS

Client Organisation:	**RSK ENVIRONMENT**	**Site Name**	**HATFIELD PLOT 5100**
Project Manager:	**MICHAEL LAWSON**	**Project/ Reference Number:**	**314394**

Pre-Testing Remarks: Pressure (ring as appropriate): RISING CONSTANT FALLING		Site Conditions/Weather - **SUNNY**		Samples taken / Sampling method:
Measurement datum: **TOC** (ring as appropriate) GL / Top of pipe / Other	Offset to GL (m): **-0.21**	Ground Conditions: **DAMP**	Wind: **MEDIUM** None / Light Medium / Strong	Air Temperature:**2C**

Atmospheric Pressure (mbar)	**999**	Initial Gas Flow (l/hr)	**0.10**		Steady Gas Flow (l/hr)		**0.10**		Differential Pressure (mbar)		**0.03**			
Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring:**7:46** (hh:mm:ss)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	VOC (PID) (ppm)	Depth to water (m)	Depth to well base (m)		
			Pump Run Time (seconds)								**1.05**	**2.80**		
WS6	**50mm**	**4**	0	0	0	0.1	20.9	0	0					
			15	0	0	1.5	19.1	9	6					
			30	0	0	2.0	17.5	8	0					
			60	0	0	2.5	15.9	7	0					
			90	0	0	2.5	15.9	5	0					
			120	0	0	2.5	15.9	3	0					
			180	0	0	2.5	15.9	1	0					
			240	0	0	2.5	15.9	1	0					
			300	0	0	2.5	15.9	1	0					
			360											
			420											
			480											
			540											
			600											

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RSK Technical Support Services

APPENDIX K
LABORATORY CERTIFICATES FOR SOIL ANALYSIS

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/02592
Issue Number: 1 **Date:** 01 April, 2019

Client:
RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Michael Lawson
Project Name: Hatfield Plot 5100
Project Ref: 314394
Order No: N/A
Date Samples Received: 18/03/19
Date Instructions Received: 18/03/19
Date Analysis Completed: 01/04/19

Prepared by:

Elisha Hartley
Admin Assistant

Approved by:

Iain Haslock
Analytical Consultant

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/1	19/02592/2	19/02592/4	19/02592/6	19/02592/7	19/02592/8	19/02592/10	19/02592/12	Units	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05		
Depth to Top	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5		
Depth To Bottom										
Date Sampled	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	04-Mar-19	03-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE	4AE	6A		
% Stones >10mm$_A$	27.4	18.1	8.0	28.1	16.6	18.9	<0.1	<0.1	% w/w	A-T-044
Asbestos in soil (+concrete, ballast, rocks and aggregates)$_A^{\#}$	NAD	-	-	NAD	-	NAD	-	NAD		Subcon DETS
pH$_D^{M\#}$	8.47	-	-	8.15	-	8.40	-	7.96	pH	A-T-031s
pH BRE$_D^{M\#}$	-	7.79	7.48	-	7.72	-	7.67	-	pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	<10	<10	-	27	-	<10	-	mg/l	A-T-026s
Total Organic Carbon$_D^{M\#}$	0.17	-	-	0.16	-	1.17	-	0.46	% w/w	A-T-032s
Arsenic$_D^{M\#}$	7	-	-	24	-	6	-	4	mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0	-	-	<1.0	-	<1.0	-	<1.0	mg/kg	A-T-027s
Cadmium$_D^{M\#}$	<0.5	-	-	0.6	-	0.6	-	0.5	mg/kg	A-T-024s
Copper$_D^{M\#}$	7	-	-	6	-	19	-	5	mg/kg	A-T-024s
Chromium$_D^{M\#}$	23	-	-	19	-	17	-	27	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-040s
Lead$_D^{M\#}$	16	-	-	12	-	61	-	13	mg/kg	A-T-024s
Mercury$_D$	<0.17	-	-	<0.17	-	0.27	-	<0.17	mg/kg	A-T-024s
Nickel$_D^{M\#}$	12	-	-	25	-	11	-	16	mg/kg	A-T-024s
Selenium$_D^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-024s
Zinc$_D^{M\#}$	41	-	-	70	-	76	-	44	mg/kg	A-T-024s
Leachate Prep BS EN 12457-1 (2:1) (1 no)$_A$	*	-	-	*	-	-	-	*		A-T-001
Arsenic (leachable)$_A^{\#}$	4	-	-	<1	-	-	-	1	µg/l	A-T-025w
Boron (leachable)$_A^{\#}$	52	-	-	<10	-	-	-	16	µg/l	A-T-025w
Cadmium (leachable)$_A^{\#}$	<1	-	-	<1	-	-	-	<1	µg/l	A-T-025w
Copper (leachable)$_A^{\#}$	9	-	-	4	-	-	-	4	µg/l	A-T-025w
Chromium (leachable)$_A^{\#}$	2	-	-	<1	-	-	-	2	µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	<0.05	-	-	<0.05	-	-	-	<0.05	mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	12	-	-	<1	-	-	-	2	µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	<0.1	-	-	<0.1	-	-	-	<0.1	µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	2	-	-	<1	-	-	-	2	µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	<1	-	-	<1	-	-	-	2	µg/l	A-T-025w
Zinc (leachable)$_A^{\#}$	18	-	-	4	-	-	-	24	µg/l	A-T-025w

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/1	19/02592/2	19/02592/4	19/02592/6	19/02592/7	19/02592/8	19/02592/10	19/02592/12	Units	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05		
Depth to Top	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5		
Depth To Bottom										
Date Sampled	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	04-Mar-19	03-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE	4AE	6A		
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	-	-	<0.01	-	0.04	-	<0.01	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	0.02	-	-	<0.02	-	0.12	-	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.12	-	-	<0.04	-	0.69	-	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.12	-	-	<0.04	-	0.62	-	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.15	-	-	<0.05	-	0.76	-	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.10	-	-	<0.05	-	0.39	-	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	-	-	<0.07	-	0.31	-	<0.07	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	0.12	-	-	<0.06	-	0.69	-	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	-	-	<0.04	-	0.09	-	<0.04	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	0.21	-	-	<0.08	-	1.34	-	<0.08	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	-	-	<0.01	-	0.03	-	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.12	-	-	<0.03	-	0.49	-	<0.03	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	-	-	<0.03	-	<0.03	-	<0.03	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	0.10	-	-	<0.03	-	0.59	-	<0.03	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	0.19	-	-	<0.07	-	1.16	-	<0.07	mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	1.25	-	-	<0.08	-	7.32	-	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/1	19/02592/2	19/02592/4	19/02592/6	19/02592/7	19/02592/8	19/02592/10	19/02592/12	Units	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05		
Depth to Top	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5		
Depth To Bottom										
Date Sampled	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	07-Mar-19	04-Mar-19	03-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE	4AE	6A		
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
Ali >C8-C10$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Ali >C21-C35$_A$	6	-	-	<1	-	10	-	<1	mg/kg	A-T-055s
Total Aliphatics$_A$	6	-	-	<1	-	10	-	<1	mg/kg	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
Aro >C8-C10$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Aro >C10-C12$_A^{M\#}$	<1	-	-	<1	-	<1	-	<1	mg/kg	A-T-055s
Aro >C12-C16$_A$	<1	-	-	<1	-	2	-	<1	mg/kg	A-T-055s
Aro >C16-C21$_A^{M\#}$	2	-	-	<1	-	6	-	<1	mg/kg	A-T-055s
Aro >C21-C35$_A^{M\#}$	7	-	-	2	-	33	-	1	mg/kg	A-T-055s
Total Aromatics$_A$	9	-	-	2	-	41	-	1	mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	15	-	-	2	-	52	-	1	mg/kg	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	-	-	<0.01	-	<0.01	-	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/13	19/02592/14	19/02592/17	19/02592/18	19/02592/19	19/02592/20	19/02592/21	19/02592/24	Units	Method ref
Client Sample No										
Client Sample ID	TP06	TP08	TP11	TP12	TP14	TP14	TP15a	TP10		
Depth to Top	0.15	0.2	0.5	0.4	0.5	1	0.5	0.7		
Depth To Bottom										
Date Sampled	11-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	11-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	6AE	6AE	6AE	6AE	6AE	6AE		
% Stones >10mm$_A$	7.1	6.5	20.4	22.1	4.7	43.0	18.5	17.2	% w/w	A-T-044
Asbestos in soil (+concrete, ballast, rocks and aggregates)$_A^{\#}$	NAD	NAD	NAD	-	NAD	-	-	-		Subcon DETS
pH$_D^{M\#}$	7.24	7.34	7.49	-	7.62	-	-	-	pH	A-T-031s
pH BRE$_D^{M\#}$	-	-	7.49	7.42	-	7.72	7.58	7.74	pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	-	<10	<10	-	35	174	<10	mg/l	A-T-026s
Total Organic Carbon$_D^{M\#}$	2.07	1.75	0.31	-	1.41	-	-	-	% w/w	A-T-032s
Arsenic$_D^{M\#}$	5	5	2	-	5	-	-	-	mg/kg	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0	<1.0	<1.0	-	<1.0	-	-	-	mg/kg	A-T-027s
Cadmium$_D^{M\#}$	0.6	0.6	<0.5	-	<0.5	-	-	-	mg/kg	A-T-024s
Copper$_D^{M\#}$	13	20	6	-	16	-	-	-	mg/kg	A-T-024s
Chromium$_D^{M\#}$	20	19	19	-	18	-	-	-	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-040s
Lead$_D^{M\#}$	50	64	18	-	44	-	-	-	mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	-	<0.17	-	-	-	mg/kg	A-T-024s
Nickel$_D^{M\#}$	13	12	10	-	13	-	-	-	mg/kg	A-T-024s
Selenium$_D^{M\#}$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-024s
Zinc$_D^{M\#}$	55	56	29	-	51	-	-	-	mg/kg	A-T-024s
Leachate Prep BS EN 12457-1 (2:1) (1 no)$_A$	-	-	*	-	*	-	-	-		A-T-001
Arsenic (leachable)$_A^{\#}$	-	-	1	-	<1	-	-	-	µg/l	A-T-025w
Boron (leachable)$_A^{\#}$	-	-	15	-	54	-	-	-	µg/l	A-T-025w
Cadmium (leachable)$_A^{\#}$	-	-	<1	-	<1	-	-	-	µg/l	A-T-025w
Copper (leachable)$_A^{\#}$	-	-	5	-	5	-	-	-	µg/l	A-T-025w
Chromium (leachable)$_A^{\#}$	-	-	1	-	1	-	-	-	µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	-	-	<0.05	-	<0.05	-	-	-	mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	-	-	4	-	<1	-	-	-	µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	-	-	<0.1	-	<0.1	-	-	-	µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	-	-	2	-	1	-	-	-	µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	-	-	<1	-	<1	-	-	-	µg/l	A-T-025w
Zinc (leachable)$_A^{\#}$	-	-	12	-	4	-	-	-	µg/l	A-T-025w

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/13	19/02592/14	19/02592/17	19/02592/18	19/02592/19	19/02592/20	19/02592/21	19/02592/24	Units	Method ref
Client Sample No										
Client Sample ID	TP06	TP08	TP11	TP12	TP14	TP14	TP15a	TP10		
Depth to Top	0.15	0.2	0.5	0.4	0.5	1	0.5	0.7		
Depth To Bottom										
Date Sampled	11-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	11-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	6AE	6AE	6AE	6AE	6AE	6AE		
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	0.14	<0.01	-	<0.01	-	-	-	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	0.02	<0.01	-	<0.01	-	-	-	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	0.32	<0.02	-	<0.02	-	-	-	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.08	0.78	<0.04	-	0.17	-	-	-	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.07	0.67	<0.04	-	0.15	-	-	-	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.10	0.79	<0.05	-	0.21	-	-	-	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	0.38	<0.05	-	0.10	-	-	-	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	0.35	<0.07	-	0.09	-	-	-	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	0.09	0.78	<0.06	-	0.17	-	-	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	0.08	<0.04	-	<0.04	-	-	-	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	0.17	1.81	<0.08	-	0.26	-	-	-	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	0.10	<0.01	-	<0.01	-	-	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.06	0.44	<0.03	-	0.14	-	-	-	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	-	<0.03	-	-	-	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	0.08	1.27	0.04	-	0.10	-	-	-	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	0.16	1.54	<0.07	-	0.24	-	-	-	mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	0.81	9.47	<0.08	-	1.63	-	-	-	mg/kg	A-T-019s

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/13	19/02592/14	19/02592/17	19/02592/18	19/02592/19	19/02592/20	19/02592/21	19/02592/24	Units	Method ref
Client Sample No										
Client Sample ID	TP06	TP08	TP11	TP12	TP14	TP14	TP15a	TP10		
Depth to Top	0.15	0.2	0.5	0.4	0.5	1	0.5	0.7		
Depth To Bottom										
Date Sampled	11-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	08-Mar-19	11-Mar-19	11-Mar-19		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	4AE	4AE	6AE	6AE	6AE	6AE	6AE	6AE		
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
Ali >C8-C10$_A^{M\#}$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	6	<1	-	<1	-	-	-	mg/kg	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	6	<1	-	1	-	-	-	mg/kg	A-T-055s
Ali >C21-C35$_A$	6	10	<1	-	11	-	-	-	mg/kg	A-T-055s
Total Aliphatics$_A$	6	21	<1	-	12	-	-	-	mg/kg	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
Aro >C8-C10$_A^{M\#}$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-055s
Aro >C10-C12$_A^{M\#}$	<1	<1	<1	-	<1	-	-	-	mg/kg	A-T-055s
Aro >C12-C16$_A$	1	41	<1	-	1	-	-	-	mg/kg	A-T-055s
Aro >C16-C21$_A^{M\#}$	5	309	<1	-	2	-	-	-	mg/kg	A-T-055s
Aro >C21-C35$_A^{M\#}$	22	539	2	-	16	-	-	-	mg/kg	A-T-055s
Total Aromatics$_A$	28	889	2	-	19	-	-	-	mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	32	910	2	-	32	-	-	-	mg/kg	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	-	-	mg/kg	A-T-022s

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/25	19/02592/26	19/02592/27	19/02592/28	19/02592/29	19/02592/30	19/02592/31	19/02592/32	Units	Method ref
Client Sample No										
Client Sample ID	TP14	TP14	BH06	BH03a	BH02	BH04	BH04	BH08		
Depth to Top	2.6	3.3	8	3.5	5.5	2.5	3	6.3		
Depth To Bottom			8.10	3.60	5.95	2.60	3.45			
Date Sampled	08-Mar-19	08-Mar-19	08-Mar-19		05-Mar-19	06-Mar-19	06-Mar-19			
Sample Type	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Solid		
Sample Matrix Code	6AE	6AE	7	6	6	7	6AE	7		
% Stones >10mm$_A$	17.6	46.2	<0.1	<0.1	<0.1	<0.1	33.4	<0.1	% w/w	A-T-044
pH BRE$_D$$^{M\#}$	7.84	7.93	8.73	7.48	7.45	8.44	8.27	8.73	pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	103	20	335	678	12	11	16	mg/l	A-T-026s

Envirolab Job Number: 19/02592

Client Project Name: Hatfield Plot 5100

Client Project Ref: 314394

Lab Sample ID	19/02592/33								Units	Method ref
Client Sample No										
Client Sample ID	BH08									
Depth to Top	8									
Depth To Bottom										
Date Sampled										
Sample Type	Solid									
Sample Matrix Code	7									
% Stones >10mm$_A$	<0.1								% w/w	A-T-044
pH BRE$_D$$^{M\#}$	8.50								pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	18								mg/l	A-T-026s

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.

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 Coventry, Humber Road, Abbey Park, Coventry, UK, CV3 4AQ

Project: Hatfield Plot 5100

Clients Project No: 314394

Project No: 19/02592

Date Received: 18/03/2019 (am)

Cool Box Temperatures (oC): 10.9, 10.9, 10.6, 10.8

Lab Sample ID	19/02592/1	19/02592/6	19/02592/8	19/02592/12	19/02592/13	19/02592/14	19/02592/17	19/02592/19	19/02592/28	19/02592/32	19/02592/33
Client Sample No											
Client Sample ID/Depth	WS01 0.5m	WS05 0.5m	TP01 0.3m	TP05 0.5m	TP06 0.15m	TP08 0.2m	TP11 0.5m	TP14 0.5m	BH03a 3.5-3.60m	BH08 6.3m	BH08 8m
Date Sampled	07/03/19	07/03/19	04/03/19	11/03/19	11/03/19	08/03/19	08/03/19	08/03/19			
Deviation Code											
E (no date)									✓	✓	✓
F	✓	✓	✓	✓	✓	✓	✓	✓			

Key

E (no date) ***No sampling date provided (all results affected if not provided)***

F ***Maximum holding time exceeded between sampling date and analysis for analytes listed below***

HOLDING TIME EXCEEDANCES

Lab Sample ID	19/02592/1	19/02592/6	19/02592/8	19/02592/12	19/02592/13	19/02592/14	19/02592/17	19/02592/19
Client Sample No								
Client Sample ID/Depth	WS01 0.5m	WS05 0.5m	TP01 0.3m	TP05 0.5m	TP06 0.15m	TP08 0.2m	TP11 0.5m	TP14 0.5m
Date Sampled	07/03/19	07/03/19	04/03/19	11/03/19	11/03/19	08/03/19	08/03/19	08/03/19
VPHCWG	✓	✓	✓	✓	✓	✓	✓	✓
PAH-16MS			✓					
PAH (total 17)			✓					
BTEX (total)			✓			✓		

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.

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

Final Test Report

Envirolab Job Number:	19/02592		
Issue Number:	1	Date:	1-Apr-19

Client: RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager:	Michael Lawson
Project Name:	Hatfield Plot 5100
Project Ref:	314394
Order No:	N/A
Date Samples Received:	18-Mar-19
Date Instructions Received:	18-Mar-19
Date Analysis Completed:	1-Apr-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

Superscript "M" indicates method accredited to MCERTS.

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

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

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

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

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

Superscript # indicates method accredited to ISO 17025.

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

Please contact us if you need any further information.

Prepared by:	Approved by:
Elisha Hartley	
Admin Assistant	Analytical Consultant

UKAS TESTING
No. 1247

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

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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	19/02592/6				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS05				
Depth to Top				0.5				
Depth to Bottom								
Date Sampled				07/03/2019				
Sample Type				Soil - ES				
Sample Matrix Code				4AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	Y	Y	**8.15**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.14**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	Y	**1.5**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.16**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		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	0.001	**0.010**	0.5	2	25
Barium	A-T-025	N	N	0.009	**0.090**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.001	**0.010**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.002	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	0.001	**0.010**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	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	0.006	**0.060**	4	50	200
Chloride	A-T-026	N	N	<1.00	**<10**	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	3	**31**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	32	**320**	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	6.8				
Conductivity (µS/cm)	A-T-037	N	N	65				
Mass Sample (kg)				0.192				
Dry Matter (%)	A-T-044	N	N	91.2				

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

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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	19/02592/8				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP01				
Depth to Top				0.3				
Depth to Bottom								
Date Sampled				04/03/2019				
Sample Type				Soil - ES				
Sample Matrix Code				4AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	Y	Y	**8.40**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.4**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.11**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	Y	**3.6**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**1.17**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**7.45**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		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	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.034	**0.340**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.001	**0.010**	0.5	10	70
Copper	A-T-025	N	N	0.014	**0.140**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.002	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	0.001	**0.010**	0.4	10	40
Lead	A-T-025	N	N	0.030	**0.300**	0.5	10	50
Antimony	A-T-025	N	N	0.001	**0.010**	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	0.020	**0.200**	4	50	200
Chloride	A-T-026	N	N	2	**20**	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	6	**60**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	34	**340**	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	6.8				
Conductivity (µS/cm)	A-T-037	N	N	69				
Mass Sample (kg)				0.205				
Dry Matter (%)	A-T-044	N	N	85.4				

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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	19/02592/12				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP05				
Depth to Top				0.5				
Depth to Bottom								
Date Sampled				11/03/2019				
Sample Type				Soil - ES				
Sample Matrix Code				6A				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	Y	Y	**7.96**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.05**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	Y	**3.8**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**0.46**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		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	<0.001	**<0.01**	0.5	2	25
Barium	A-T-025	N	N	0.001	**0.010**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	<0.001	**<0.01**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	**<0.01**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	<0.001	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	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	0.007	**0.070**	4	50	200
Chloride	A-T-026	N	N	3	**30**	800	15000	25000
Fluoride	A-T-026	N	N	0.5	**5.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	3	**27**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	27	**270**	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	7.0				
Conductivity (µS/cm)	A-T-037	N	N	54				
Mass Sample (kg)				0.202				
Dry Matter (%)	A-T-044	N	N	86.7				

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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	19/02592/14				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP08				
Depth to Top				0.2				
Depth to Bottom								
Date Sampled				08/03/2019				
Sample Type				Soil - ES				
Sample Matrix Code				4AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	Y	Y	**7.34**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.09**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	Y	**5.2**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**1.75**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**9.59**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**19**		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	0.002	**0.020**	0.5	2	25
Barium	A-T-025	N	N	0.087	**0.870**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.004	**0.040**	0.5	10	70
Copper	A-T-025	N	N	0.020	**0.200**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	**<0.01**	0.5	10	30
Nickel	A-T-025	N	N	0.004	**0.040**	0.4	10	40
Lead	A-T-025	N	N	0.049	**0.490**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	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	0.025	**0.250**	4	50	200
Chloride	A-T-026	N	N	1	**15**	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	<1.00	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	64	**640**	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	6.7				
Conductivity (µS/cm)	A-T-037	N	N	129				
Mass Sample (kg)				0.213				
Dry Matter (%)	A-T-044	N	N	82				

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

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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	19/02592/19				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP14				
Depth to Top				0.5				
Depth to Bottom								
Date Sampled				08/03/2019				
Sample Type				Soil - ES				
Sample Matrix Code				6AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	Y	Y	**7.62**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.15**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	Y	Y	**6.3**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	Y	Y	**1.41**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**1.66**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		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	0.002	**0.020**	0.5	2	25
Barium	A-T-025	N	N	0.035	**0.350**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.002	**0.020**	0.5	10	70
Copper	A-T-025	N	N	0.009	**0.090**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.001	**0.010**	0.5	10	30
Nickel	A-T-025	N	N	0.002	**0.020**	0.4	10	40
Lead	A-T-025	N	N	0.013	**0.130**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	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	0.011	**0.110**	4	50	200
Chloride	A-T-026	N	N	1	**11**	800	15000	25000
Fluoride	A-T-026	N	N	0.5	**5.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	25	**251**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	83	**830**	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	6.7				
Conductivity (µS/cm)	A-T-037	N	N	166				
Mass Sample (kg)				0.209				
Dry Matter (%)	A-T-044	N	N	83.8				

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

APPENDIX L
LABORATORY CERTIFICATES FOR GEOTECHNICAL ANALYSIS

IAN FARMER ASSOCIATES

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F.A.O.

Test Report - 80205 / 2

Site:	Hatfield Business Park Plot 5100
Job Number:	80205
Originating Client:	RSK
Originating Reference:	80205
Date Sampled:	05/03/2019
Date Scheduled:	15/03/2019
Date Testing Started:	25/03/2019
Date Testing Finished:	04/04/2019

Remarks:

Authorised By:

Tim Robinson
Quality Technician

Report Issue Date: 09/04/2019

IAN FARMER ASSOCIATES

Laboratory Test Report 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 2

Determination of Water Content, Liquid Limit and Plastic Limit and Derivation of Plasticity and Liquidity Index

Borehole / Trial Pit	Depth (m)	Sample	Natural / Sieved	Natural Water Content %	Sample Passing 425 µm Sieve		Liquid Limit %	Plastic Limit %	Plasticity Index %	Liquidity Index	Class	Description / Remarks
					Percentage %	Water Content %						
BH1	3.50	B	Sieved	22.8	49			NP				Brown gravelly, clayey SAND
BH1	5.50	D	Natural	23.9	96	25.0	44	22	22	0.12	CI	Grey slightly gravelly, silty CLAY
BH2	7.00	B	Natural	23	96	24.0	54	23	31	0.02	CH	Brown/Grey slightly gravelly, silty CLAY
BH2	14.00	B	Natural	19.7	90	21.0	41	20	21	0.07	CI	Brown slightly gravelly, slightly sandy, silty CLAY
BH3	4.50	D	Natural	30.2	87	34.0	49	23	26	0.42	CI	Brown/Grey slightly gravelly, silty CLAY
BH4	4.50	D	Sieved	28.9	2			NP				Brown slightly silty, gravelly SAND
BH5	12.50	B	Sieved	23.1	14			NP				Brown/Grey slightly gravelly SAND
BH6	0.50	B	Sieved	19.7	51	34.0	27	16	11	1.64	CL	Brown gravelly, sandy, silty CLAY
BH7	5.00	D	Natural	31.8	96	33.0	52	23	29	0.34	CH	Brown slightly gravelly, slightly sandy, silty CLAY
BH8	3.00	D	Sieved	28.5	82			NP				Brown gravelly, sandy SILT
TP12	1.60	D	Natural	17.4	96	18.0	30	16	14	0.14	CL	Brown slightly gavelly, sandy, silty CLAY
TP7	0.30	D	Natural	14.9	83	17.0	52	23	29	-0.21	CH	Brown slightly gravelly, slightly sandy, silty CLAY
TP7	2.90	D	Sieved	32.4	87	36.0	34	18	16	1.15	CL	Brown slightly gravelly, slightly sandy, silty CLAY
TP9	0.80	D	Sieved	11.9	35	25.0	25	18	7	0.97	CL	Brown gravelly, sandy, silty CLAY
TP9	1.50	D	Sieved	22.7	69	31.0	47	21	26	0.37	CI	Brown gravelly, silty CLAY

Method of Preparation: BS EN ISO 17892 : Part 1 : 2014 : Clause 5.1 Water content test preparation
BS 1377 : Part 1 : 2016 : Clause 8.4.3 Preparation of samples for plasticity tests
BS 1377 : Part 2 : 1990 : Clause 4.2 Preparation of samples for plastic limit tests

Method of Test: BS EN ISO 17892 : Part 1 : 2014 : Clause 5.2 Water content test execution
BS 1377 : Part 2 : 1990 : Clause 4.3 or 4.4 Determination of the liquid limit
BS 1377 : Part 2 : 1990 : Clause 5.3 Determination of the plastic limit and plasticity index

UKAS TESTING 1464

IAN FARMER ASSOCIATES

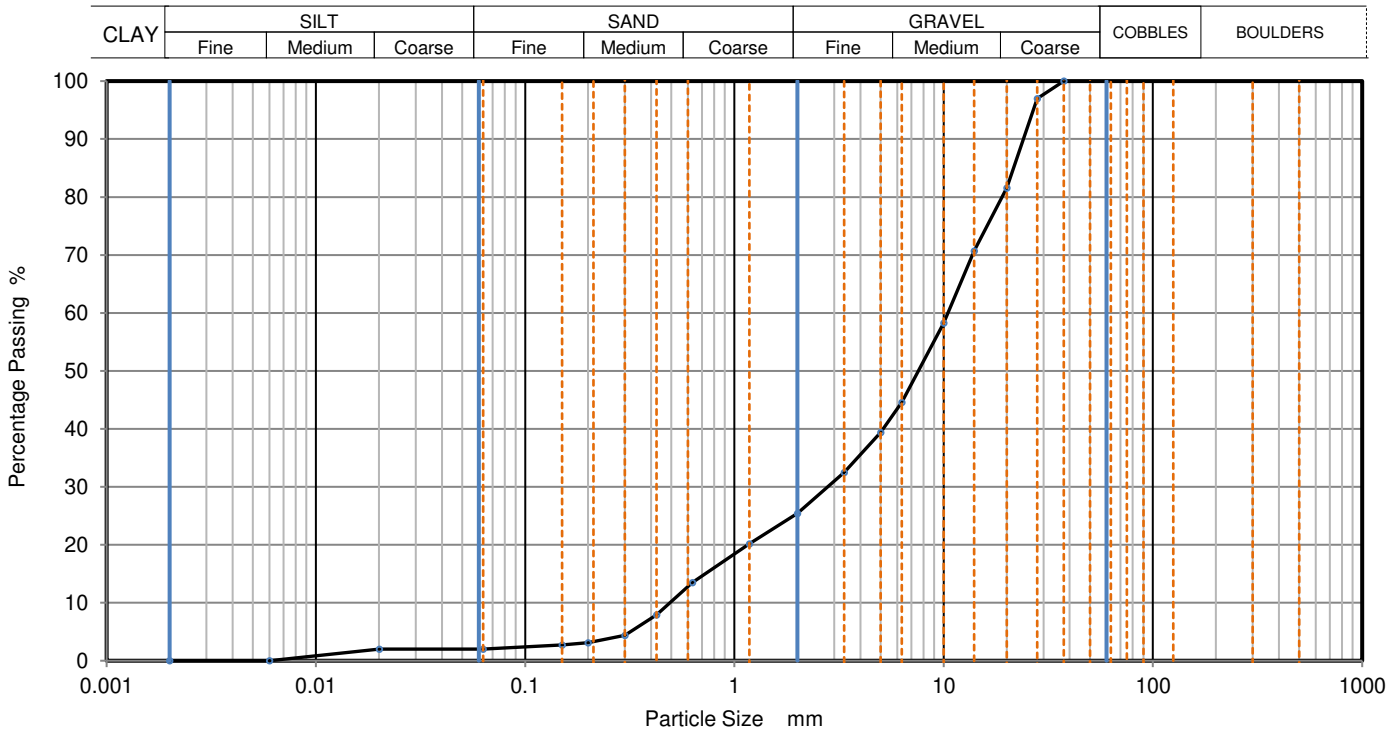
Laboratory Test Report | 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 3

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
BH4	0.50	D	Wet Sieve + Pipette	Brown sandy GRAVEL



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0201	2
		0.0060	0
		0.0020	0
37.5	100		
28	97		
20	82		
14	71		
10	58		
6.3	45		
5	39		
3.35	33		
2	25	Particle density (assumed)	
1.18	20	2.65	Mg/m3
0.63	14		
0.425	8		
0.3	4		
0.2	3		
0.15	3		
0.063	2		

Dry Mass of sample, g: 1121

Sample Proportions	% dry mass
Very coarse	0
Gravel	75
Sand	23
Silt	2
Clay	0

Grading Analysis		
D100	mm	37.5
D60	mm	10.5
D30	mm	2.8
D10	mm	0.492
Uniformity Coefficient		21
Curvature Coefficient		1.5

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.4.2 Preparation of samples for pipette test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.4.3 Determination of sedimentation by pipette method

UKAS TESTING
1464

IAN FARMER ASSOCIATES

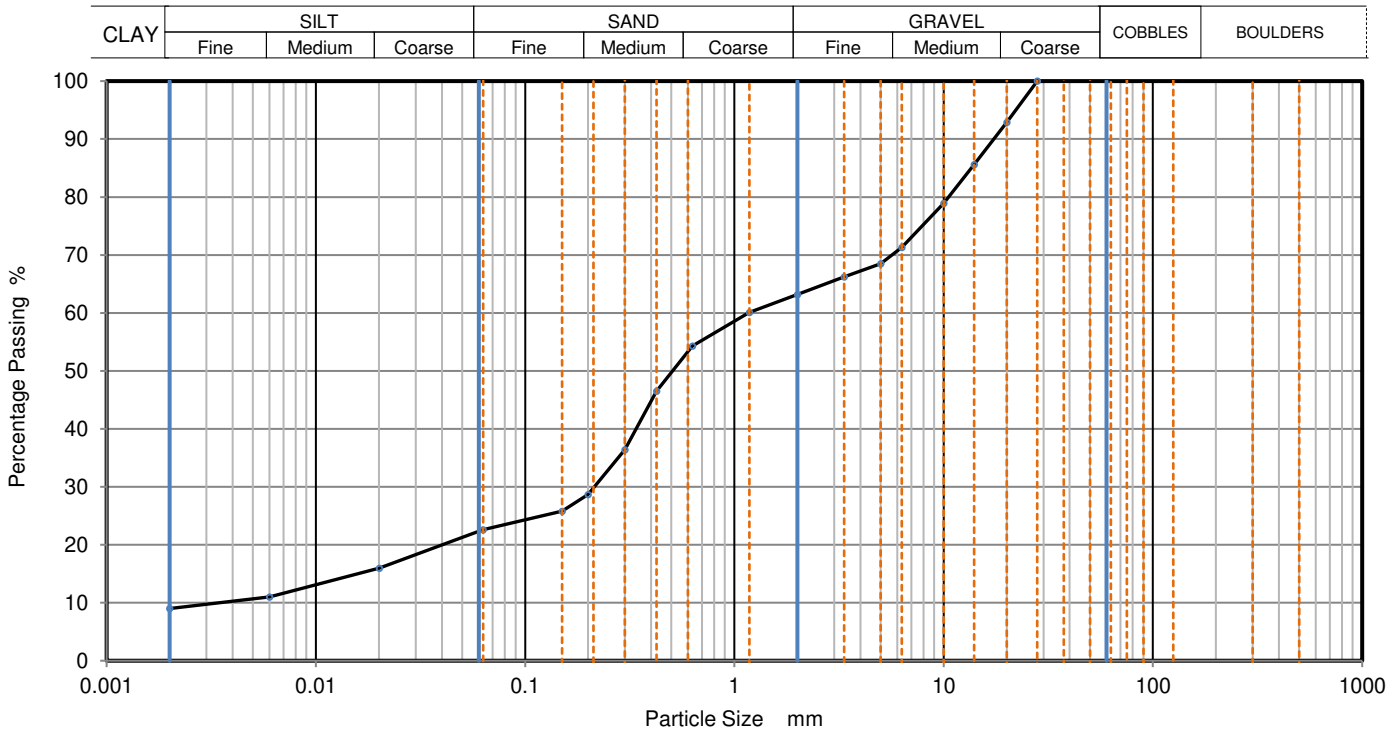
Laboratory Test Report | 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 4

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP12	0.80	D	Wet Sieve + Pipette	Brown slightly clayey, silty, gravelly SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0201	16
		0.0060	11
		0.0020	9
28	100		
20	93		
14	86		
10	79		
6.3	71		
5	69		
3.35	66		
2	63	Particle density (assumed)	
1.18	60	2.65	Mg/m3
0.63	54		
0.425	47		
0.3	36		
0.2	29		
0.15	26		
0.063	23		

Dry Mass of sample, g: 774

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	41
Silt	14
Clay	9

Grading Analysis		
D100	mm	28
D60	mm	1.16
D30	mm	0.214
D10	mm	0.00347
Uniformity Coefficient		330
Curvature Coefficient		11

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.4.2 Preparation of samples for pipette test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.4.3 Determination of sedimentation by pipette method

UKAS TESTING
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IAN FARMER ASSOCIATES

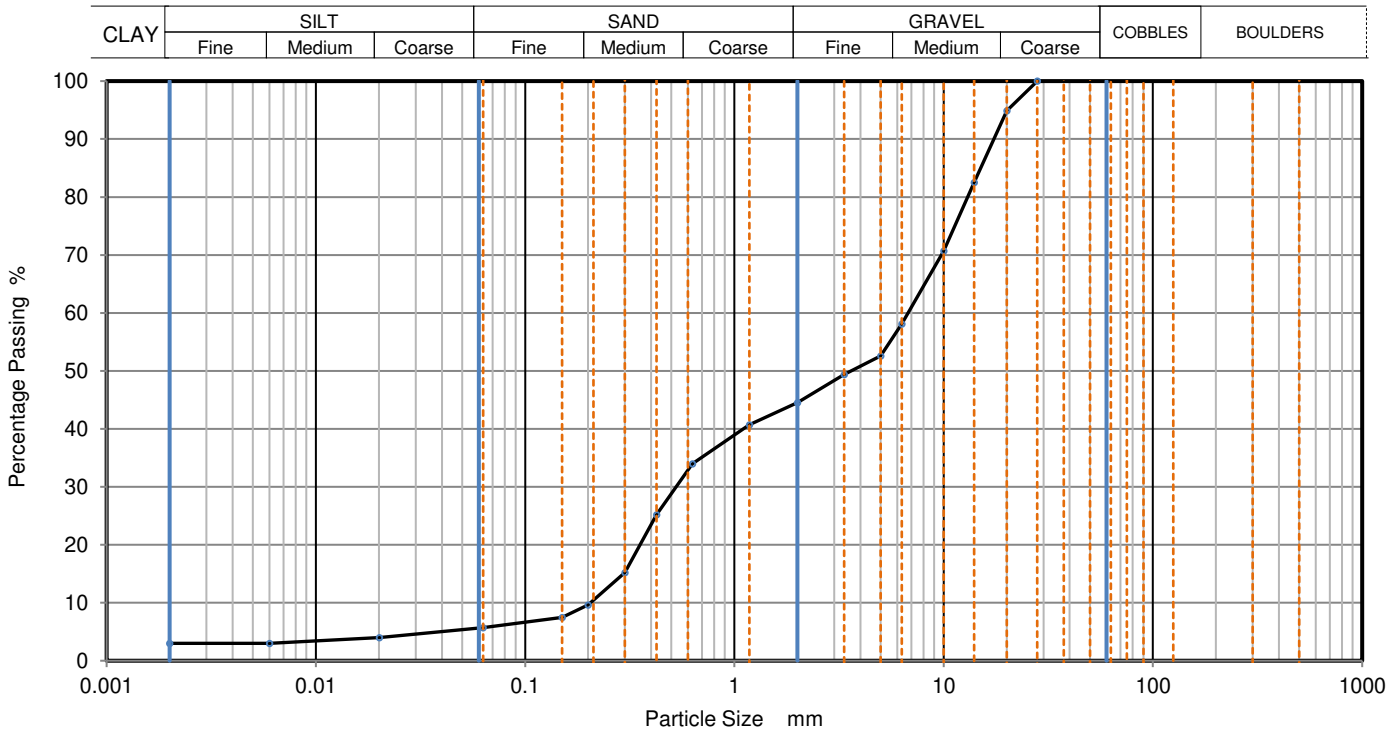
Laboratory Test Report 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 5

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP2	1.20	D	Wet Sieve + Pipette	Brown sandy GRAVEL



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0201	4
		0.0060	3
		0.0020	3
28	100		
20	95		
14	83		
10	71		
6.3	58		
5	53		
3.35	49		
2	45	Particle density (assumed)	
1.18	41	2.65	Mg/m3
0.63	34		
0.425	25		
0.3	15		
0.2	10		
0.15	8		
0.063	6		

Dry Mass of sample, g 1216

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	39
Silt	3
Clay	3

Grading Analysis		
D100	mm	28
D60	mm	6.75
D30	mm	0.527
D10	mm	0.206
Uniformity Coefficient		33
Curvature Coefficient		0.2

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.4.2 Preparation of samples for pipette test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.4.3 Determination of sedimentation by pipette method

UKAS TESTING
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IAN FARMER ASSOCIATES

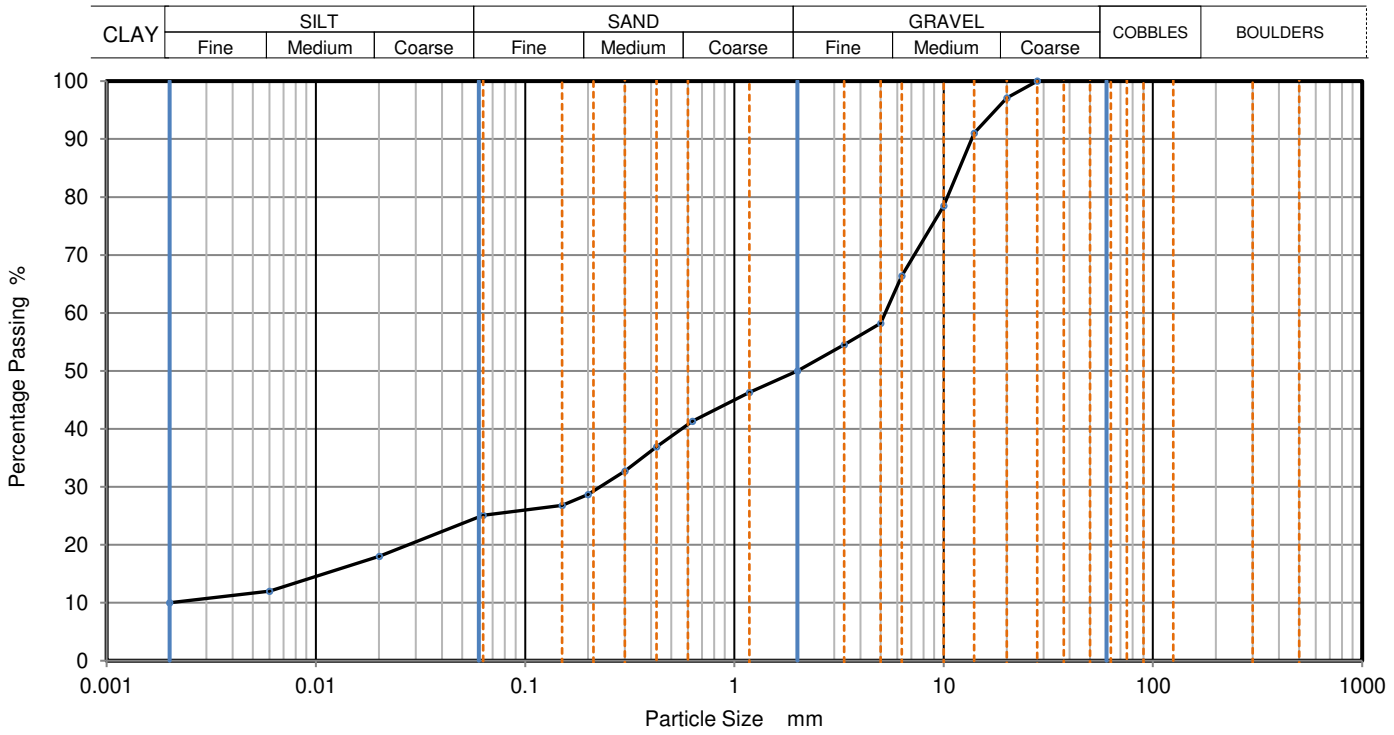
Laboratory Test Report 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 6

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP8	0.50	D	Wet Sieve + Pipette	Brown clayey, silty, sandy GRAVEL



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0201	18
		0.0060	12
		0.0020	10
28	100		
20	97		
14	91		
10	79		
6.3	66		
5	58		
3.35	55		
2	50	Particle density (assumed)	
1.18	46	2.65	Mg/m3
0.63	41		
0.425	37		
0.3	33		
0.2	29		
0.15	27		
0.063	25		

Dry Mass of sample, g: 1094

Sample Proportions	% dry mass
Very coarse	0
Gravel	50
Sand	25
Silt	15
Clay	10

Grading Analysis		
D100	mm	28
D60	mm	5.26
D30	mm	0.229
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.4.2 Preparation of samples for pipette test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.4.3 Determination of sedimentation by pipette method

UKAS TESTING
1464

IAN FARMER ASSOCIATES

Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 7

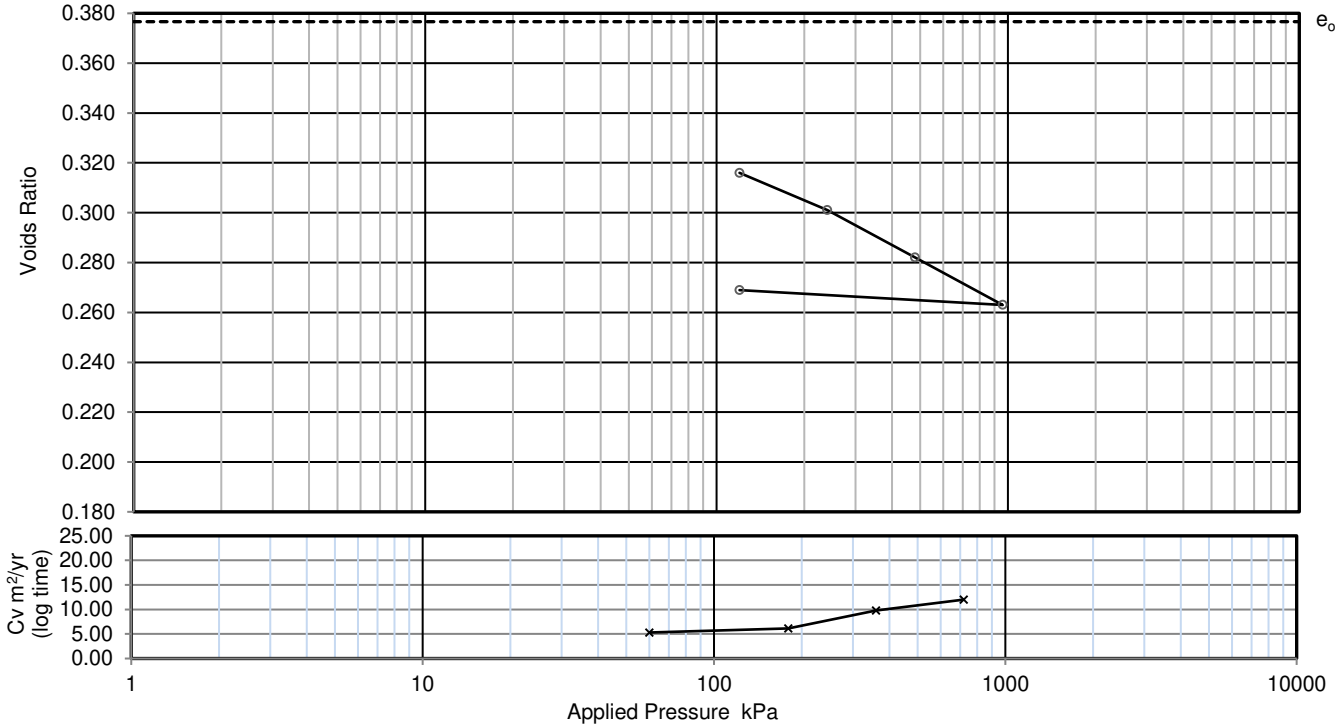
DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole / Trial Pit	Depth (m)	Sample	Description
BH1	6.00	U	Brown/Grey gravelly SILT

Initial Specimen

Length of Sample (mm)	106.71
Depth from top of specimen (mm)	0.00
Condition of Sample:	Undisturbed
Orientation:	Vertical

Diameter (mm)	74.38
Particle density (Mg/m³)	2.65 assumed
Swelling Pressure (kPa)	
Lab Temp. (°C)	21



Applied Pressure kPa	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec	Voids ratio
0.0	-	-	-	-	0.377
120	0.37	5.3	4.4	0.00079	0.316
240	0.092	6.1	13	0.00067	0.301
480	0.061	9.8	14	0.0013	0.282
960	0.031	12	16	0.0014	0.263
120	0.0053				0.269

	Initial	Final
Height (mm)	19.18	17.67
Water Content (%)	16.4	11.9
Bulk density (Mg/m³)	2.24	2.34
Dry density (Mg/m³)	1.92	2.09
Voids Ratio	0.377	0.269
Degree of Saturation (%)	116	117

Remarks:

Method of Preparation: BS 1377:Part 5:1990, clause 3.3 Preparation of specimen
BS 1377:Part 5:1990, clause 3.4 Preparation and assembly of apparatus

Method of Test: BS 1377:Part 5:1990, clause 3.5 Determination of the one-dimensional consolidation properties

UKAS TESTING
1464

IAN FARMER ASSOCIATES

Laboratory Test Report | 80205 / 2

Site: Hatfield Business Park Plot 5100 | **Job Number:** 80205

Client: RSK | **Page:** 8

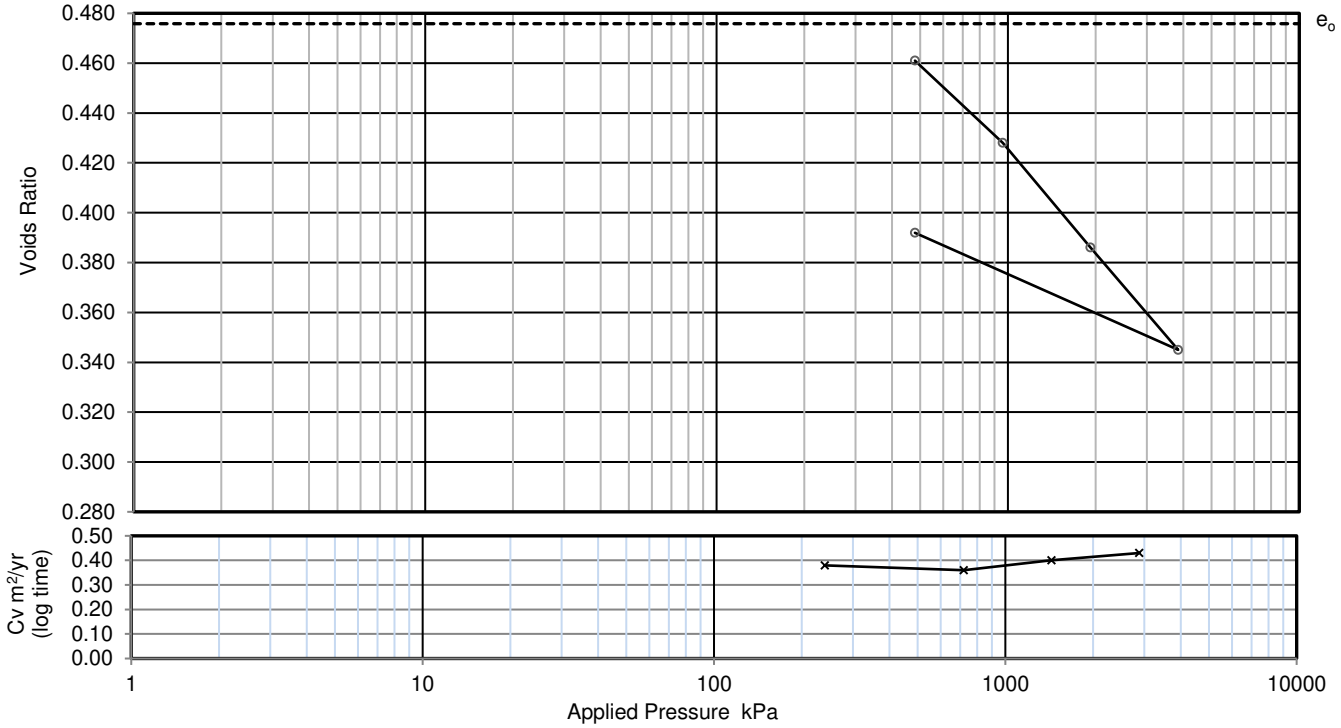
DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole / Trial Pit	Depth (m)	Sample	Description
BH1	12.00	U	Brown/Grey slightly gravelly CLAY

Initial Specimen

Length of Sample (mm)	435.00
Depth from top of specimen (mm)	0.00
Condition of Sample:	Undisturbed
Orientation:	Vertical

Diameter (mm)	74.42
Particle density (Mg/m³)	2.65 assumed
Swelling Pressure (kPa)	250*
Lab Temp. (°C)	21



Applied Pressure kPa	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec	Voids ratio
245.0	-	-	-	-	0.476
480	0.021	0.38	1.2	0.00076	0.461
960	0.048	0.36	0.46	0.0014	0.428
1,920	0.031	0.4	0.59	0.002	0.386
3,840	0.015	0.43	0.67	0.0025	0.345
480	0.01				0.392

	Initial	Final
Height (mm)	19.20	18.11
Water Content (%)	20.1	17.3
Bulk density (Mg/m³)	2.16	2.23
Dry density (Mg/m³)	1.80	1.90
Voids Ratio	0.476	0.392
Degree of Saturation (%)	112	117

Remarks:

Method of Preparation: BS 1377:Part 5:1990, clause 3.3 Preparation of specimen
BS 1377:Part 5:1990, clause 3.4 Preparation and assembly of apparatus

Method of Test: BS 1377:Part 5:1990, clause 4.3 Measurement of swelling pressure*
BS 1377:Part 5:1990, clause 3.5 Determination of the one-dimensional consolidation properties

* Measurement of swelling pressure 'Not UKAS Accredited'

UKAS TESTING 1464

IAN FARMER ASSOCIATES

Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 9

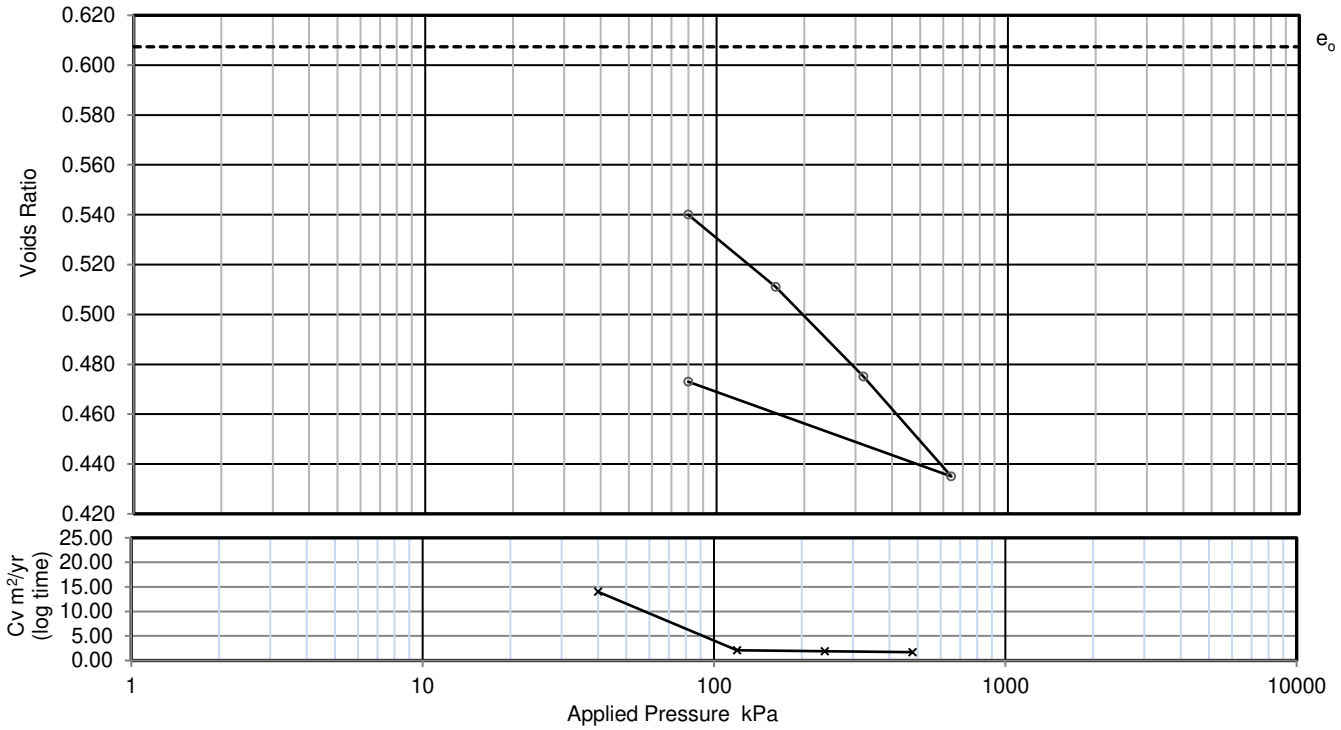
DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole / Trial Pit	Depth (m)	Sample	Description
BH6	4.00	U	Brown/Grey slightly gravelly CLAY

Initial Specimen

Length of Sample (mm)	440.00
Depth from top of specimen (mm)	20.00
Condition of Sample:	Undisturbed
Orientation:	Vertical

Diameter (mm)	74.65
Particle density (Mg/m³)	2.65 assumed
Swelling Pressure (kPa)	
Lab Temp. (°C)	21



Applied Pressure kPa	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec	Voids ratio
0.0	-	-	-	-	0.607
80	0.52	14	25	0.00079	0.540
160	0.24	2.1	11	0.00098	0.511
320	0.15	1.9	4.1	0.0018	0.475
640	0.084	1.7	2.5	0.002	0.435
80	0.047				0.473

	Initial	Final
Height (mm)	19.11	17.52
Water Content (%)	23.5	22.6
Bulk density (Mg/m³)	2.04	2.21
Dry density (Mg/m³)	1.65	1.80
Voids Ratio	0.607	0.473
Degree of Saturation (%)	103	127

Remarks:

Method of Preparation: BS 1377:Part 5:1990, clause 3.3 Preparation of specimen
BS 1377:Part 5:1990, clause 3.4 Preparation and assembly of apparatus

Method of Test: BS 1377:Part 5:1990, clause 3.5 Determination of the one-dimensional consolidation properties

UKAS TESTING
1464

IAN FARMER ASSOCIATES

Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 10

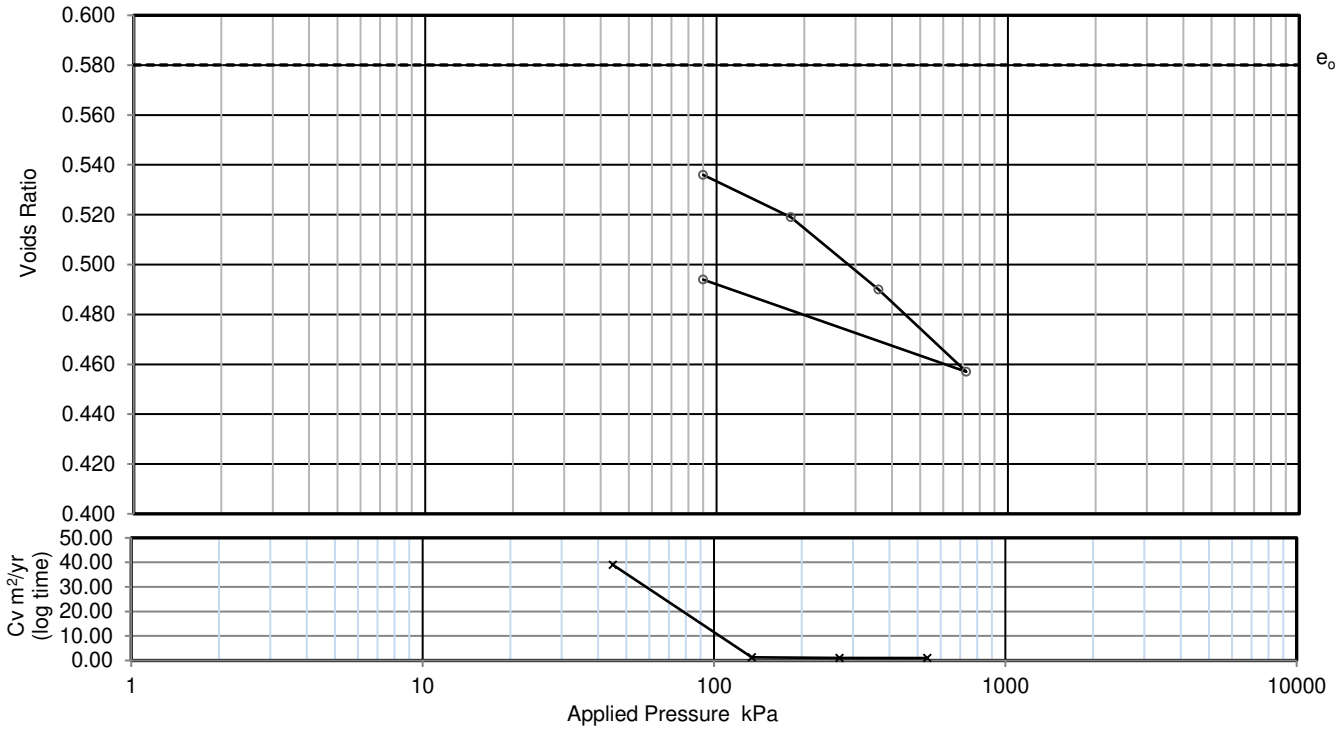
DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole / Trial Pit	Depth (m)	Sample	Description
BH7	4.50	U	Brown slightly gravelly CLAY

Initial Specimen

Length of Sample (mm)	420.00
Depth from top of specimen (mm)	10.00
Condition of Sample:	Undisturbed
Orientation:	Vertical

Diameter (mm)	75.04
Particle density (Mg/m³)	2.65 assumed
Swelling Pressure (kPa)	
Lab Temp. (°C)	21



Applied Pressure kPa	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec	Voids ratio
0.0	-	-	-	-	0.580
90	0.31	39	26	0.00058	0.536
180	0.12	1.3	3	0.00092	0.519
360	0.1	1.1	2.9	0.0016	0.490
720	0.063	1	1.7	0.002	0.457
90	0.04				0.494

	Initial	Final
Height (mm)	19.22	18.17
Water Content (%)	23.2	21.9
Bulk density (Mg/m³)	2.07	2.16
Dry density (Mg/m³)	1.68	1.77
Voids Ratio	0.580	0.494
Degree of Saturation (%)	106	118

Remarks:

Method of Preparation: BS 1377:Part 5:1990, clause 3.3 Preparation of specimen
BS 1377:Part 5:1990, clause 3.4 Preparation and assembly of apparatus

Method of Test: BS 1377:Part 5:1990, clause 3.5 Determination of the one-dimensional consolidation properties

UKAS TESTING
1464

IAN FARMER ASSOCIATES

Laboratory Test Report 80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

Client: RSK **Page:** 11

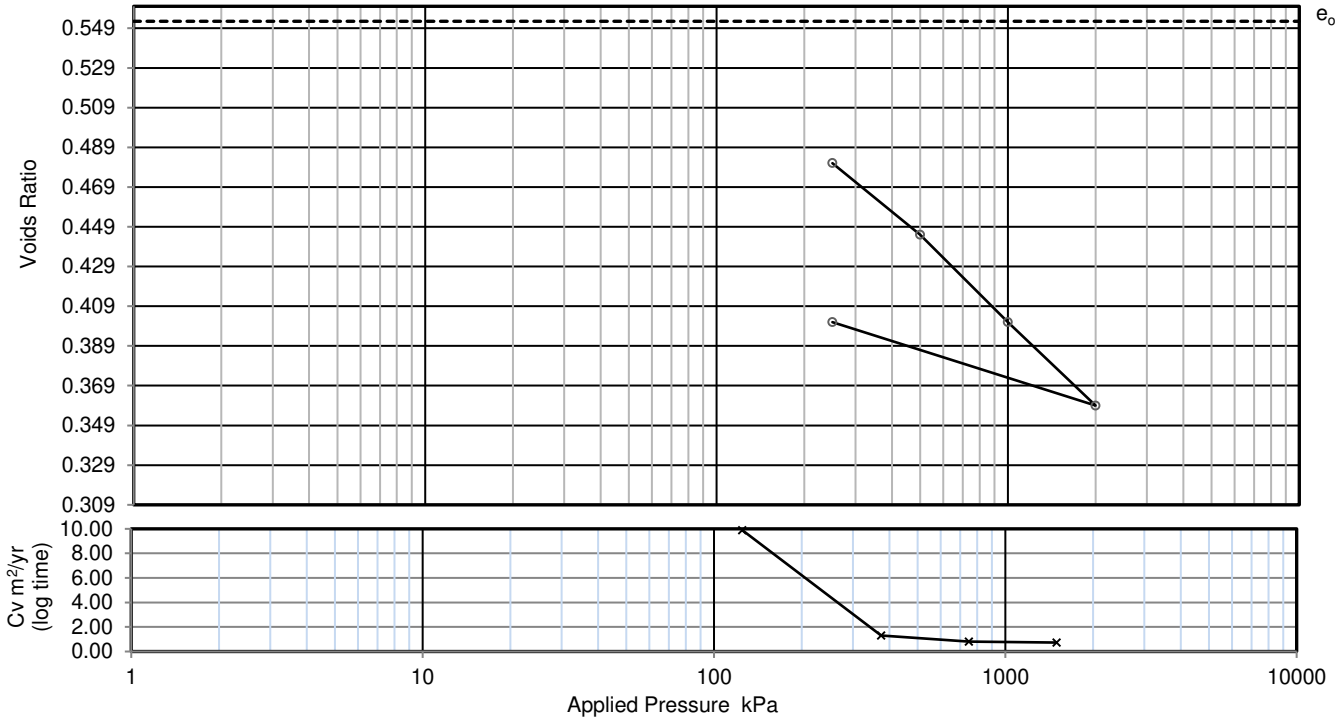
DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole / Trial Pit	Depth (m)	Sample	Description
BH8	12.50	U	Brown slightly gravelly CLAY

Initial Specimen

Length of Sample (mm)	420.00
Depth from top of specimen (mm)	20.00
Condition of Sample:	Undisturbed
Orientation:	Vertical

Diameter (mm)	74.62
Particle density (Mg/m³)	2.65 assumed
Swelling Pressure (kPa)	
Lab Temp. (°C)	21



Applied Pressure kPa	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec	Voids ratio
0.0	-	-	-	-	0.552
250	0.18	9.9	27	0.0005	0.481
500	0.098	1.3	38	0.0012	0.445
1,000	0.06	0.82	6.7	0.0014	0.401
2,000	0.031	0.73	1.3	0.0023	0.359
250	0.018				0.401

	Initial	Final
Height (mm)	19.19	17.32
Water Content (%)	18.8	16.5
Bulk density (Mg/m³)	2.03	2.20
Dry density (Mg/m³)	1.71	1.89
Voids Ratio	0.552	0.401
Degree of Saturation (%)	90	109

Remarks:

Method of Preparation: BS 1377:Part 5:1990, clause 3.3 Preparation of specimen
BS 1377:Part 5:1990, clause 3.4 Preparation and assembly of apparatus

Method of Test: BS 1377:Part 5:1990, clause 3.5 Determination of the one-dimensional consolidation properties

UKAS TESTING 1464

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

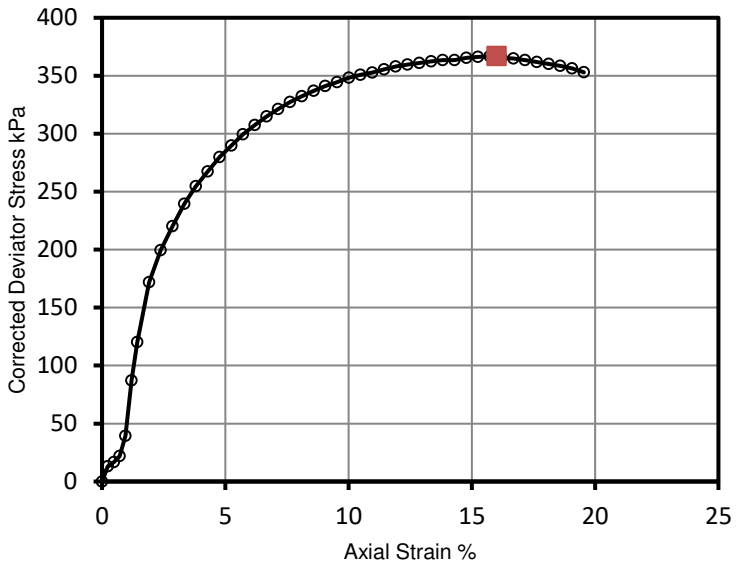
Client: RSK **Page:** 12

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

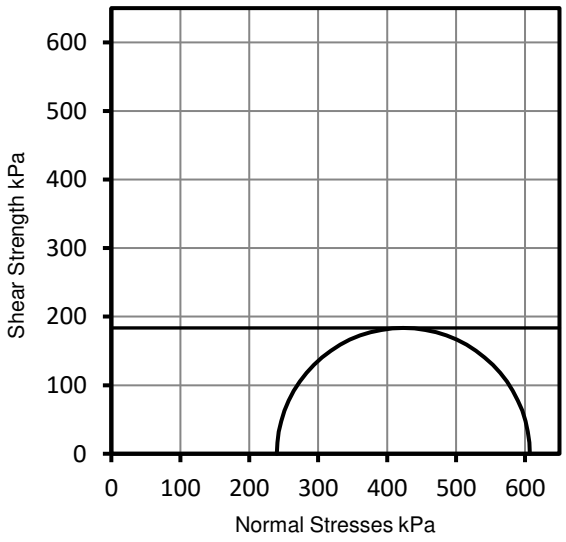
Borehole / Trial Pit	Depth (m)	Sample	Description
BH1	12.00	U	**Brown/Grey slightly gravelly CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	435.00
	Depth from Top (mm)	40.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		209.80
Diameter (mm)		103.61
Moisture Content (%)		16.40
Bulk Density (Mg/m3)		2.21
Dry Density (Mg/m3)		1.90
Membrane Thickness (mm)		0.33
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	240
	Axial Strain (%)	16
	Membrane Corr. (kPa)	1
	Deviator Stress, (σ1 - σ3)f (kPa)	367
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	183
	Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Method of Preparation: BS 1377:PT1:1990:8.3 Preparation of undisturbed samples for testing or
BS 1377:PT1:1990:7.7.5.2 Preparation of disturbed samples for testing

Method of Test: BS 1377:PT2:1990:7.2 Determination of density by linear measurement.
BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

IAN FARMER ASSOCIATES	Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

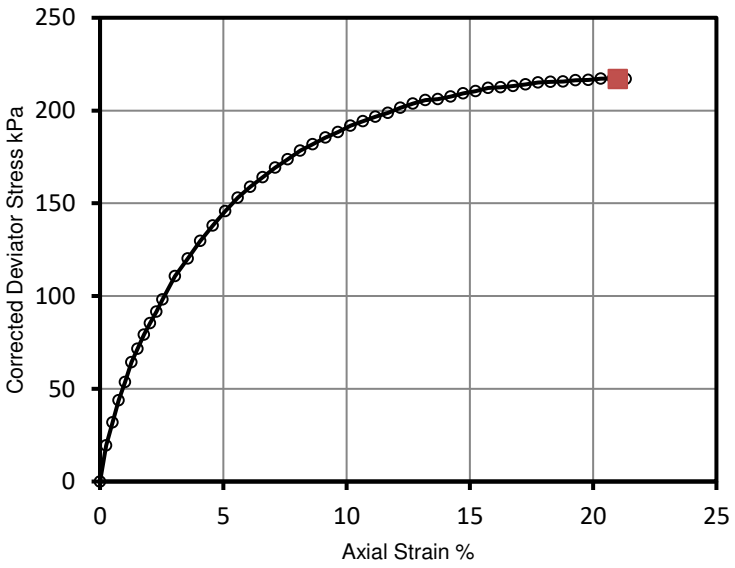
Client: RSK **Page:** 13

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

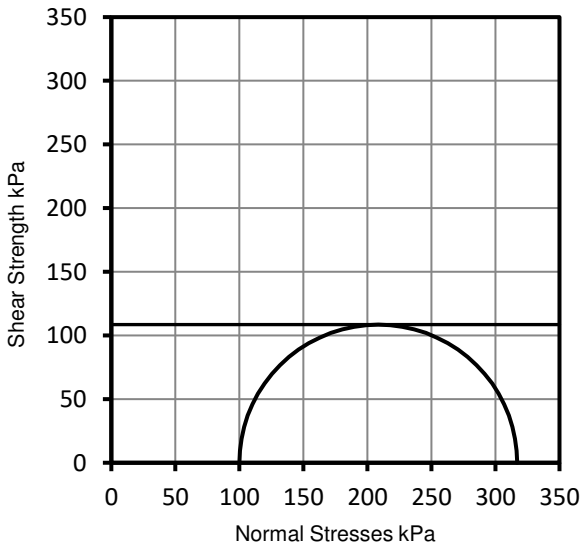
Borehole / Trial Pit	Depth (m)	Sample	Description
BH3	5.00	U	**Brown/Grey silty CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	205.00
	Depth from Top (mm)	0.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		196.98
Diameter (mm)		101.83
Moisture Content (%)		24.40
Bulk Density (Mg/m3)		2.10
Dry Density (Mg/m3)		1.69
Membrane Thickness (mm)		0.33
Membrane Type		Latex
Rate of Strain (%/min)		2.0
Test Results	Cell Pressure (kPa)	100
	Axial Strain (%)	21
	Membrane Corr. (kPa)	1.29
	Deviator Stress, (σ1 - σ3)f (kPa)	217
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	109
	Mode of Failure	Compound

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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BS 1377:PT1:1990:7.7.5.2 Preparation of disturbed samples for testing

Method of Test: BS 1377:PT2:1990:7.2 Determination of density by linear measurement.
BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

IAN FARMER ASSOCIATES	Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

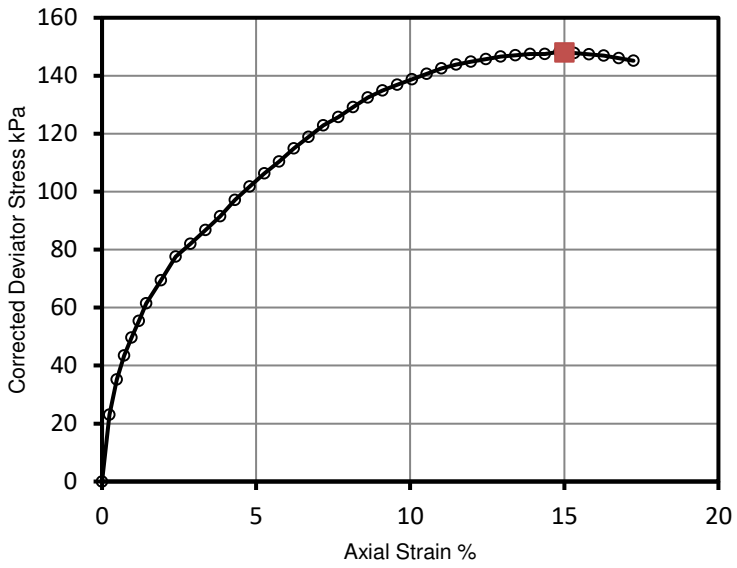
Client: RSK **Page:** 14

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

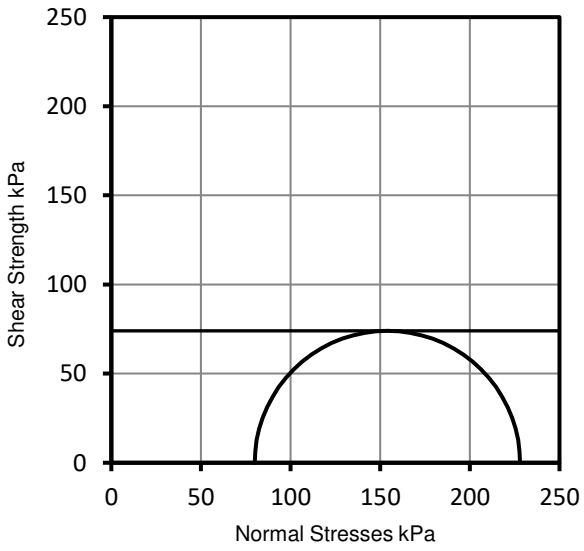
Borehole / Trial Pit	Depth (m)	Sample	Description
BH6	4.00	U	**Brown/Grey slightly gravelly CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	440.00
	Depth from Top (mm)	10.50
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		208.79
Diameter (mm)		102.81
Moisture Content (%)		23.10
Bulk Density (Mg/m3)		2.10
Dry Density (Mg/m3)		1.70
Membrane Thickness (mm)		0.33
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	80
	Axial Strain (%)	15
	Membrane Corr. (kPa)	0.97
	Deviator Stress, (σ1 - σ3)f (kPa)	148
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	74
	Mode of Failure	Compound

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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Method of Preparation: BS 1377:PT1:1990:8.3 Preparation of undisturbed samples for testing or
BS 1377:PT1:1990:7.7.5.2 Preparation of disturbed samples for testing

Method of Test: BS 1377:PT2:1990:7.2 Determination of density by linear measurement.
BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

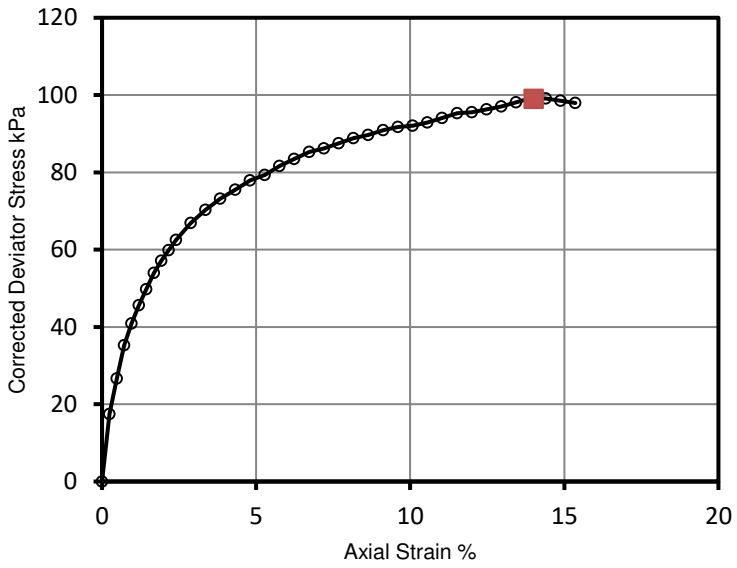
Client: RSK **Page:** 15

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

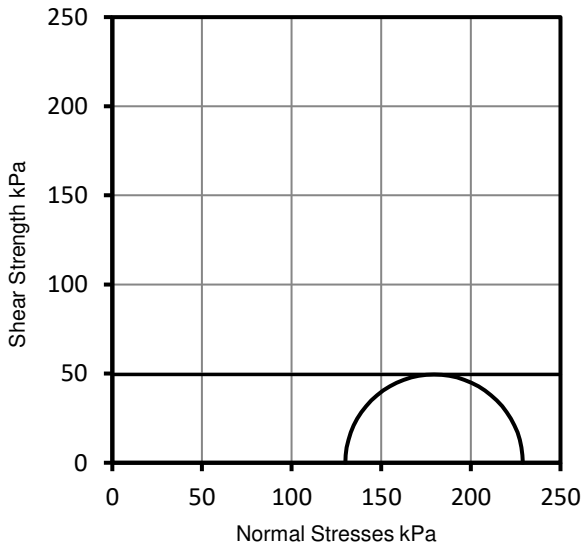
Borehole / Trial Pit	Depth (m)	Sample	Description
BH6	12.50	U	**Brown gravelly, silty CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	275.11
	Depth from Top (mm)	25.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		208.36
Diameter (mm)		103.40
Moisture Content (%)		16.60
Bulk Density (Mg/m3)		2.09
Dry Density (Mg/m3)		1.79
Membrane Thickness (mm)		0.32
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	130
	Axial Strain (%)	14
	Membrane Corr. (kPa)	0.89
	Deviator Stress, (σ1 - σ3)f (kPa)	99
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	50
	Mode of Failure	Compound

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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Method of Test: BS 1377:PT2:1990:7.2 Determination of density by linear measurement.
BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

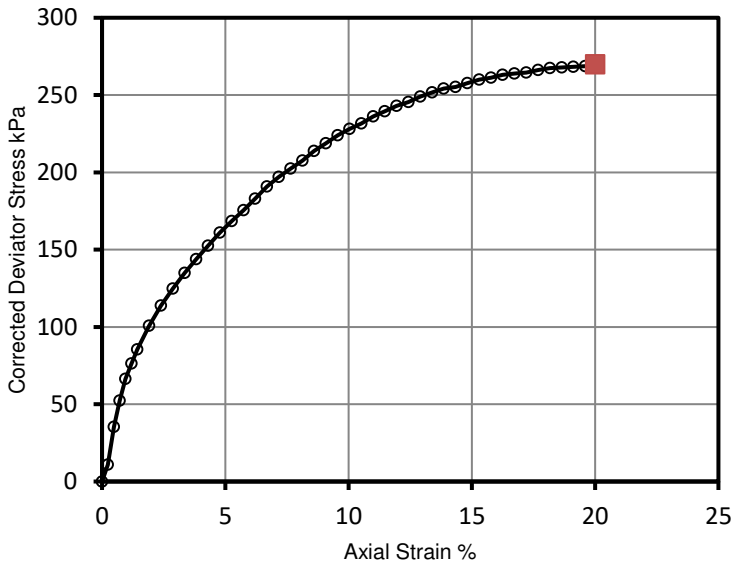
Client: RSK **Page:** 16

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

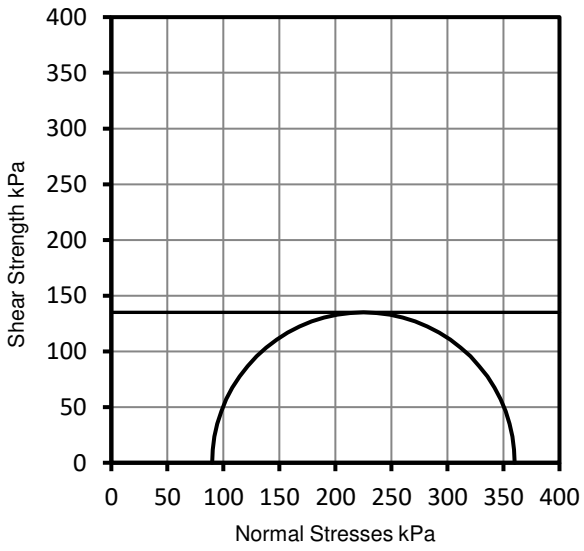
Borehole / Trial Pit	Depth (m)	Sample	Description
BH7	4.50	U	**Brown slightly gravelly CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	420.00
	Depth from Top (mm)	10.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		209.20
Diameter (mm)		102.76
Moisture Content (%)		22.80
Bulk Density (Mg/m3)		2.07
Dry Density (Mg/m3)		1.69
Membrane Thickness (mm)		0.33
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	90
	Axial Strain (%)	20
	Membrane Corr. (kPa)	1.24
	Deviator Stress, (σ1 - σ3)f (kPa)	270
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	135
	Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

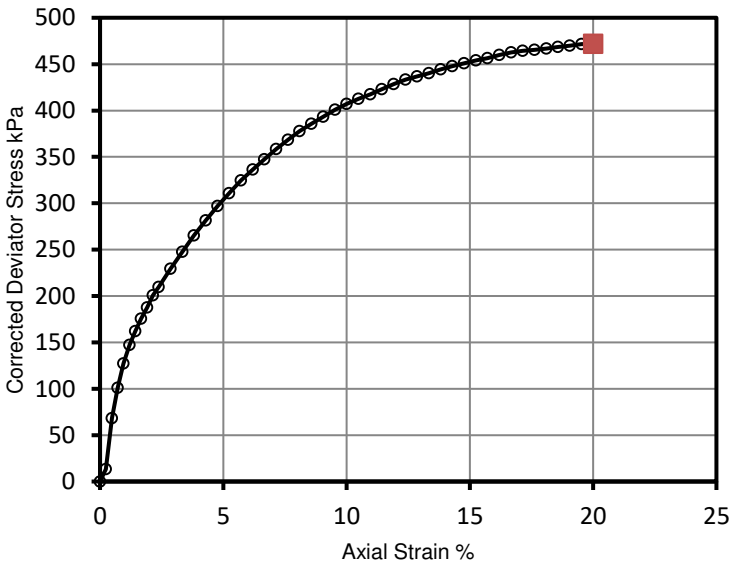
Client: RSK **Page:** 17

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

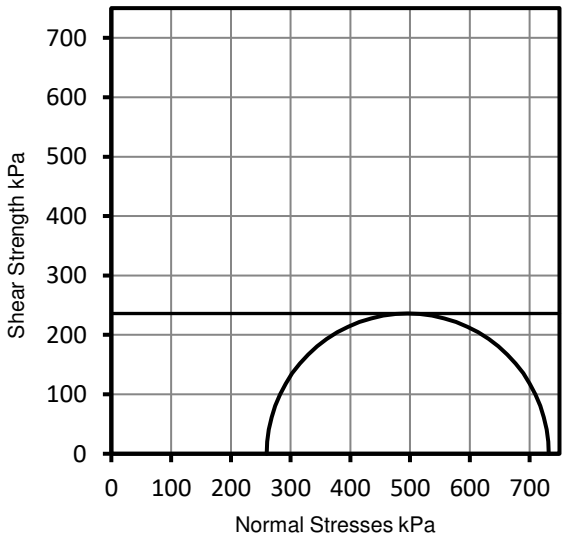
Borehole / Trial Pit	Depth (m)	Sample	Description
BH7	13.00	U	**Brown gravelly, silty CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	420.00
	Depth from Top (mm)	20.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		209.93
Diameter (mm)		102.80
Moisture Content (%)		17.30
Bulk Density (Mg/m3)		2.14
Dry Density (Mg/m3)		1.82
Membrane Thickness (mm)		0.32
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	260
	Axial Strain (%)	20
	Membrane Corr. (kPa)	1.2
	Deviator Stress, (σ1 - σ3)f (kPa)	472
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	236
	Mode of Failure	Compound

Deviator Stress v Axial Strain



Mohr Circles



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BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

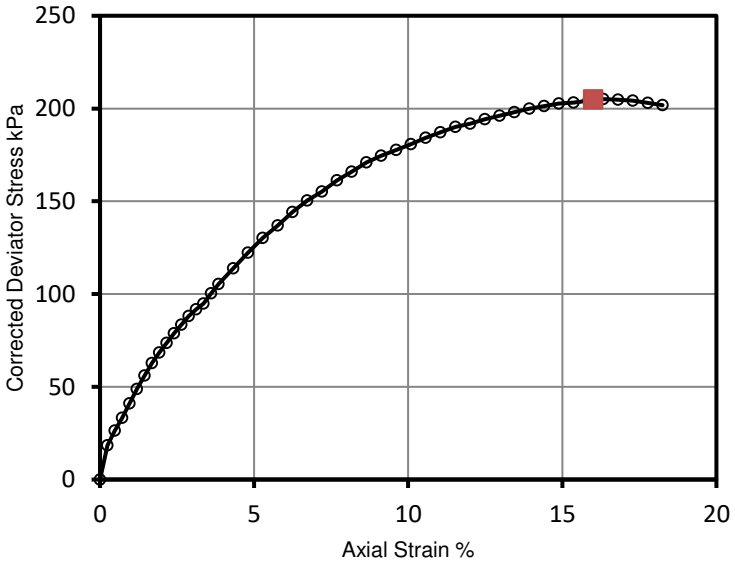
Client: RSK **Page:** 18

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

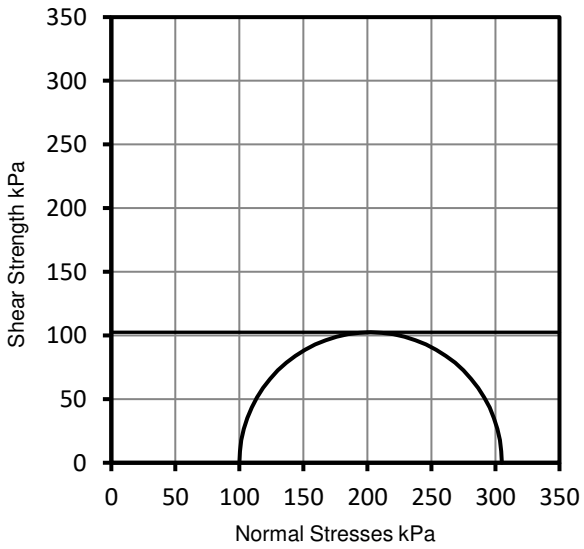
Borehole / Trial Pit	Depth (m)	Sample	Description
BH8	5.00	U	**Brown/Grey slightly gravelly, silty CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	360.00
	Depth from Top (mm)	20.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		208.20
Diameter (mm)		102.08
Moisture Content (%)		23.60
Bulk Density (Mg/m3)		2.07
Dry Density (Mg/m3)		1.67
Membrane Thickness (mm)		0.29
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	100
	Axial Strain (%)	16
	Membrane Corr. (kPa)	0.92
	Deviator Stress, (σ1 - σ3)f (kPa)	205
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	103
	Mode of Failure	Compound

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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BS 1377:PT7:1990:8.4 Determination of undrained shear strength in triaxial compression without measurement of pore pressure (Definitive method)

UKAS TESTING 1464

IAN FARMER ASSOCIATES	Laboratory Test Report	80205 / 2

Site: Hatfield Business Park Plot 5100 **Job Number:** 80205

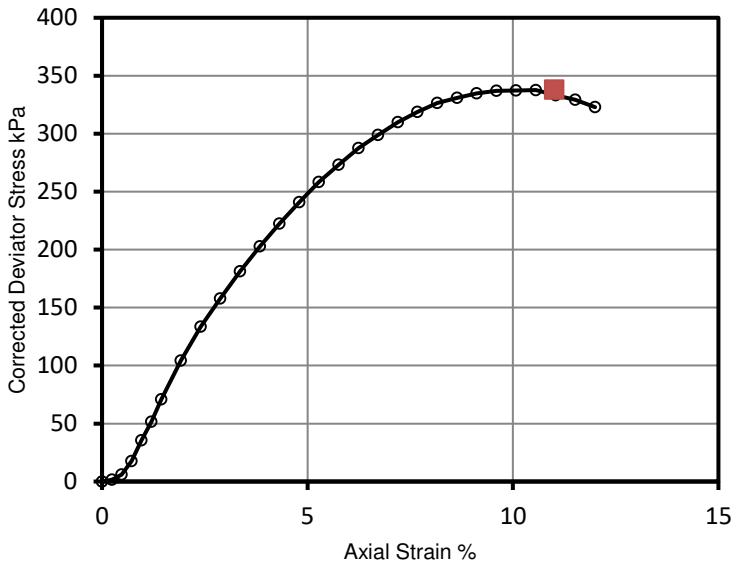
Client: RSK **Page:** 19

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen (Definitive Method)

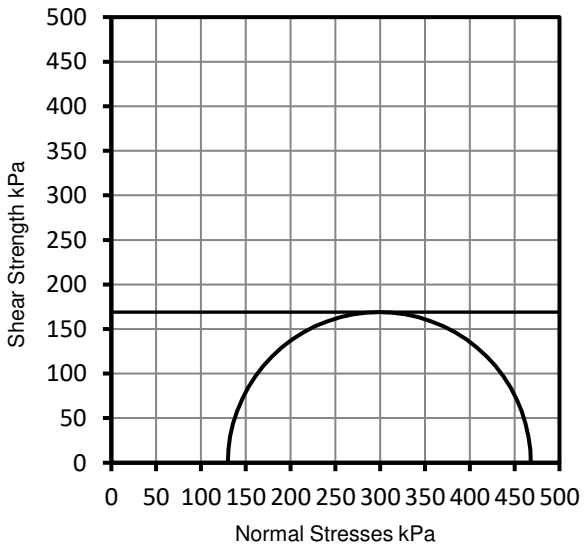
Borehole / Trial Pit	Depth (m)	Sample	Description
BH8	12.50	U	**Brown slightly gravelly CLAY**

Initial Sample	Test Number	1
	Original Length (mm)	420.00
	Depth from Top (mm)	10.00
	Condition	Undisturbed
	Orientation	Vertical
Length (mm)		208.36
Diameter (mm)		102.71
Moisture Content (%)		17.10
Bulk Density (Mg/m3)		2.10
Dry Density (Mg/m3)		1.80
Membrane Thickness (mm)		0.33
Membrane Type		Latex
Rate of Strain (%/min)		1.9
Test Results	Cell Pressure (kPa)	130
	Axial Strain (%)	11
	Membrane Corr. (kPa)	0.74
	Deviator Stress, (σ1 - σ3)f (kPa)	338
	Undrained Shear Strength, cu = ½(σ1 - σ3)f (kPa)	169
	Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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UKAS TESTING 1464

STRUCTURAL SOILS LTD

INSITU TESTING REPORT

1774

Report No. 748749R.01(00)

Date	12-March-2019	Contract	Mosquito Way, Hatfield

Client RSK Environment Ltd
Address Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR
For the Attention of Dawn Martin

Order received	25-February-2019	Client Reference	None
Testing Started	11-March-2019	Client Order No.	None
Testing Completed	11-March-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

Not UKAS Accredited Tests

4no. Soakaway tests carried out at locations specified by client.

The results represent the ground conditions at the specified locations and depths at the time of testing.

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.

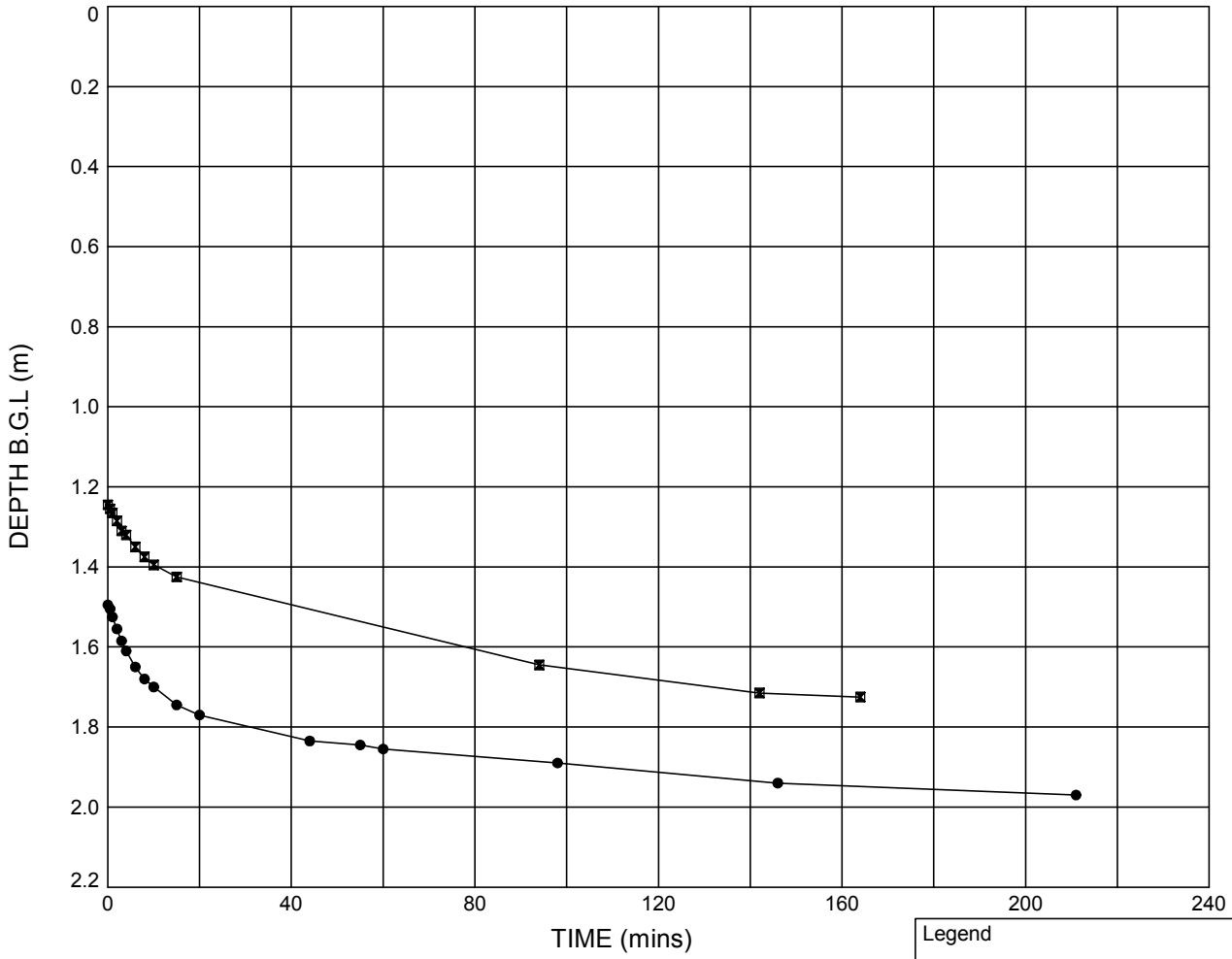
Structural Soils Ltd 1a Princess Street Bedminster Bristol BS3 4AG Tel.0117 9471000. e-mail dimitris.xirouchakis@soils.co.uk

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **TP05**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



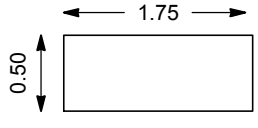
		Test 1	Test 2	
Pit start depth:	=	*2.20*	**2.08**	m
Pit final depth:	=	*2.08*	**2.06**	m
Effective depth, De	=	*0.59*	**0.81**	m
Effective storage volume, V_{p75-25}	=	*0.2559*	**0.3544**	m^3
Surface area, a_{p50}	=	*2.1913*	**2.6975**	m^2
Time, t_{p75-25}	=	*8066*	**25285**	secs
Infiltration rate, f	=	*$1.45x10^{-5}$*	**$5.20x10^{-6}$**	m/s

Please note test data was extrapolated to obtain tp75-tp25.

Legend

- Test 1 (11.03.19)
- Test 2 (11.03.19)

Plan (Not to scale)



No Bearing Taken

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By | Date: **12/03/19** | Date: **12/03/19**

Cont | Contra

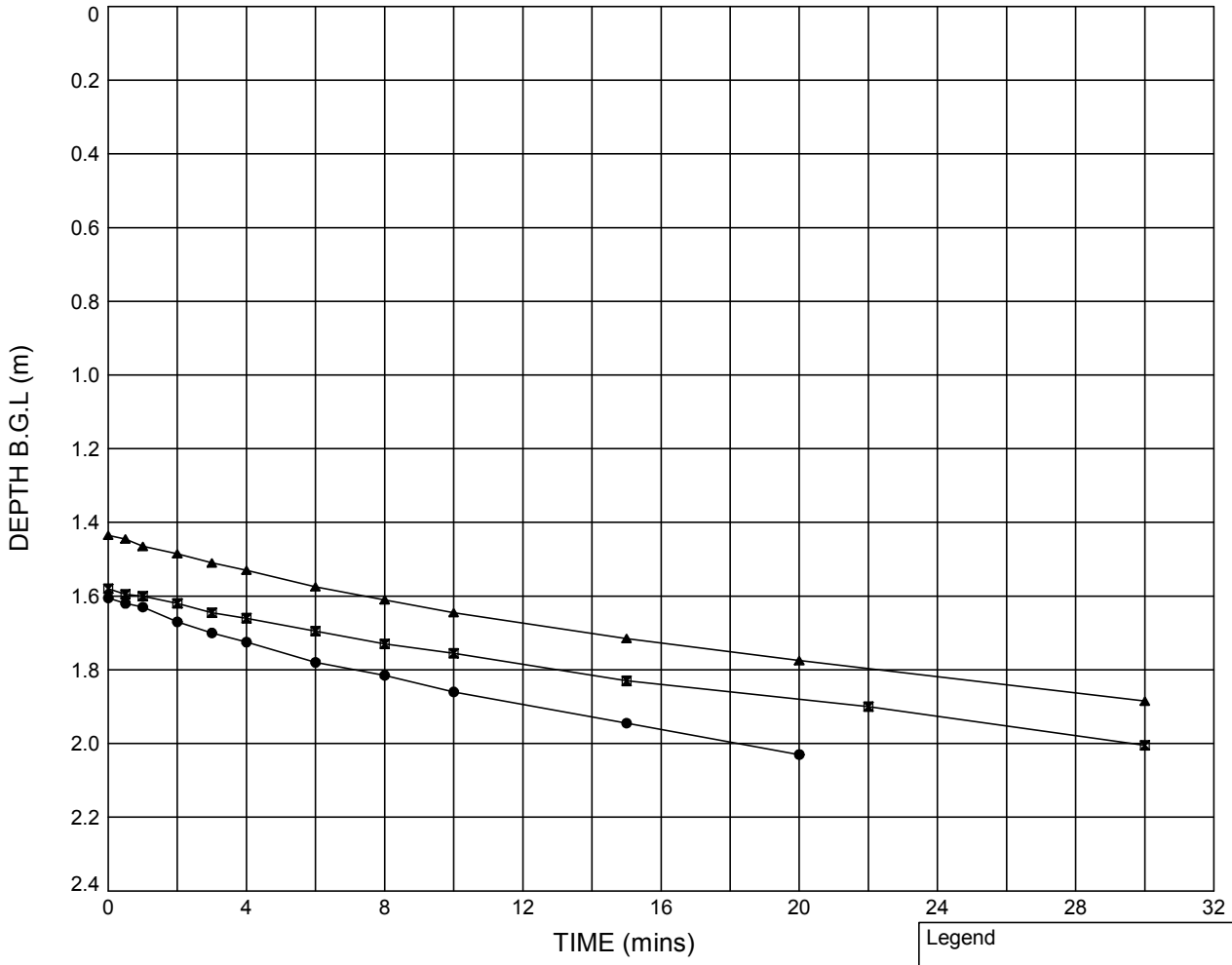
Mosquito Way, Hatfield

FULL SCALE SOAKAWAY TEST

In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP06**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



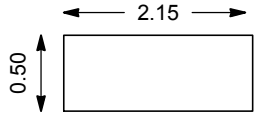
		Test 1	Test 2	Test 3	
Pit start depth:	=	*2.30*	**2.29**	*2.08*	m
Pit final depth:	=	*2.29*	**2.08**	*1.97*	m
Effective depth, De	=	*0.69*	**0.50**	*0.54*	m
Effective storage volume, V_{p75-25}	=	*0.3682*	**0.2661**	*0.2876*	m^3
Surface area, a_{p50}	=	*2.8903*	**2.3868**	*2.4928*	m^2
Time, t_{p75-25}	=	*1161*	**1164**	*1191*	secs
Infiltration rate, f	=	$1.10x10^{-4}$	$\mathbf{9.58x10^{-5}}$	$9.69x10^{-5}$	m/s

Please note test data was extrapolated to obtain tp75-tp25.

Legend

●	Test 1	(11.03.19)
⊠	Test 2	(11.03.19)
▲	Test 3	(11.03.19)

Plan (Not to scale)



No Bearing Taken

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date		Date
	12/03/19		**12/03/19**

Contract: **Mosquito Way, Hatfield**

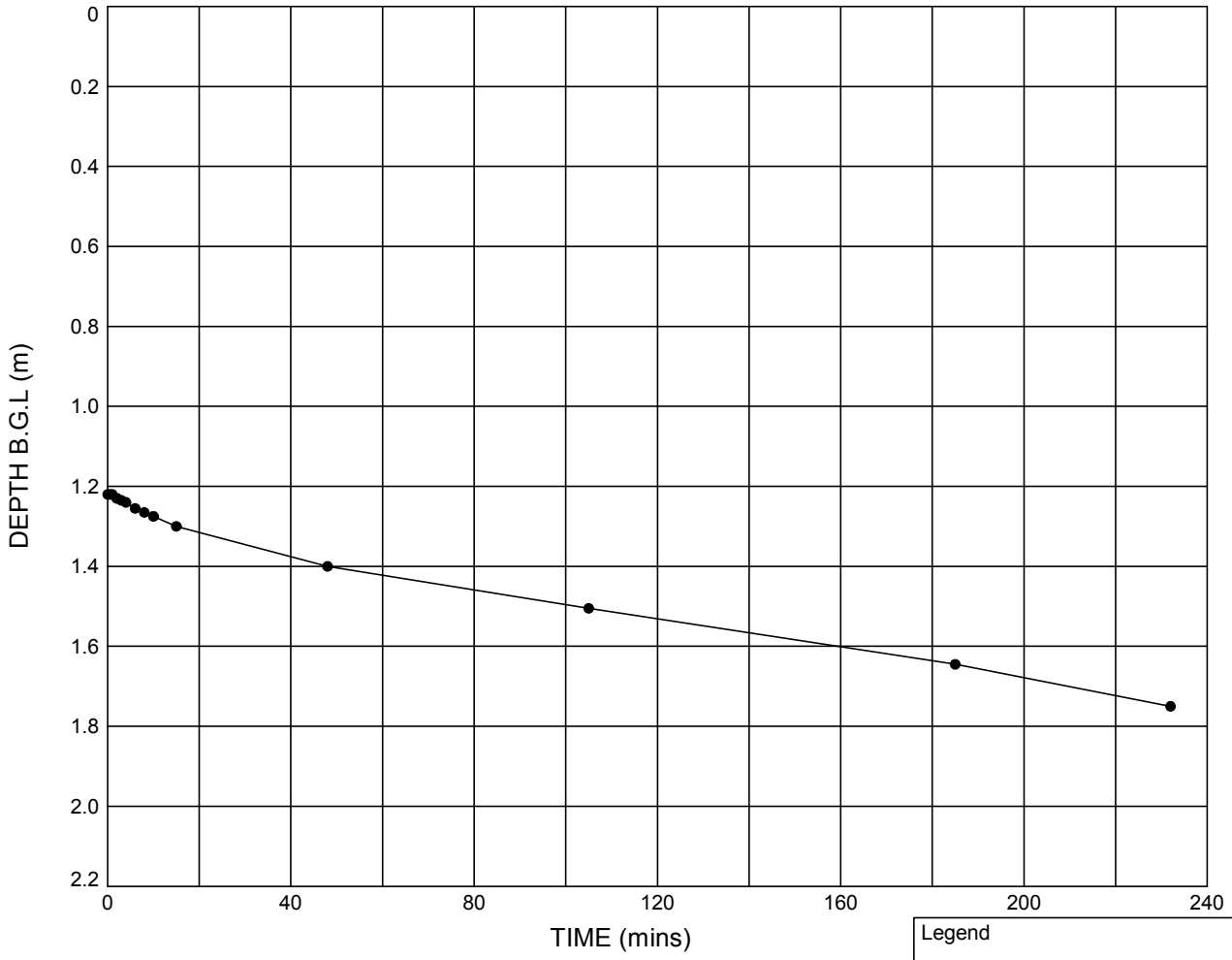
Contract Ref: **748749**

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **TP10**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Legend

● Test 1 (11.03.19)

Pit start depth:	=	**2.15**	m
Pit final depth:	=	**1.96**	m
Effective depth, De	=	**0.74**	m
Effective storage volume, V_{p75-25}	=	**0.3675**	m^3
Surface area, a_{p50}	=	**2.8375**	m^2
Time, t_{p75-25}	=	**11489**	secs
Infiltration rate, f	=	**1.13×10^{-5}**	m/s

Please note test data was extrapolated to obtain tp75-tp25.

Plan (Not to scale)

No Bearing Taken

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date	Checked By	Date
	12/03/19		**12/03/19**

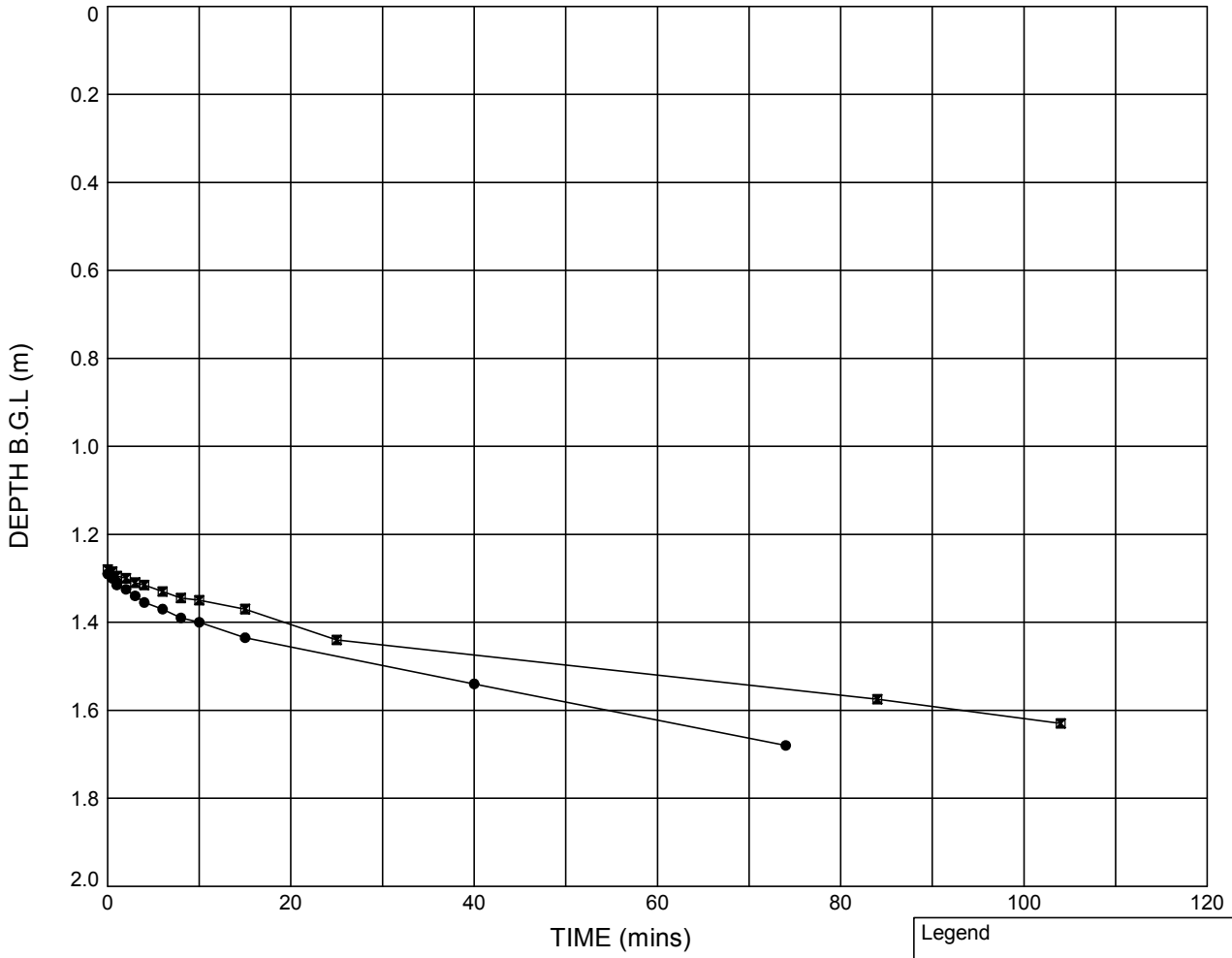
Contract	Contract Ref:
Mosquito Way, Hatfield	**748749**

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **TP15A**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME

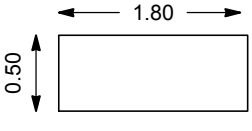


		Test 1	Test 2	
Pit start depth:	=	*2.00*	**1.78**	m
Pit final depth:	=	*1.78*	**1.70**	m
Effective depth, De	=	*0.49*	**0.42**	m
Effective storage volume, V_{p75-25}	=	*0.2183*	**0.1890**	m^3
Surface area, a_{p50}	=	*2.0155*	**1.8660**	m^2
Time, t_{p75-25}	=	*3362*	**4447**	secs
Infiltration rate, f	=	*$3.22x10^{-5}$*	**$2.28x10^{-5}$**	m/s

Legend

- Test 1 (11.03.19)
- Test 2 (11.03.19)

Plan (Not to scale)



No Bearing Taken

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

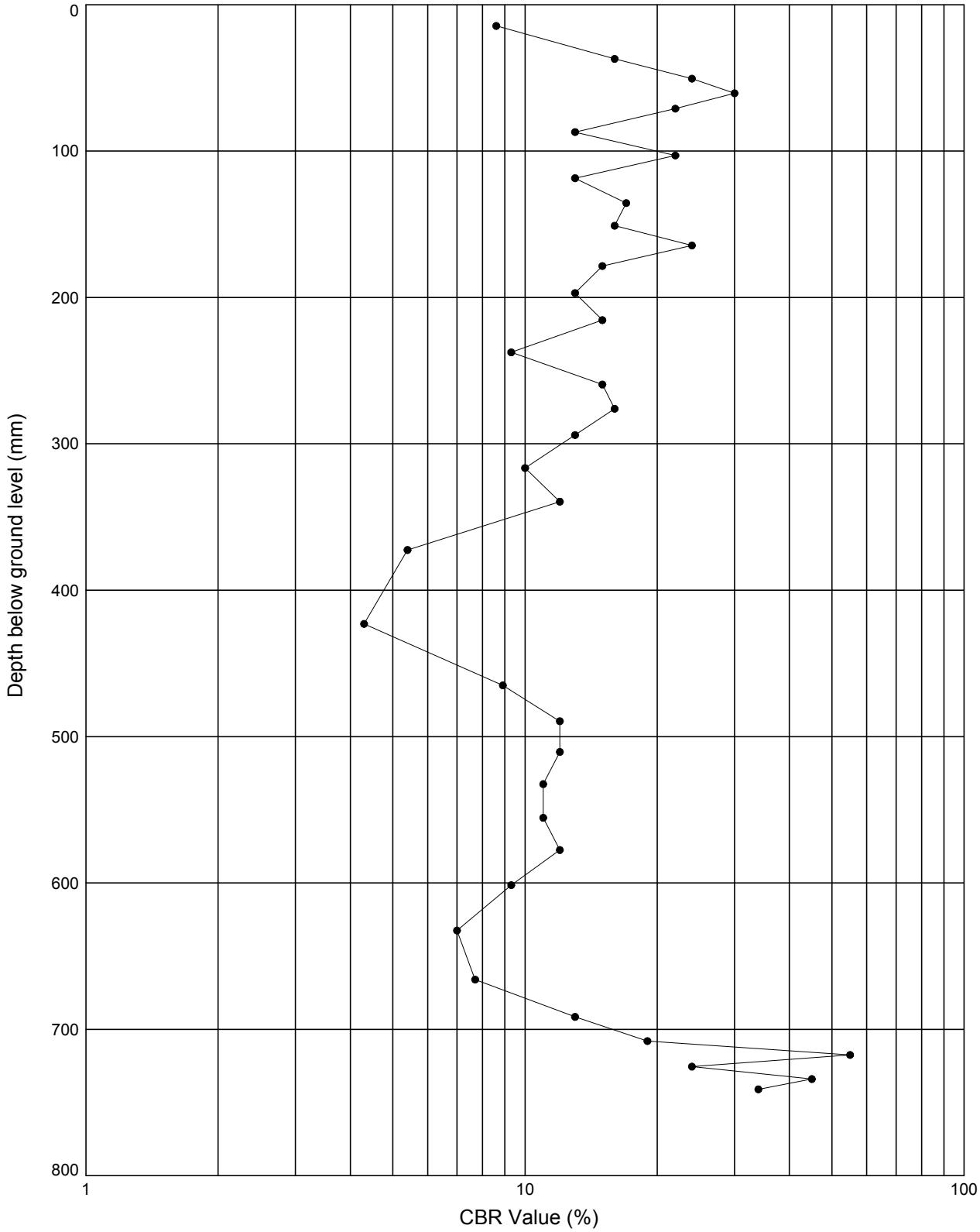
Compiled By	Date	Checked By	Date
	12/03/19		**12/03/19**

Contract	Contract Ref:
Mosquito Way, Hatfield	**748749**

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **BH03A** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.44** National Grid Co-ordinates: **E:521433.1 N:209141.0**



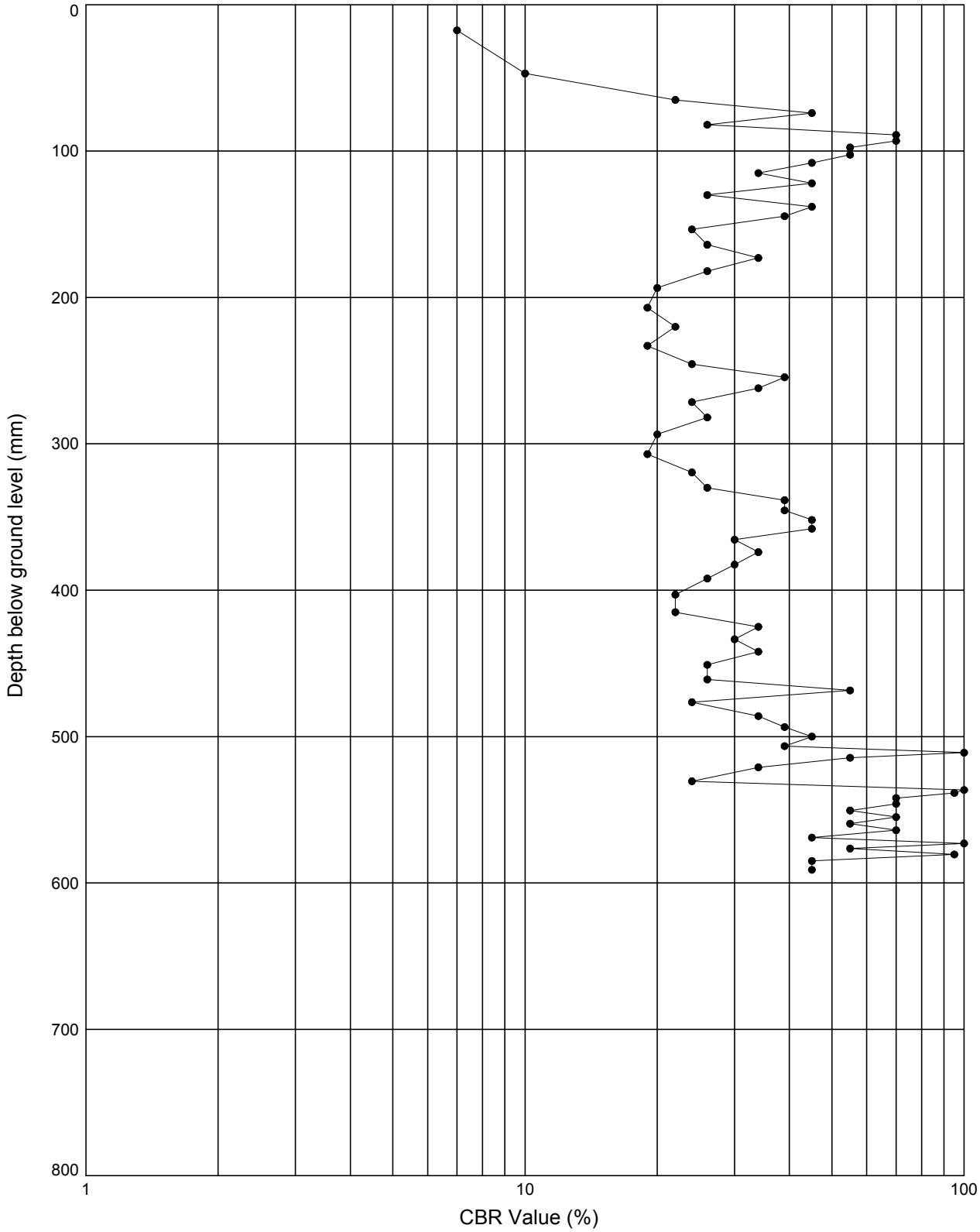
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ	Compiled By	Date	Checked By	Date
		08/04/19		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP01** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.36** National Grid Co-ordinates: **E:521438.6 N:209216.3**



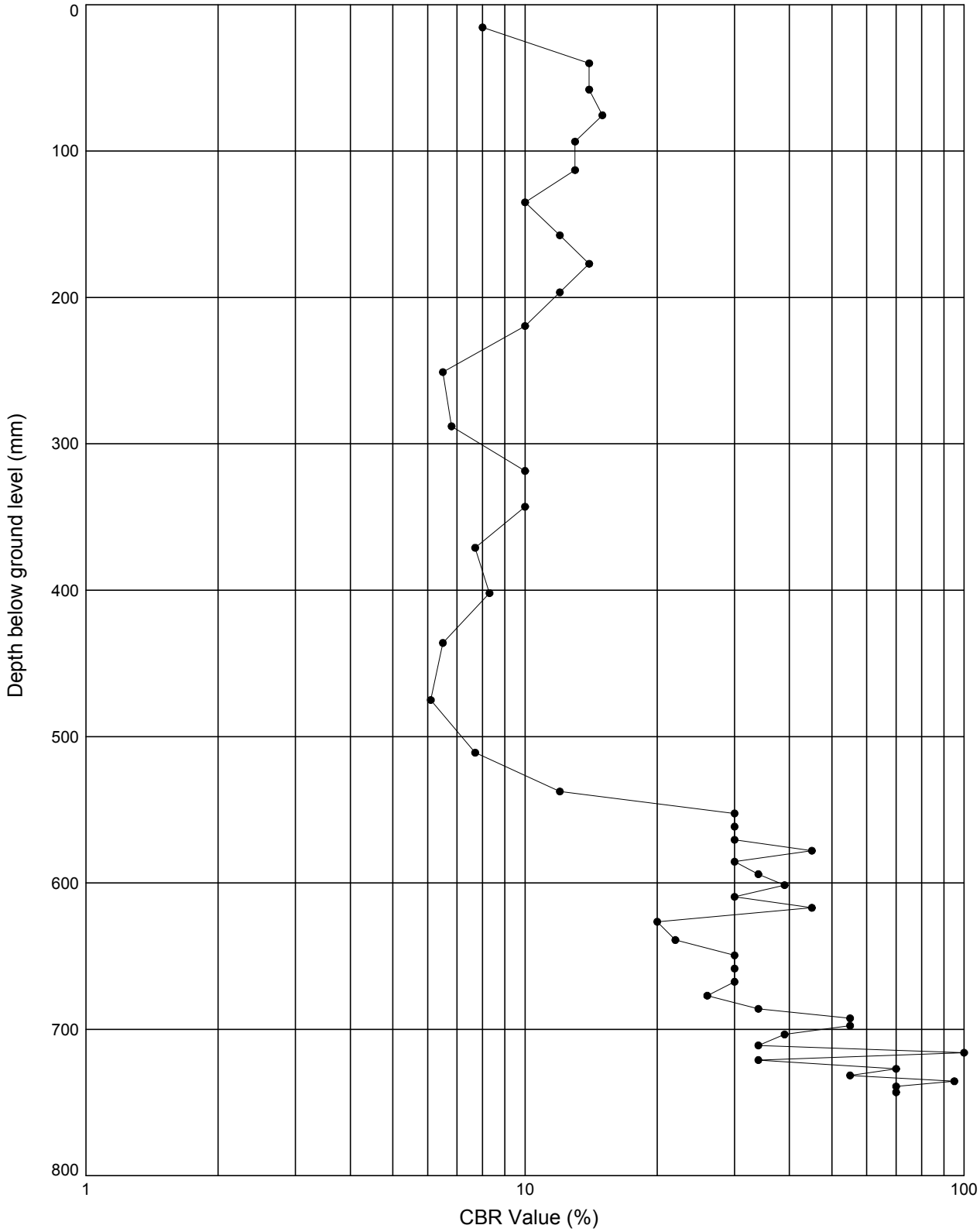
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP02** Test Date : **04.03.19** Test Number : **1**

Ground Level: **74.20** National Grid Co-ordinates: **E:521434.2 N:209192.6**



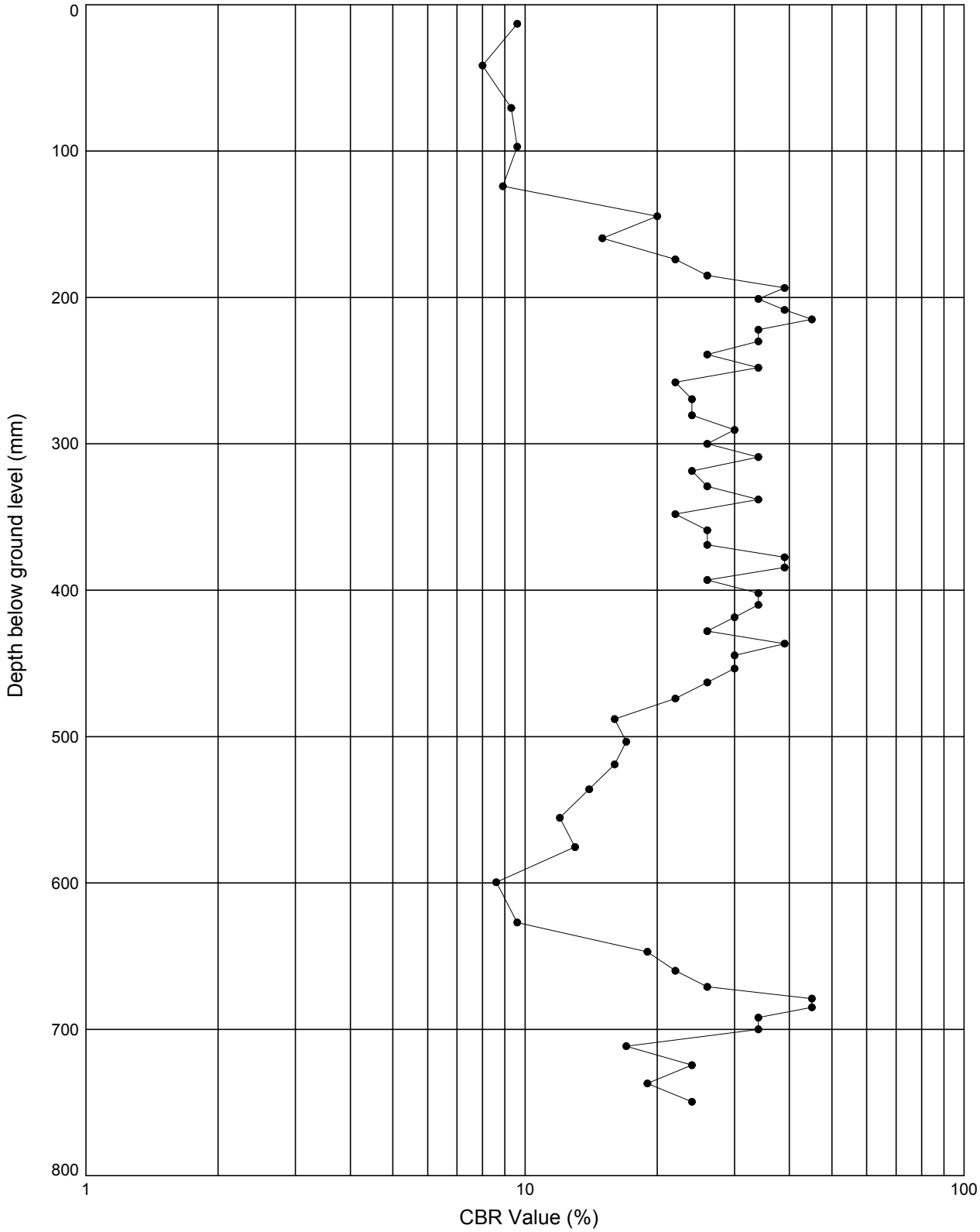
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP03** Test Date : **03.03.19** Test Number : **1**

Ground Level: **74.59** National Grid Co-ordinates: **E:521474.9 N:209191.0**



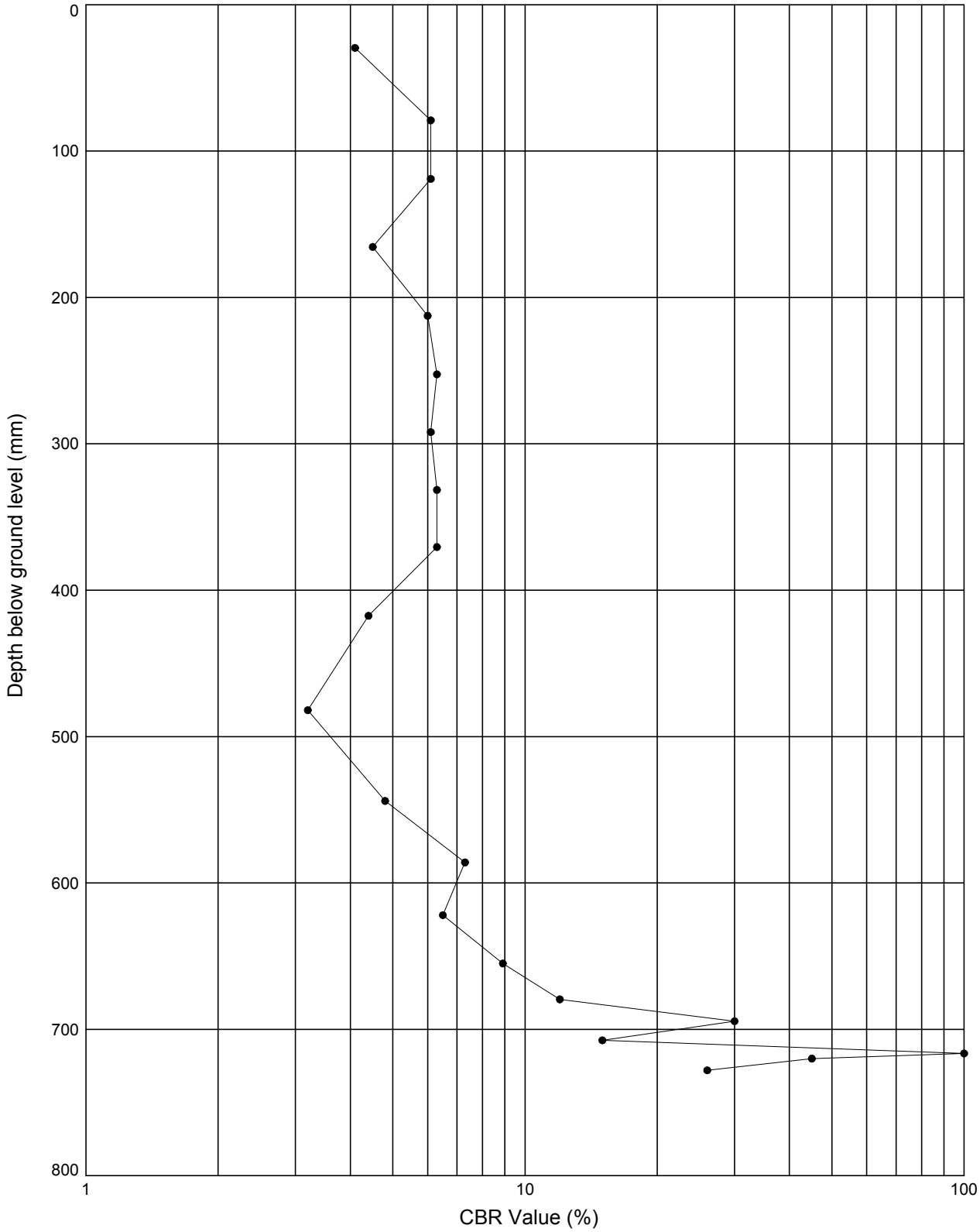
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP05** Test Date : **05.03.19** Test Number : **1**

Ground Level: **---** National Grid Co-ordinates: **E:521419.0 N:209144.0**



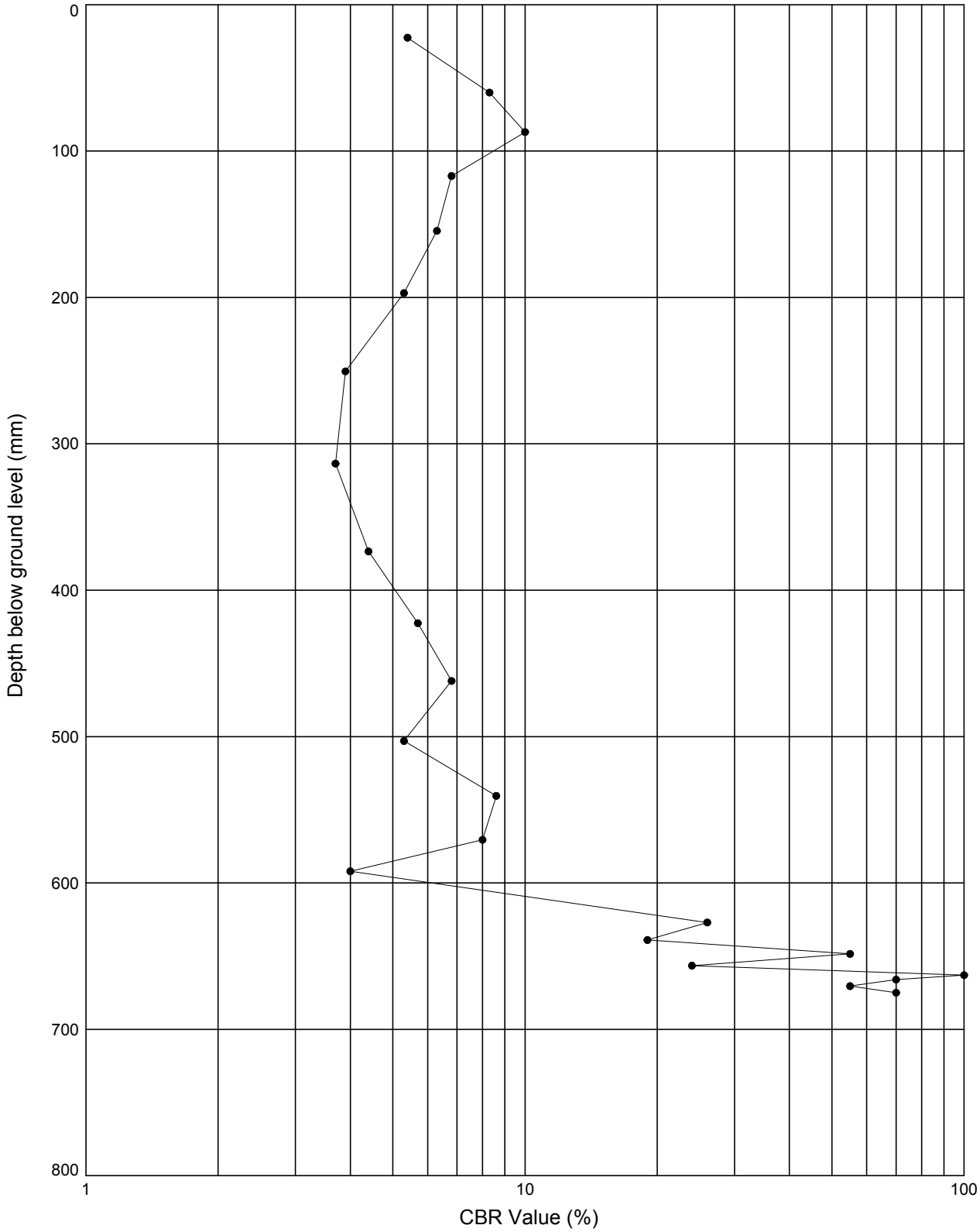
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP06** Test Date : **04.03.19** Test Number : **1**

Ground Level: **74.43** National Grid Co-ordinates: **E:521399.8 N:209159.1**



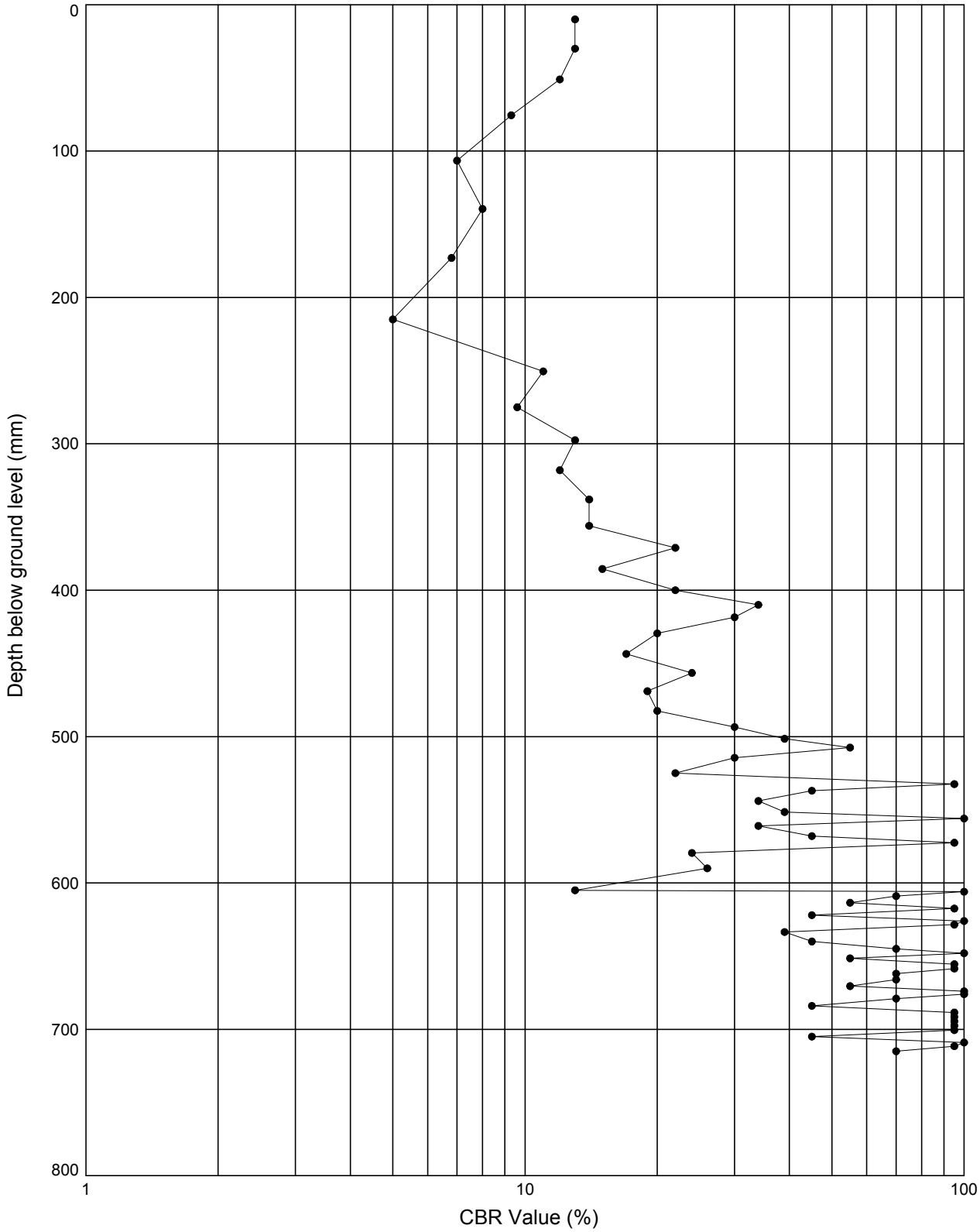
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP07** Test Date : **04.02.19** Test Number : **1**

Ground Level: **74.17** National Grid Co-ordinates: **E:521401.0 N:209140.0**



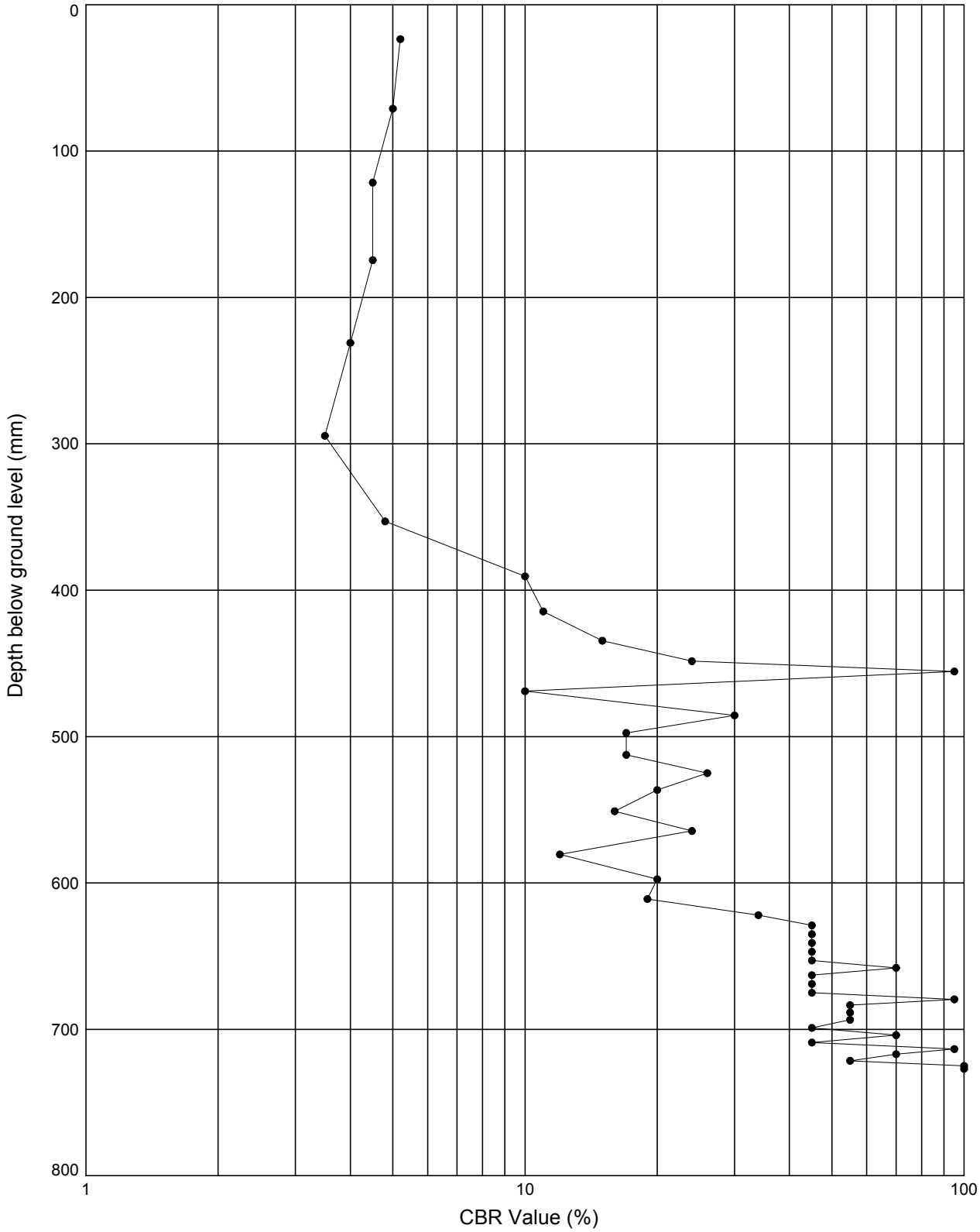
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP08** Test Date : **03.04.19** Test Number : **1**

Ground Level: **74.58** National Grid Co-ordinates: **E:521403.9 N:209204.4**



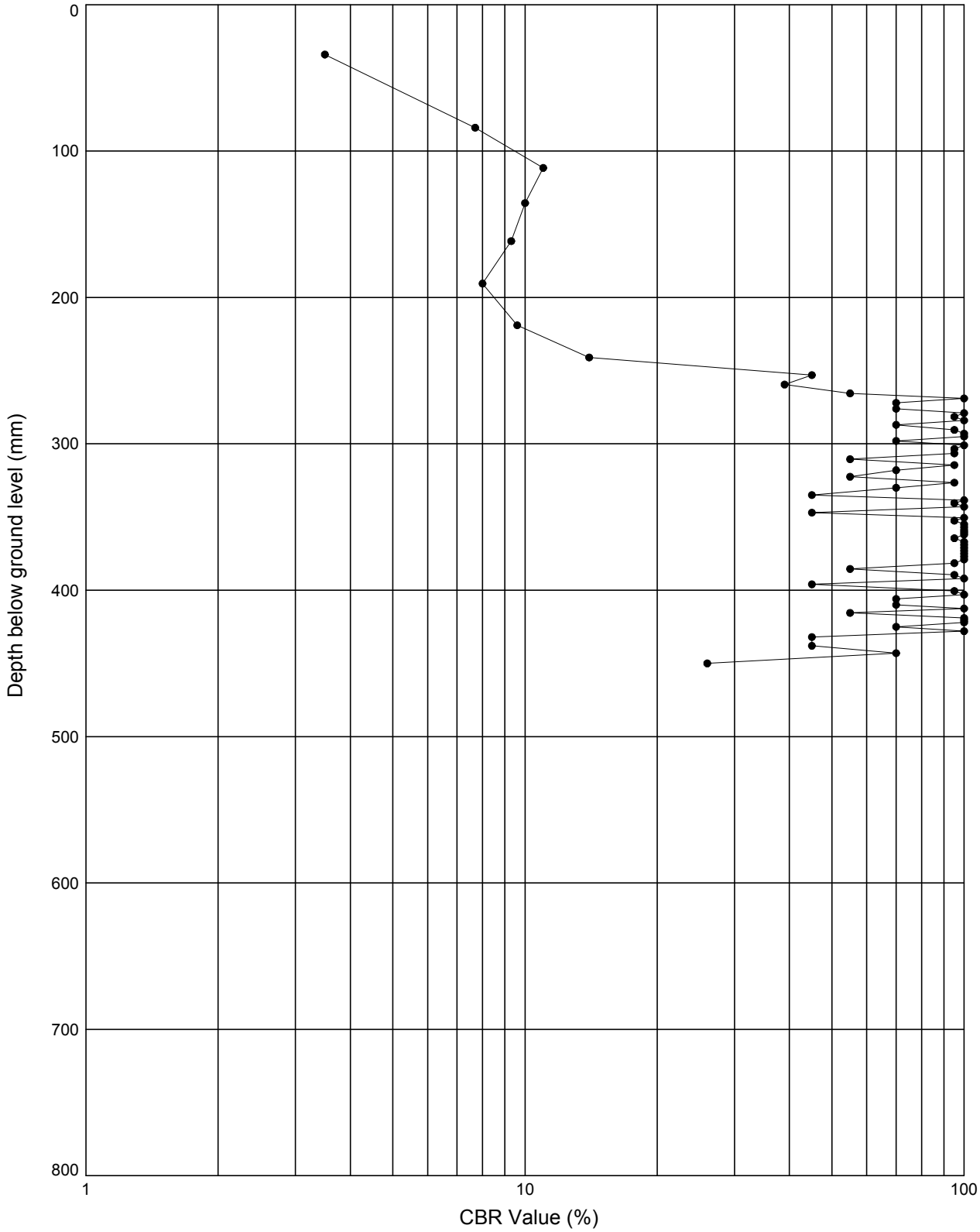
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ	Compiled By	Date	Checked By	Date
		08/04/19		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP09** Test Date : **03.03.19** Test Number : **1**

Ground Level: **75.04** National Grid Co-ordinates: **E:521349.6 N:209215.3**



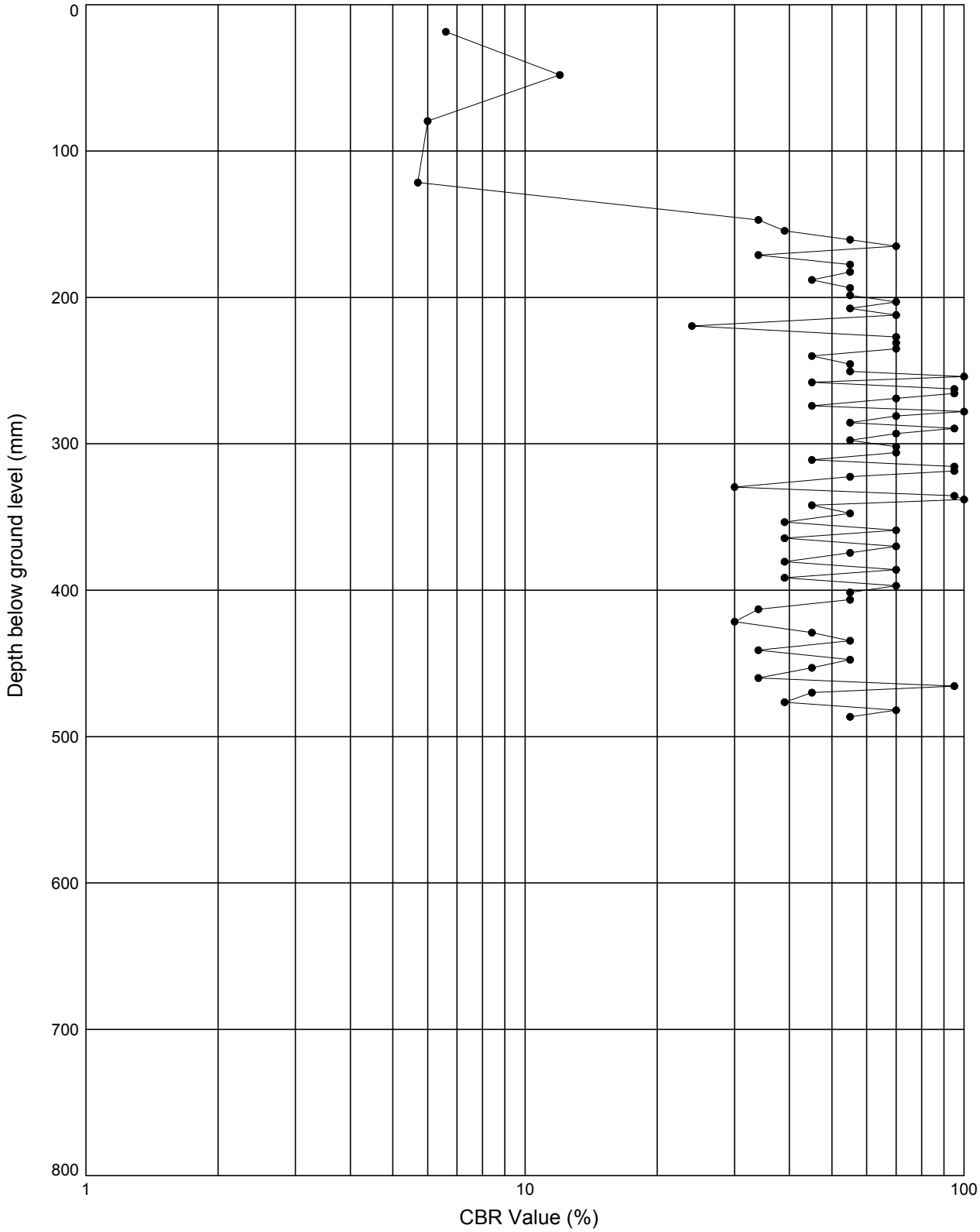
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ	Compiled By	Date	Checked By	Date
		08/04/19		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP10** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.74** National Grid Co-ordinates: **E:521351.3 N:209192.5**



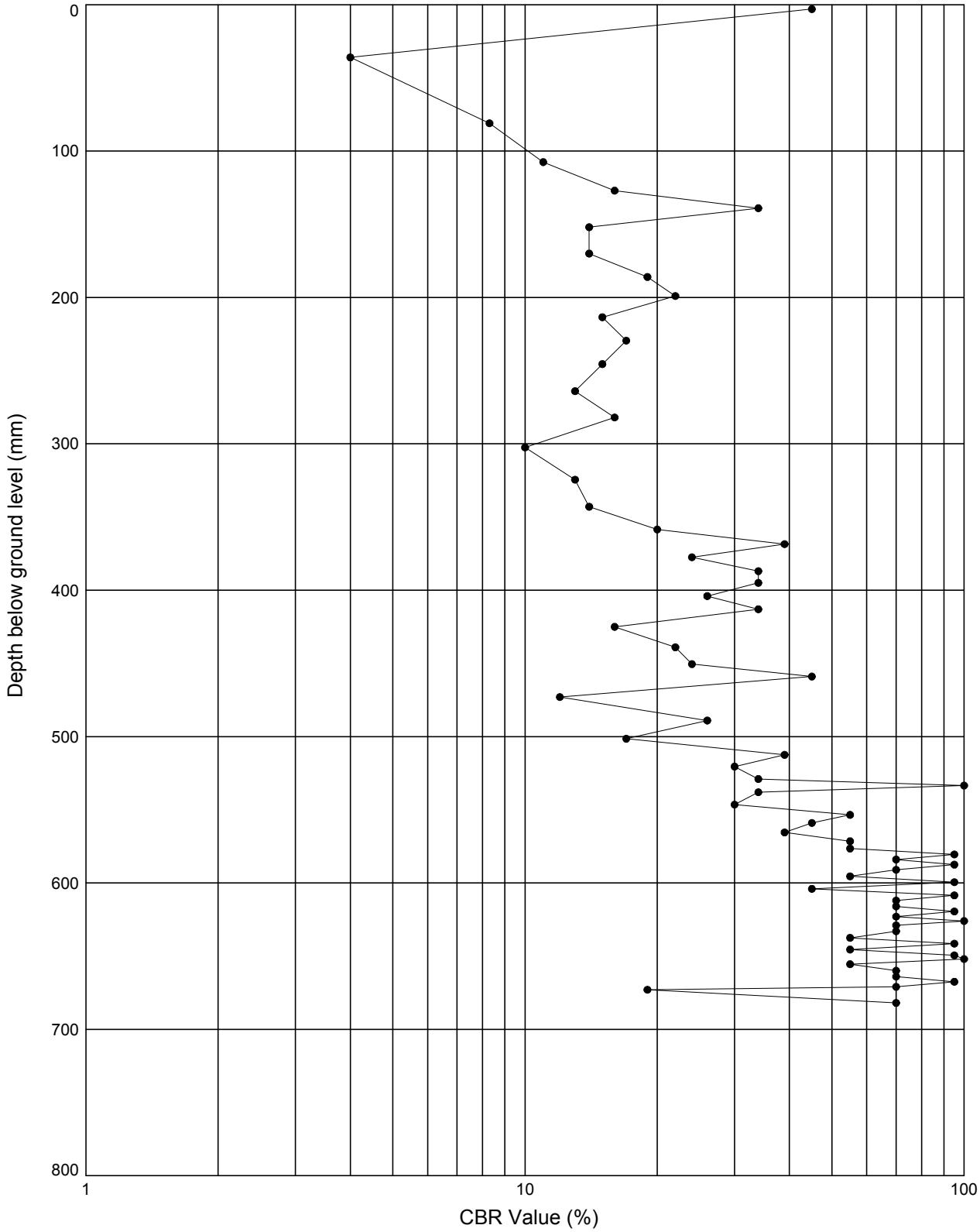
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP11** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.58** National Grid Co-ordinates: **E:521365.0 N:209172.0**



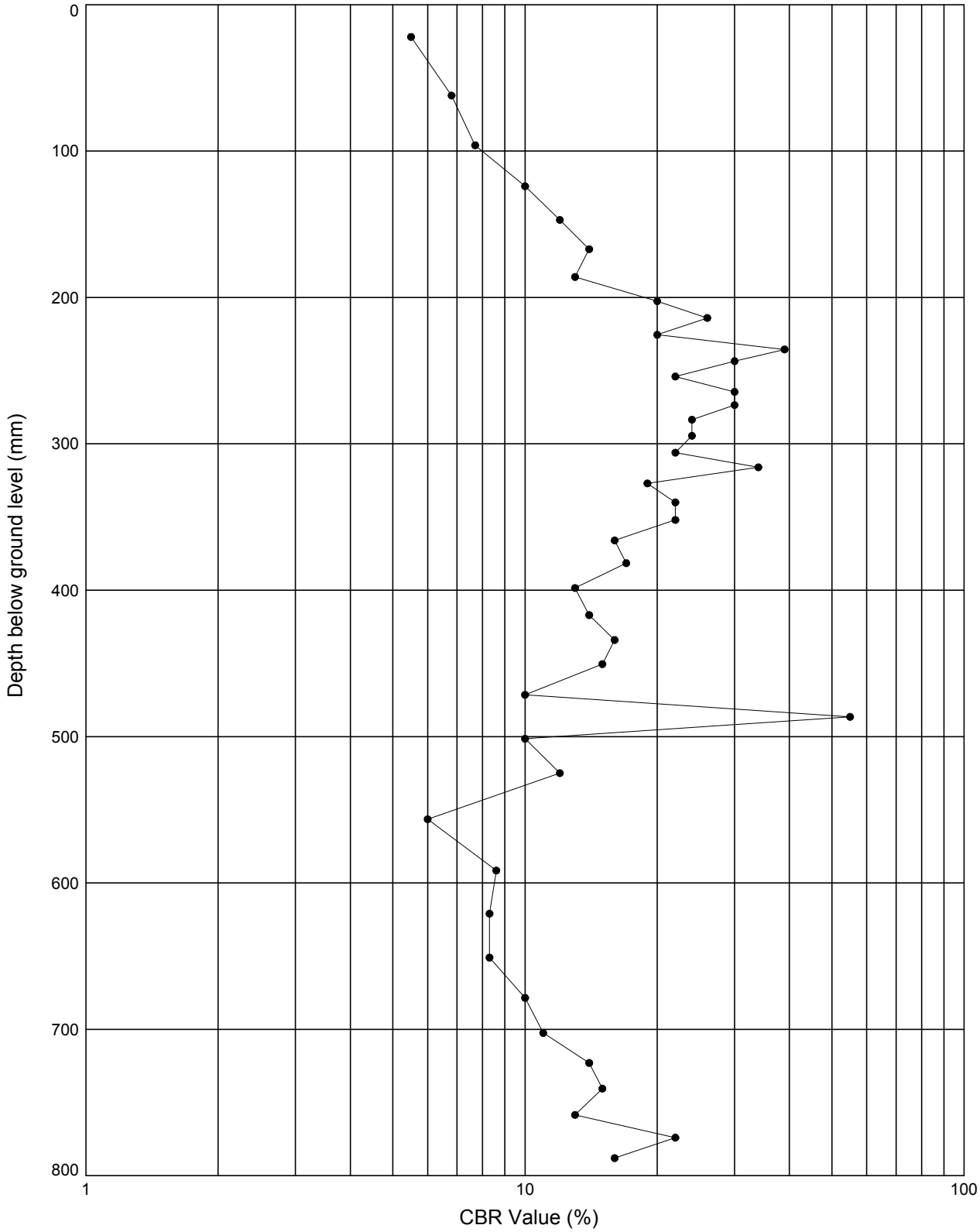
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP12** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.94** National Grid Co-ordinates: **E:521304.7 N:209157.2**



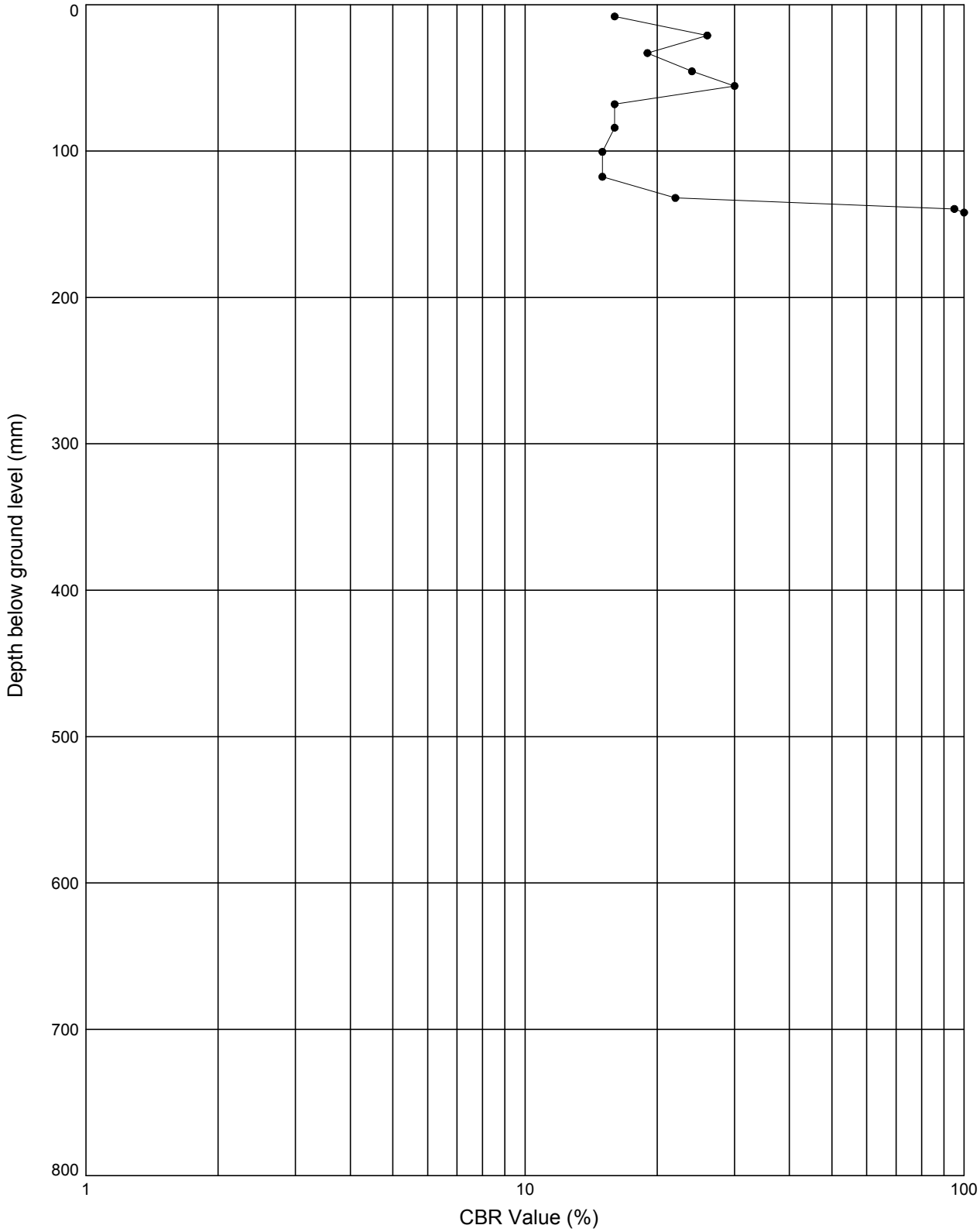
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ	Compiled By	Date	Checked By	Date
		08/04/19		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP13** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.70** National Grid Co-ordinates: **E:521336.0 N:209115.0**



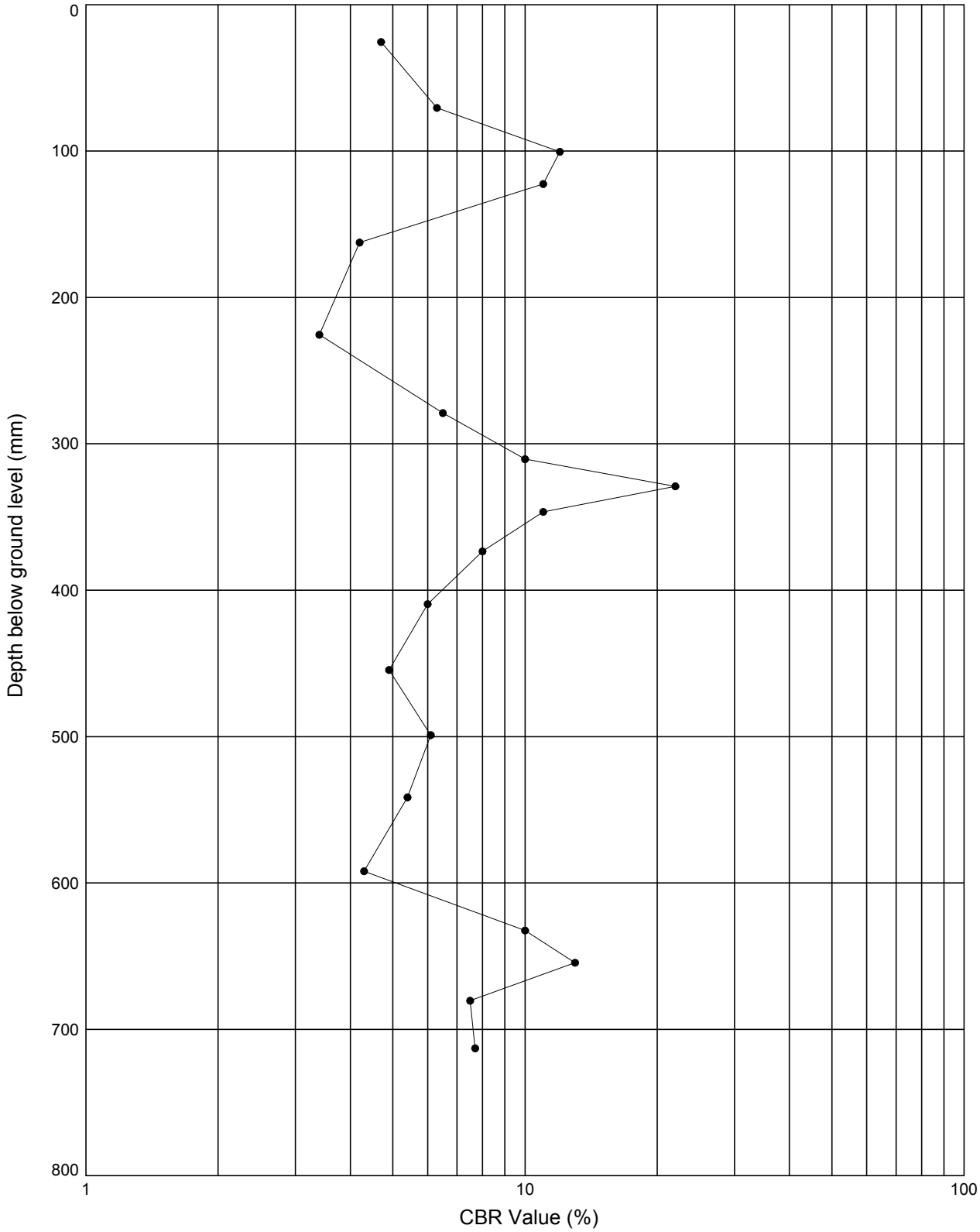
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP14** Test Date : **05.03.19** Test Number : **1**

Ground Level: **75.38** National Grid Co-ordinates: **E:521342.6 N:209087.3**



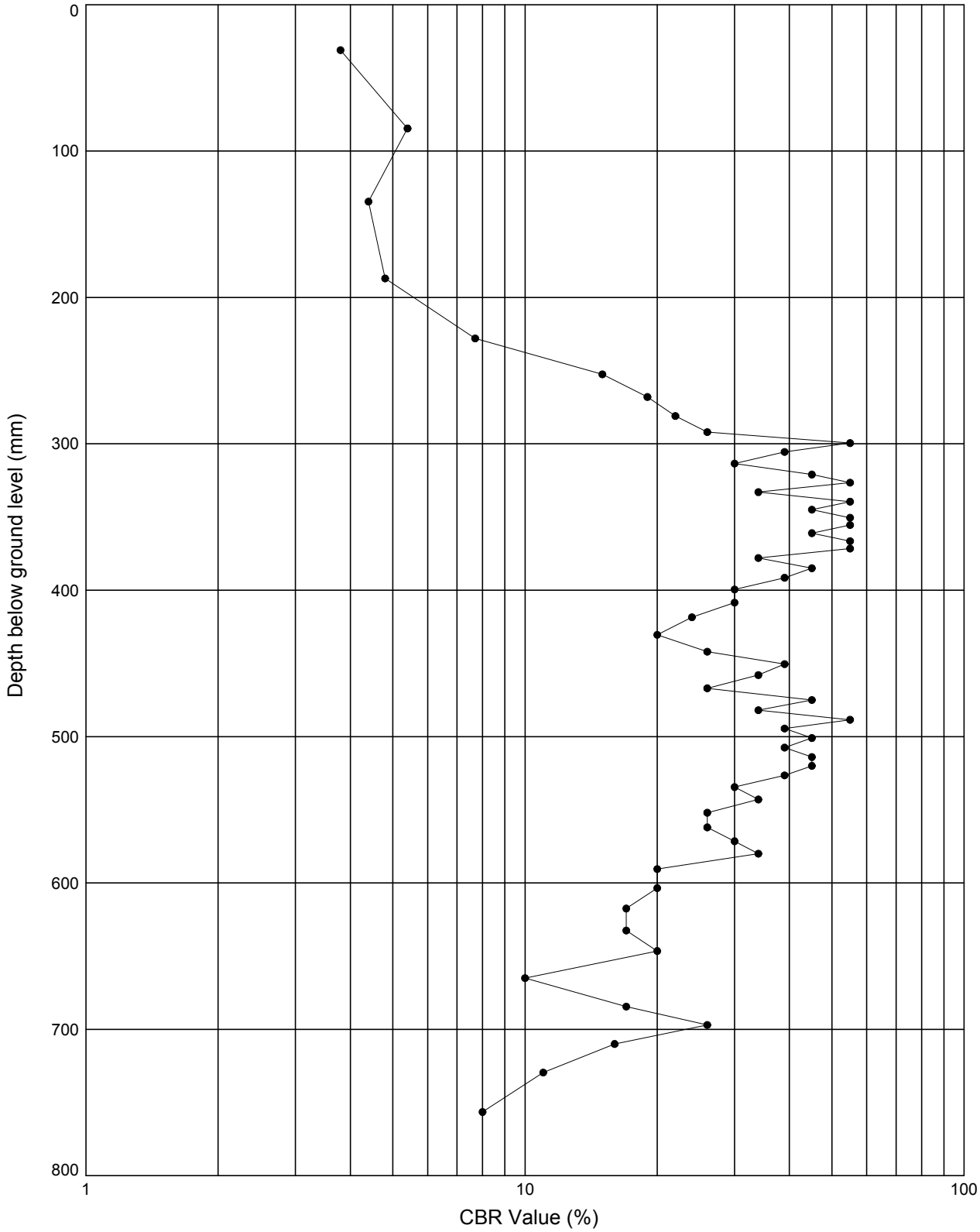
Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

DCP TEST RESULTS - DEPTH vs CBR VALUE

Position Ref : **TP15** Test Date : **05.03.19** Test Number : **1**

Ground Level: **74.61** National Grid Co-ordinates: **E:521358.0 N:209096.0**



Notes: **CBR values calculated after TRRL Road Note 8 method. Values over 100% are plotted on the 100% line.**

	Compiled By	Date	Checked By	Date
RSK Environment Ltd Abbey Park Humber Road Coventry CV3 4AQ		**08/04/19**		
	Contract **Hatfield Plot 5100**		Contract Ref: **314394**	

APPENDIX M
GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH

APPENDIX N
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 O
GENERIC ASSESSMENT CRITERIA FOR CONTROLLED WATERS

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

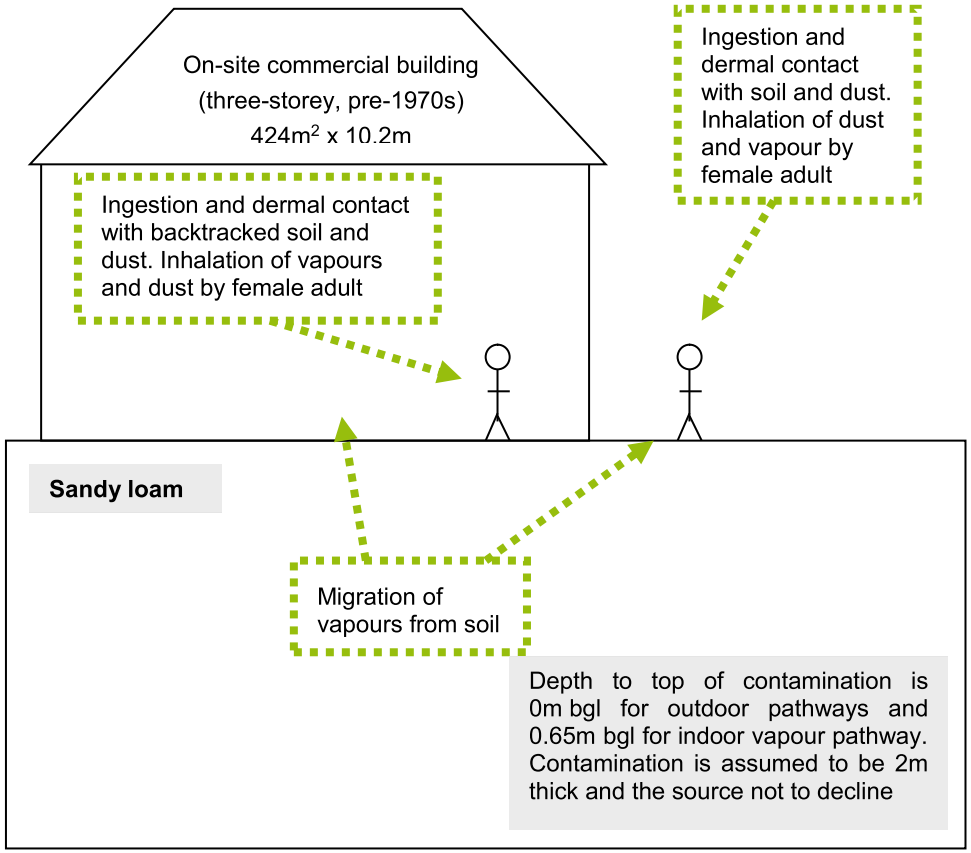


Table 1: Exposure assessment parameters for commercial scenario – inputs for CLEA model

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]

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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.

GENERIC ASSESSMENT CRITERIA FOR CONTROLLED WATERS

Protection of the water environment

The water environment in the United Kingdom is protected under a number of regulatory regimes. The relevant environmental regulator is consulted where there may be a risk that pollution of 'controlled waters' may occur or may have occurred in the past.

The term 'controlled waters' refers to coastal waters, inland freshwaters and groundwater. The EU Water Framework Directive (WFD) (2000/60/EC) is implemented via domestic regulations and guidance, covering aspects of groundwater and surface water protection as well as drinking water supply policy. Domestic legislation and guidance will vary across the United Kingdom. Therefore, the relevant legislation for England, Wales, Northern Ireland and Scotland should be reviewed, alongside guidance provided by the Environment Agency (EA), Natural Resource Wales (NRW), the Scottish Environmental Protection Agency (SEPA) or the Northern Ireland Environment Agency (NIEA), as appropriate.

The main objectives of the protection and remediation of groundwater under threat from land contamination are set out within "The Environment Agency's approach to groundwater protection", version 1.0 (March 2017)(1) and the associated guidance "Land contamination groundwater compliance points: quantitative risk assessments (March 2017)(1a) that have replaced the previous guidance document "Groundwater Principles and Practice (GP3)". When assessing risks to groundwater, the following need to be considered:

- Where pollutants have not yet entered groundwater, all necessary and reasonable measures must be taken to:
    - ***prevent the input of hazardous substances into groundwater (see description of hazardous substances below)***
    - ***limit the entry of other (non-hazardous) pollutants into groundwater to avoid pollution, deterioration in the status of groundwater bodies and to prevent sustained, upward trends in pollutant concentrations in groundwater.***
- Where pollutants have already entered groundwater, the priority is to take all necessary and reasonable measures to:
    - ***minimise*** *further entry of "contaminants" where there is a defined source*
    - ***limit the pollution of groundwater or any effect on the status of the groundwater body*** *from the future expansion of the 'plume', if necessary, by actively reducing its extent.*

Within the context of groundwater risk assessments on sites affected by land contamination, "reasonable" means feasible without involving disproportionate costs. What costs are "disproportionate" depends on site-specific circumstances, which may include:

- Considerations of technical feasibility such as identified by the remedial options appraisal, this may be due to the distribution or nature of the contamination and the available remedial methods to treat the identified contamination;
- Sustainability considerations.

DEFINITIONS AND SUBSTANCE CLASSIFICATIONS

Risks to surface waters:

When assessing risks to surface waters, the following list of definitions should be understood:

Priority substances (PS) are harmful substances originally identified under the Water Framework Directive (WFD) 2000/60/EC as substances 'presenting a significant risk to or via the aquatic environment' at a European level. Member States are required to incorporate the identified **PS** into their country-wide monitoring programmes. There are currently 33 **PS** defined within the Priority Substances Directive (2013/39/EU; Annex 1), with a further 12 additional substances due to come into force from 22 December 2018. Directive 2013/39/EU has been transposed into domestic legislation for England and Wales by The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Under the umbrella of **PS**, there is a sub-set of substances identified as being "hazardous", and these are referred to as **Priority hazardous substances (PHS).** The list of **PHS** is defined at EU level within the Priority Substances Directive (2013/39/EU). The WFD defines hazardous substances as 'substances (or groups of substances) that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances that give rise to an equivalent level of concern.' There are currently 15 **PHS**, with a further 6 additional substances due to come into force from 22 December 2018.

There is also another group of substances defined at EU level and which are referred to as **other pollutants (OP)** in Directive 2013/39/EU**.** These are additional substances which although not **priority substances**, have EQS which are identical to those laid down in the legislation which applied prior to 13 January 2009 (Directive 2008/105/EU). The **OP** are listed along with the **priority substance (PS)** within the Priority Substances Directive (2013/39/EU),and their associated EQS are also listed therein. There are 6 **OP** defined within the Priority Substances Directive (2013/39/EU).

In addition to the EU level substances, there are also a group of pollutants defined at a Member State level, referred to as **Specific pollutants (SP)**. These substances are pollutants which are released in significant quantities into water bodies in each of the individual European Member States. Under the WFD, Member States are required to set their own EQS for these substances. An indicative list of **SP** is given in Annex VIII of the WFD. Many of the substances categorised as **SP** in the UK were formerly List 2 substances under the old Groundwater Directive (80/68/EEC). The **SP** are defined within Part 2 (Table 1) of The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Risks to groundwater:

When assessing risks to groundwater, the following definitions should be understood:

Under the requirements of the Groundwater Daughter Directive (2006/118/EU), the UK has published a list of substances it considers to be **hazardous substances** with respect to groundwater. In their advisory capacity to the government, this list has been derived by the UK Joint Agencies Groundwater Directive Advisory Group (JAGDAG), of which the Environment Agency is a member. The JAGDAG list of **hazardous substances** was published in January 2017 and the Environment Agency will use the updated list of hazardous substances from this date for all new activities that may lead to the discharge of hazardous substances to groundwater. The list is extensive and can be found in full at:

https://www.wfduk.org/stakeholders/jagdag

Selecting the appropriate assessment criteria

When assessing the risks to controlled waters, various assessment criteria apply, depending on the nature of the assessment and the conceptual site model.

Where a surface water body is involved, then Environmental Quality Standards (EQS) are the relevant assessment criteria as they are designed to be protective of surface water ecology.

Where a public water supply or a Principal aquifer is involved, then the standards defined in The Water Supply (Water Quality) Regulations[2] are the primary source of assessment criteria. The Private Water Supplies Regulations[3] may also be applicable in some cases. For instances where there are no UK assessment criteria, then the World Health Organisation (WHO) drinking water guidelines[4] may be used.

This appendix presents the generic assessment criteria (GAC) that RSK considers suitable for assessing risks to controlled waters for our most commonly encountered determinants. A full list of EQS for England and Wales are included in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

The RSK GAC for controlled waters are presented in **Table 1** and **Table 2**. In line with the Environment Agency's Remedial Targets Methodology, the GAC for controlled waters are termed 'target concentrations'.

The appropriate target concentrations should be selected with consideration to:

- the site conceptual model (i.e. the receptor at potential risk);
- whether the substance is already present in groundwater at the site;
- whether or not the substance is classified as a priority hazardous substance under the Priority Substances Directive (2013/39/EC) (see above), or as a hazardous substance according to the current list of JAGDAG determinations[5]; and
- background concentrations in the aquifer (if applicable).

It is important to remember that the WFD and Environment Agency guidance[1 & 1a] support a sustainable, risk-based approach be applied to groundwater contamination. Exceedance of any target concentration does not necessarily imply that an unacceptable risk exists or that remediation is inevitably required.

Target concentrations shaded in green are statutory values	Target concentrations shaded in orange are non-statutory values

Note: Units µg/l throughout (unless otherwise stated)

Table 1: Target concentrations for controlled waters (excluding TPH CWG fractions)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Metals & other inorganics						
Hazardous substance	Specific pollutant	Arsenic	-	10[2]	50[6a]	25[6a]
Non-hazardous pollutant	Priority substance	Cadmium	0.1[7]	5[2]	≤0.08, 0.08, 0.09, 0.15, 0.25 [6b]	0.2[6a]
(Not determined)	-	Chromium (total)	-	50[2]	8.1 Sum values for chromium III and VI	-
(None	Specific pollutant	Chromium (III)	-	Use value for total chromium	4.7[6a]	-
Hazardous substance	Specific pollutant	Chromium (VI)			3.4[6a]	0.6[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	Specific pollutant	Copper	-	2,000[2]	1 bioavailable[6a]	3.76 dissolved, where DOC ≤1mg/l[6a]
						3.76µg/l + (2.677µg/l x ((DOC/2) – 0.5µg/l)) dissolved, where DOC >1mg/l[6a]
Hazardous substance	Priority substance	Lead	-	10[2]	1.2 bioavailable[6a]	1.3[6a]
Hazardous substance	**Priority hazardous substance**	Mercury	0.01[7]	1[2]	0.07[6c]	0.07[6c]
Non-hazardous pollutant	Priority substance	Nickel	-	20[2]	4.0 bioavailable[6a]	8.6[6a]
Non-hazardous pollutant	-	Selenium	-	10[2]	-	-
Non-hazardous pollutant	Specific pollutant	Zinc	-	3,000[8]	10.9 bioavailable[6a]	6.8 dissolved [6a]
None	Specific pollutant	Iron	-	200[2]	1000[6a]*1	1000[6a])*1
None	Specific pollutant	Manganese	-	50[2] (0.05mg/l)	123 bioavailable[6a] (0.123mg/l)	-
(Not determined)	-	Aluminium	-	200[2]	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	**Priority hazardous substance**	Tributyltin compounds (Tributyltin-cation)	0.001[7]	-	0.0002[6a]	0.0002[6a]
(Not determined)	-	Sodium	-	200,000[2] (200 mg/l)	-	-
Non-hazardous pollutant	Specific pollutant	Cyanide (Hydrogen cyanide)	-	50[2] (0.05 mg/l)	1[6a] (0.001 mg/l)	1[6a] (0.001 mg/l)
Non-hazardous pollutant	-	Total ammoniacal nitrogen[$]	-	500[2] (0.5 mg/l) as NH_4 (472 expressed as NH_3; 389 expressed as N)	300[6f] (0.3 mg/l) as N (364 expressed as NH_3; 386 expressed as NH_4)	-
Non-hazardous pollutant	Specific pollutant	Ammonia un-ionised (equilibrium ratio calculated) (NH_3)	-	-	-	21[6a] (0.021 mg/l)
Non-hazardous pollutant	Specific pollutant	Chlorine	-	-	2[6a] (0.002 mg/l)	10[6d] (0.01 mg/l)
(Not determined)	-	Chloride	-	250,000[2] (250 mg/l)	-	-
(Not determined)	-	Sulphate	-	250,000[2] (250 mg/l)	-	-
(Not determined)	-	Nitrate (as NO_3)	-	50,000[2] (50 mg/l)	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	-	Nitrite (as NO_2)	-	500[2] (0.5 mg/l)	10[9] (0.01 mg/l)	-
Volatile organic compounds (VOC)						
Non-hazardous pollutant	Other pollutant	Tetrachloroethene (tetrachloroethylene; PCE)	0.1[7]	10[2] sum of TCE and PCE	10[6a]	10[6a]
Hazardous substance	Other pollutant	Trichloroethene (trichloroethylene; TCE)	0.1[7]		10[6a]	10[6a]
None	Specific pollutant	Tetrachloroethane	-	-	140[6a]	-
Hazardous substance	Other pollutant	Carbon tetrachloride (tetrachloromethane)	0.1[7]	3.0[2]	12[6a]	12[6a]
Non-hazardous pollutant	Priority substance	1,2-Dichloroethane	1.0[7]	3.0[2]	10[6a]	10[6a]
Non-hazardous pollutant	**-**	1.2-Dichloroethene (DCE) sum of cis and trans	-	50.0[4]	-	-
Hazardous substance	**-**	Vinyl chloride (chloroethene)	-	0.5[2]	-	-
Non-hazardous pollutant	Priority substance	Dichloromethane	-	20[4]	20[6a]	20[6a]
Non-hazardous pollutant	Priority substance	Trichlorobenzenes	0.01[7]	-	0.4[6a]	0.4[(6a)]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Trichloromethane (Chloroform)	0.1[7]	100[2a] (sum of **trihalomethanes** – chloroform, bromform, dibromochloromethane, bromodichloromethane)	2.5[6a]	2.5[6a]
(Not determined)	-	Bromoform	-		-	-
(Not determined)	-	Dibromochloromethane	-		-	-
(Not determined)	-	Bromodichloromethane	-		-	-
Non-hazardous pollutant	**Priority hazardous substance**	Di(2-ethylhexyl) phthalate (bis(2-ethylhexyl) phthalate, DEHP)	-	8[4]	1.3[6a]	1.3[6a]
None	Specific pollutant	Benzyl butyl phthalate	-	-	7.5[6a]	0.75[6e]
Hazardous substance	**Priority hazardous substance**	Hexachlorobutadiene (as a pesticide, but reported in a VOC suite)	0.005[7]	0.1[2]	0.6[6c]	0.6[6c]
Semi-volatile organic compounds (SVOC)						
(Not determined)	-	Acenaphthylene (Aro EC12-EC16)	-	-	5.8[10]	
Hazardous substance	**Priority hazardous substance**	Anthracene (Aro EC16-EC21)	-	-	0.1[6a]	0.1[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters
Non-hazardous pollutant	Priority substance	Naphthalene (Aro EC10-EC12)	-	-	2[6a]	2[6a]
Hazardous substance	Priority substance	Fluoranthene (Aro EC21-EC35) not used as an indicator for this EC band	-	-	0.0063[6a]	0.0063[6a]
Hazardous substance(s)	**Priority hazardous substance(s)**	Benzo(a)pyrene (Aro EC21-EC35)	-	0.01[2]	0.00017[6a]	0.00017[6a]
		Benzo(b)fluoranthene (Aro EC21-EC35)	-	0.1[2] sum of the concentration of the four specified compounds	No EQS for these substances. B(a)P should be used as the indicator compound instead.	
		Benzo(k)fluoranthene (Aro EC21-EC35)	-			
		Benzo(g,h,i)perylene (Aro EC21-EC35)	-			
		Indeno(1,2,3-cd) pyrene (Aro EC21-EC35)	-			
Non-hazardous pollutant	Specific pollutant	Phenol	-	-	7.7[6a]	7.7[6a]
Hazardous substance	Specific pollutant	2,4-Dichlorophenol	0.1[7]	-	4.2[6a]	0.42[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Pentachloro-phenol (PCP) (as a pesticide, but reported in an SVOC suite)	0.1[7]	0.1[2]	0.4[6a]	0.4[6a]
Petroleum hydrocarbons						
Hazardous substance	-	Total petroleum hydrocarbons	-	See Table 2 for individual (non-statutory) TPH CWG fractions with respect to drinking water receptors	See individual risk driving compounds (i.e. BTEX and PAH) for specific EQS	
Hazardous substance	Priority substance	Benzene (Aro EC5-EC7)	1[7]	1[2]	10[6a]	8[6a]
Hazardous substance	Specific pollutant	Toluene (Aro EC7-EC8)	4[7]	700[4]	74[6a]	74[6a]
Hazardous substance	-	Ethylbenzene (Aro EC8-EC10)	-	300[4]	300[11]	-
(Not determined)	-	Xylenes (Aro EC8-EC10)	3[7]	500[4]	30[11]	-
Non-hazardous pollutant	-	Methyl tertiary butyl ether (MTBE)	-	15[12]	-	

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters
Pesticides, fungicides, insecticides and herbicides						
(Not determined) – assume to be Hazardous Substance	-	Total pesticides	-	0.5[2]	-	-
(Not determined) - assume to be Hazardous Substance	-	Other individual pesticides (unless otherwise detailed below)	-	0.1[2]	-	-
Hazardous substance(s)	Other pollutant (Cyclodiene pesticides)	Aldrin	0.003[7]	0.03[2]	0.01[6a] (sum of all four)	0.005[6a] (sum of all four)
		Dieldrin	0.003[7]	0.03[2]		
		Endrin	0.003[7]	0.1[2b] ('other individual pesticide')		
		Isodrin*[2]	0.003[7]	0.1[2b] ('other individual pesticide')		
Hazardous substance	Other pollutant	DDT (total)	0.002[7]	0.1[2] ('other individual pesticide')	0.025[6a]	0.025[6a]
Hazardous substance	Specific pollutant	Carbendazim	-	0.1[2] ('other individual pesticide')	0.15[6a]	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Chlorothalonil	-	0.1[2] ('other individual pesticide')	0.035[6a]	-
Hazardous substance	Specific pollutant (until 22/12/18, after which it becomes a Priority substance)	Cypermethrin	-	0.1[2] ('other individual pesticide')	0.0001[6a] From 22/12/18: 8.0E^{-5}[6a]	0.0001[6a] From 22/12/18: 8.0E^{-6}[6a]
Hazardous substance	Specific pollutant	Dimethoate	0.01[7]	0.1[2] ('other individual pesticide')	0.48[6a]	0.48[6a]
(Not determined)	Specific pollutant	Glyphosate	-	0.1[2] ('other individual pesticide')	196[6a]	196[6a]
Hazardous substance	Specific pollutant	Linuron	-	0.1[2] ('other individual pesticide')	0.5[6a]	0.5[6a]
Non-hazardous pollutant	Specific pollutant	Mecoprop	0.04[7]	0.1[2] ('other individual pesticide')	18[6a]	18[6a]
Non-hazardous pollutant	Specific pollutant	Methiocarb	-	0.1[2] ('other individual pesticide')	0.01[6a]	-
Non-hazardous pollutant	Specific pollutant	Pendimethalin	-	0.1[2] ('other individual pesticide')	0.3[6a]	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Permethrin	0.001[7]	0.1[2] ('other individual pesticide')	0.001[6a]	0.0002[6a]
Hazardous substance	Priority substance	Alachlor	-	0.1[2] ('other individual pesticide')	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Atrazine	0.03[7]	100[4] ('other individual pesticide')	0.6[6a]	0.6[6a]
Hazardous substance	Priority substance	Diuron	-	0.1[2] ('other individual pesticide')	0.2[6a]	0.2[6a]
Hazardous substance	**Priority hazardous substance**	Endosulphan	0.005[7]	0.1[2] ('other individual pesticide')	0.005[6a]	0.0005[6a]
Non-hazardous pollutant	Priority substance	Isoproturon	-	0.1[2] ('other individual pesticide')	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Simazine	0.03[7]	0.1[2] ('other individual pesticide')	1[6a]	1 [6a]
Hazardous substance	**Priority hazardous substance**	Trifluralin	0.01[7]	0.1[2] ('other individual pesticide')	0.03[6a]	0.03[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	From 22/12/18: Priority substance	Dichlorvos	-	0.1[2] ('other individual pesticide')	From 22/12/18: $6.0E^{-4}$[6a]	From 22/12/18: $6.0E^{-5}$[6a]
Hazardous substance	From 22/12/18: Priority substance	Heptachlor and heptachlor epoxide	-	0.03[2]	From 22/12/18: $2.0E^{-7}$[6a]	From 22/12/18: $1.0E^{-08}$[6a]
Miscellaneous						
None	Specific pollutant	Triclosan (antibacterial agent)	-	-	0.1[6a]	0.1[6a]
Hazardous substance	**From 22/12/18: Priority hazardous substance**	Perfluoro-octane sulfonic acid (and its derivatives) (PFOS)	-	-	From 22/12/18: $6.5E^{-4}$[6a]	From 22/12/18: $1.3E^{-4}$[6a]
Hazardous substance	**From 22/12/18: Priority hazardous substance**	Hexabromo cyclododecane (HBCDD)	-	-	From 22/12/18: 0.0016[6a]	From 22/12/18: 0.0008[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters

Notes:

'-' A target concentration is not available.

$Please note that total ammonia (NH_4^+ and NH_3) is equivalent to ammoniacal nitrogen in laboratory reports

*1 Please note that although iron is listed in the 2015 Direction as 1.000 µg/l, the EQS remains at 1mg/l in Scotland and it is assumed this is an error and should read either 1,000 or 1000µg/l.

*2 Please note that although Isodrin is not listed in name within the group of "Cyclodiene pesticides" in Table 1 of Schedule 3 Part 3 of the 2015 Direction[6], the CAS number for Isodrin (465-73-6) **is** listed and therefore it is assumed that it has been missed off the named list of substances.

*3 Total petroleum hydrocarbons is used for consistency, but is an analytical method-defined measurement for a mixture of hydrocarbons subject to environmental analysis[11].

"Bioavailable" in relation to copper, zinc, nickel and manganese (but not lead) is the generic EQSbioavailable[6a] derived from the Metal Bioavailability Assessment Tool (M-BAT) developed by the Water Framework Directive UK Technical Advisory Group (WFDTAG). Exceedance of this value should prompt a site-specific assessment using the M-BAT with pH, DOC and Ca to derive a site-specific EQS termed the $PNEC_{dissolved}$. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

For zinc, if there is an exceedance of the EQSbioavailable in an initial GQRA, Tier 2 required that the EQS for zinc should also have the ambient background concentration of zinc added as well

Table 2: World Health Organization (WHO) guide values for TPH CWG fractions in drinking water[13] (as referenced in CL:AIRE, 2017[11])

TPH CWG fraction	WHO guide value for drinking water[13] (µg/l)
Aliphatic fractions:	
Aliphatic EC5-EC6	15,000
Aliphatic >EC6-EC8	15,000
Aliphatic >EC8-EC10	300
Aliphatic >EC10-EC12	300
Aliphatic >EC12-EC16	300
Aliphatic >EC16-EC21	-
Aliphatic >EC21-EC35	-
Aromatic fractions:	
Aromatic EC5-EC6	10 (benzene)
Aromatic >EC6-EC8	700 (toluene)
Aromatic >EC8-EC10	300 (ethyl benzene) 500 (xylenes)
Aromatic >EC10-EC12	90
Aromatic >EC12-EC16	90
Aromatic >EC16-EC21	90
Aromatic >EC21-EC35	90
Reference: World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva[13].	

References

1. Environment Agency (2017), 'The Environment Agency's approach to groundwater protection', version 1.0, March 2017 (formerly contained within GP3) [accessed 29 March 2017]. https://www.gov.uk/government/collections/groundwater-protection

1a. Environment Agency (2017), 'Land contamination groundwater compliance points: quantitative risk assessments', March 2017 (formerly contained within GP3) [accessed 29 March 2017]. https://www.gov.uk/government/collections/groundwater-protection

2. The Water Supply (Water Quality) Regulations 2016 (SI 2016/619)
    2a. Sum of chloroform, bromoform, dibromochloromethane and bromodichloromethane
    2b. Standard applies to individual pesticides except aldrin, dieldrin, heptachlor and heptachlor epoxide, for which a separate standard is defined.
3. The Private Water Supplies (England) Regulations 2016. SI 2016 / 618
4. WHO (2011), ***Guidelines for drinking-water quality***, 4th edn
5. JAGDAG hazard substance determinations: This list contains substances that are determined to be hazardous substances or non-hazardous pollutants for the purposes of the groundwater directive 2006/118/EC. The absence of an assessment or substance from the list means an assessment has not been done yet and is presented as 'Not yet determined'; if a substance has been assessed but does not fall into either category it is presented as 'None'. For further details on how substances are assessed, see the Joint Agencies Groundwater Directive Advisory Group (JAGDAG) 'Methodology for the determination of hazardous substances in groundwater for the purposes of the groundwater directive 2006/118/EC' which is available from the JAGDAG website. The methodology is a UK –wide framework that sets criteria for how to assess whether a substance is a hazardous substances in groundwater. The list of substances can be found at:

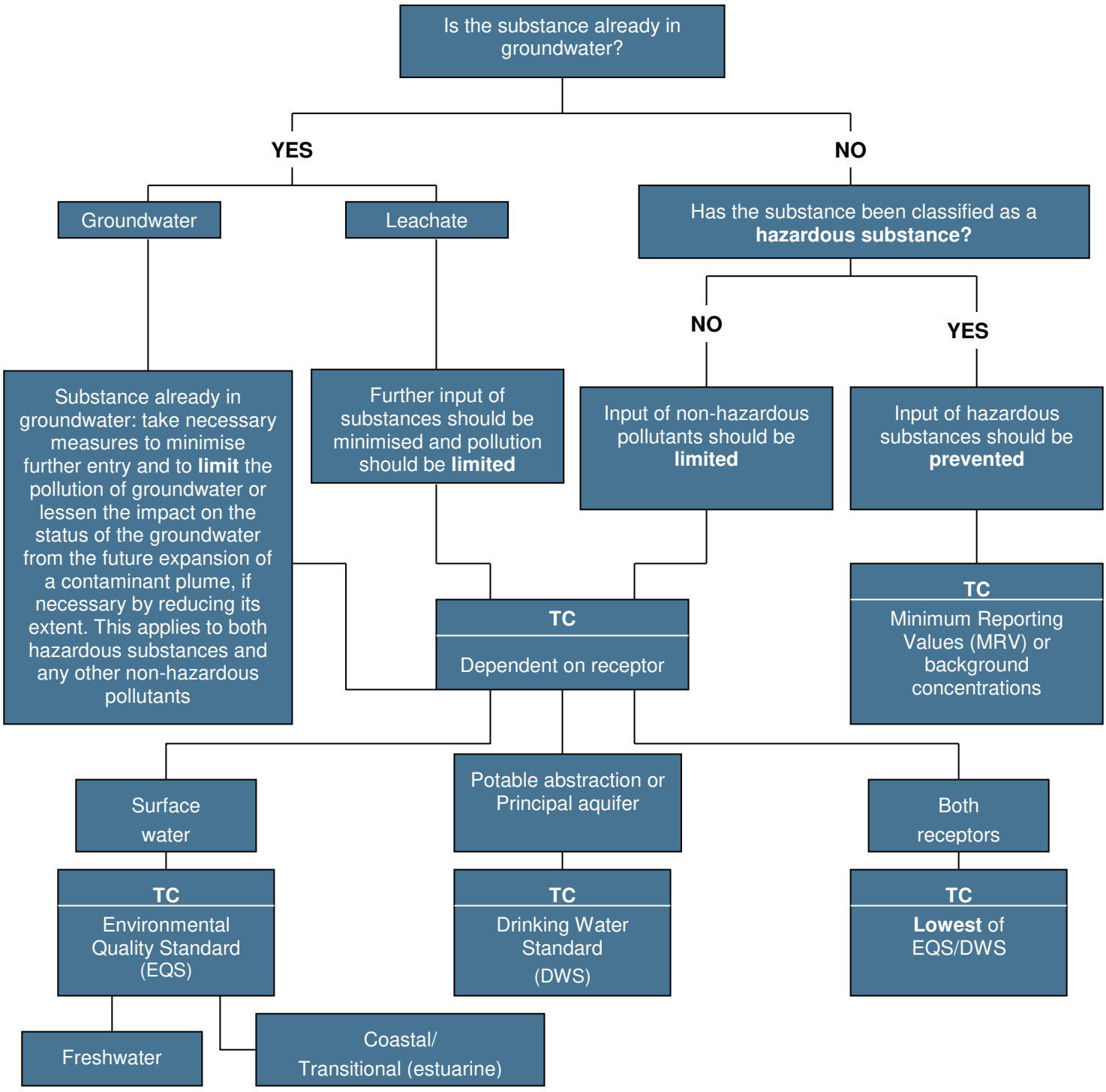
    https://www.wfduk.org/stakeholders/jagdag

6. The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
    6a. The EQS for these substances are based on a "long term mean" or an "annual average (AA)" EQS.
    6b. For cadmium and its compounds the EQS values vary depending on the hardness of the water as specified in five class categories (Class 1: < 40 mg CaCO3/l, Class 2: 40 to < 50 mg CaCO3/l, Class 3: 50 to < 100 mg CaCO3/l, Class 4: 100 to < 200 mg CaCO3/l and Class 5: ≥ 200 mg CaCO3/l).
    6c. The EQS for Mercury and hexachlorobutadiene are based on a "maximum acceptable concentration (MAC)" EQS in absence of an "annual average (AA)" EQS.
    6d. The EQS for chlorine in saltwater is based on the 95th percentile concentration of total residual oxidant, which refers to the sum of all oxidising agents existing in water, expressed as available chlorine.
    6e. The recommended saltwater standard is derived using a safety factor of 100. Where the standard is failed, it is recommended that supporting evidence of ecological damage should be obtained before committing to expensive action.
    6f. EQS for total ammonia is as per Schedule 3, Part 1, Table 7 of of the above directions. EQS applies to river types 1, 2 and 4 and 6 (namely upland and low alkalinity). The EQS for a lowland and high alkalinity rivers (types 3, 5 and 7) is 600µg/l (0.6mg/l).

Additional information on the Metal Bioavailability Assessment Tool (M-BAT) is available at http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat

7. Minimum reporting values listed at https://www.gov.uk/government/publications/values-for-groundwater-risk-assessments/hazardous-substances-to-groundwater-minimum-reporting-values (updated 13 January 2017; accessed 29 March 2017). Note target concentration for xylenes is 3 μg/l each for o-xylene and m/p xylene as it may not be possible to separate m- and p-xylene; 135 tcb, 124 tcb, 123 tcb each to 0.01 μg/l)
8. The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (as amended). SI 1996 / 3001
9. Council Directive on the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life (Freshwater Fish Directive) (78/659/EEC)
10. WRc plc (2002), R&D Technical Report P45.
11. CL:AIRE, 2017. Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies. V1.1.
12. Drinking Water Inspectorate (London, UK). Environmental Information Request on MTBE in drinking water. Ref. DWI 1/10/18; dated 28 November 2006. Value is based on the odour threshold for MTBE, which is lower than a health-based guideline value
13. World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva. [accessed 29 March 2017] http://www.who.int/water_sanitation_health/dwq/chemicals/petroleumproducts_2add_june2008.pdf

FLOW CHART TO ASSIST WITH SELECTION OF TARGET CONCENTRATIONS



TC = Target concentration

When leachate is being assessed the 'compliance point' is the groundwater body. Therefore dilution within the groundwater body may be applied with caution before comparing with the TC.

When directly assessing a receptor, e.g., a river, the appropriate TC should be selected.

APPENDIX P
GQRA DATA SCREENING TABLES – SOILS

Project name	Hatfield Plot 5100
Project code	314394
Client name	Baynham Meikle Partnership
Address	
NGR	
Land use	Commercial Scenario
SOM	1%
GAC version	2018_01

Notes

RSK

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects																												
Lab sample ID									19/02592/29	19/02592/28	19/02592/30	19/02592/31	19/02592/27	19/02592/32	19/02592/33	19/02592/8	19/02592/10	19/02592/12	19/02592/13	19/02592/14	19/02592/24	19/02592/17	19/02592/18	19/02592/19	19/02592/20	19/02592/25	19/02592/26	19/02592/21	19/02592/1	19/02592/2	19/02592/4	19/02592/6	19/02592/7			
Client sample ID									BH02	BH03a	BH04	BH04	BH06	BH08	BH08	TP01	TP02	TP05	TP06	TP08	TP10	TP11	TP12	TP14	TP14	TP14	TP14	TP15a	WS01	WS02	WS04	WS05	WS06			
Depth to top									5.5	3.5	2.5	3	8	6.3	8	0.3	0.2	0.5	0.15	0.2	0.7	0.5	0.4	0.5	1	2.6	3.3	0.5	0.5	0.3	0.2	0.5	0.4			
Depth to bottom									5.95	3.6	2.6	3.45	8.1																							
Date sampled									05/03/19		06/03/19	06/03/19	08/03/19			04/03/19	03/03/19	11/03/19	11/03/19	08/03/19	11/03/19	08/03/19	08/03/19	08/03/19	08/03/19	08/03/19	08/03/19	08/03/19	11/03/19	07/03/19	07/03/19	07/03/19	07/03/19	07/03/19			
Metals and Inorganics																																				
Arsenic	mg/kg	640		24	2	8	8	0								6		4	5	5		2		5					7			24				
Cadmium	mg/kg	410		0.6	<0.5	8	5	3								0.6		0.5	0.6	0.6		<0.5		<0.5					<0.5			0.6				
Chromium	mg/kg	8600	49	27	17	8	8	0								17		27	20	19		19		18					23			19				
Chromium (hexavalent)	mg/kg	49			<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Copper	mg/kg	68000		20	5	8	8	0								19		5	13	20		6		16					7			6				
Lead	mg/kg	2300		64	12	8	8	0								61		13	50	64		18		44					16			12				
Mercury	mg/kg	1120	15	0.27	<0.17	8	1	7								0.27		<0.17	<0.17	<0.17		<0.17		<0.17					<0.17			<0.17				
Nickel	mg/kg	980		25	10	8	8	0								11		16	13	12		10		13					12			25				
Selenium	mg/kg	12000			<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Zinc	mg/kg	740000		76	29	8	8	0								76		44	55	56		29		51					41			70				
Asbestos																																				
Asbestos in soil (+concrete, ballast, rocks and aggregates)						8	0	8								NAD		NAD	NAD	NAD		NAD		NAD					NAD			NAD				
Petroleum Hydrocarbons																																				
Ali >C5-C6	mg/kg	3200	304		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
Ali >C6-C8	mg/kg	7800	144		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
Ali >C8-C10	mg/kg	2000	78		<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Ali >C10-C12	mg/kg	9700	48		<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Ali >C12-C16	mg/kg	59000	24	6	<1	8	1	7								<1		<1	<1	6		<1		<1					<1			<1				
Ali >C16-C21	mg/kg			6	<1	8	2	6								<1		<1	<1	6		<1		1					<1			<1				
Ali >C21-C35	mg/kg			11	<1	8	5	3								10		<1	6	10		<1		11					6			<1				
Ali >C16-C35 calculated	mg/kg	1000000		16	<1	8	5	3								10		<1	6	16		<1		12					6			<1				
Total Aliphatics	mg/kg			21	<1	8	5	3								10		<1	6	21		<1		12					6			<1				
Aro >C5-C7	mg/kg				<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
Aro >C7-C8	mg/kg				<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
Aro >C8-C10	mg/kg	3500	613		<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Aro >C10-C12	mg/kg	16000	364		<1	8	0	8								<1		<1	<1	<1		<1		<1					<1			<1				
Aro >C12-C16	mg/kg	36000	169	41	<1	8	4	4								2		<1	1	41		<1		1					<1			<1				
Aro >C16-C21	mg/kg	28000		309	<1	8	5	3								6		<1	5	309		<1		2					2			<1				
Aro >C21-C35	mg/kg	28000		539	1	8	8	0								33		1	22	539		2		16					7			2				
Total Aromatics	mg/kg			889	1	8	8	0								41		1	28	889		2		19					9			2				
TPH (Ali & Aro)	mg/kg			910	1	8	8	0								52		1	32	910		2		32					15			2				
BTEX - Benzene	mg/kg	27			<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
BTEX - Toluene	mg/kg	56000	869		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
BTEX - Ethyl Benzene	mg/kg	6000	518		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
BTEX - o Xylene	mg/kg	6600	478		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
BTEX - m & p Xylene	mg/kg	5900	576		<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
MTBE	mg/kg	7500			<0.01	8	0	8								<0.01		<0.01	<0.01	<0.01		<0.01		<0.01					<0.01			<0.01				
Polycyclic aromatic hydrocarbons																																				
Acenaphthene	mg/kg	110000		0.14	<0.01	8	2	6								0.04		<0.01	<0.01	0.14		<0.01		<0.01					<0.01			<0.01				
Acenaphthylene	mg/kg	110000		0.02	<0.01	8	1	7								<0.01		<0.01	<0.01	0.02		<0.01		<0.01					<0.01			<0.01				
Anthracene	mg/kg	520000		0.32	<0.02	8	3	5								0.12		<0.02	<0.02	0.32		<0.02		<0.02					0.02			<0.02				
Benzo(a)anthracene	mg/kg	170		0.78	<0.04	8	5	3								0.69		<0.04	0.08	0.78		<0.04		0.17					0.12			<0.04				
Benzo(a)pyrene	mg/kg	77		0.67	<0.04	8	5	3								0.62		<0.04	0.07	0.67		<0.04		0.15					0.12			<0.04				
Benzo(b)fluoranthene	mg/kg	44		0.79	<0.05	8	5	3								0.76		<0.05	0.1	0.79		<0.05		0.21					0.15			<0.05				
Benzo(ghi)perylene	mg/kg	3900		0.39	<0.05	8	4	4								0.39		<0.05	<0.05	0.38		<0.05		0.1					0.1			<0.05				
Benzo(k)fluoranthene	mg/kg	1200		0.35	<0.07	8	3	5								0.31		<0.07	<0.07	0.35		<0.07		0.09					<0.07			<0.07				
Chrysene	mg/kg	350		0.78	<0.06	8	5	3								0.69		<0.06	0.09	0.78		<0.06		0.17					0.12			<0.06				
Dibenzo(ah)anthracene	mg/kg	3.5		0.09	<0.04	8	2	6								0.09		<0.04	<0.04	0.08		<0.04		<0.04					<0.04			<0.04				
Fluoranthene	mg/kg	23000		1.81	<0.08	8	5	3								1.34		<0.08	0.17	1.81		<0.08		0.26					0.21			<0.08				
Fluorene	mg/kg	63000	31	0.1	<0.01	8	2	6								0.03		<0.01	<0.01	0.1		<0.01		<0.01					<0.01			<0.01				
Indeno(123-cd)pyrene	mg/kg	500		0.49	<0.03	8	5	3								0.49		<0.03	0.06	0.44		<0.03		0.14					0.12			<0.03				
Naphthalene	mg/kg	1800	76		<0.03	8	0	8								<0.03		<0.03	<0.03	<0.03		<0.03		<0.03					<0.03			<0.03				
Phenanthrene	mg/kg	22000		1.27	<0.03	8	6	2								0.59		<0.03	0.08	1.27		0.04		0.1					0.1			<0.03				
Pyrene	mg/kg	54000		1.54	<0.07	8	5	3								1.16		<0.07	0.16	1.54		<0.07		0.24					0.19			<0.07				
Total PAH-16MS	mg/kg			9.47	<0.08	8	5	3								7.32		<0.08	0.81	9.47		<0.08		1.63					1.25			<0.08				
Other analytes																																				
% Stones >10mm	% w/w			46.2	<0.1	25	17	8	<0.1	<0.1	<0.1	33.4	<0.1	<0.1	<0.1	18.9	<0.1	<0.1	7.1	6.5	17.2	20.4	22.1	4.7	43	17.6	46.2	18.5	27.4	18.1	8	28.1	16.6			
Boron (water soluble)	mg/kg				<1.0	8	0	8								<1.0		<1.0	<1.0	<1.0		<1.0		<1.0					<1.0			<1.0				
pH	pH			8.47	7.24	8	8	0								8.4		7.96	7.24	7.34		7.49		7.62					8.47			8.15				
pH BRE	pH			8.73	7.42	18	18	0	7.45	7.48	8.44	8.27	8.73	8.73	8.5		7.67				7.74	7.49	7.42		7.72	7.84	7.93	7.58		7.79	7.48		7.72				
Total Organic Carbon	% w/w			2.07	0.16	8	8	0								1.17		0.46	2.07	1.75		0.31		1.41					0.17			0.16				
Converted to SOM (x / 0.58)	% w/w			3.568966	0.275862	8	8	0								2.01724138		0.79310345	3.56896552	3.01724138		0.53448276		2.43103448					0.29310345			0.27586207				

APPENDIX Q
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.

Hatfield P5100

TP/WS/BH		WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05	TP06
Depth (m)		0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5	0.15
Envirolab reference										
% Moisture	%									
pH (soil)										
pH (leachate)										
Arsenic	mg/kg	7			24		6		4	5
Cadmium	mg/kg	0.5			0.6		0.6		0.5	0.6
Copper	mg/kg	7			6		19		5	13
CrVI or Chromium	mg/kg	23			19		17		27	20
Lead	mg/kg	16			12		61		13	50
Mercury	mg/kg	0.17			0.17		0.27		0.17	0.17
Nickel	mg/kg	12			25		11		16	13
Selenium	mg/kg	1			1		1		1	1
Zinc	mg/kg	41			70		76		44	55
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		0.04		0.01	0.01
Acenaphthylene	mg/kg	0.01			0.01		0.01		0.01	0.01
Anthracene	mg/kg	0.02			0.02		0.12		0.02	0.02
Benzo(a)anthracene	mg/kg	0.12			0.04		0.69		0.04	0.08
Benzo(a)pyrene	mg/kg	0.12			0.04		0.62		0.04	0.07
Benzo(b)fluoranthene	mg/kg	0.15			0.05		0.76		0.05	0.10
Benzo(ghi)perylene	mg/kg	0.10			0.05		0.39		0.05	0.05
Benzo(k)fluoranthene	mg/kg	0.07			0.07		0.31		0.07	0.07
Chrysene	mg/kg	0.12			0.06		0.69		0.06	0.09
Dibenzo(ah)anthracene	mg/kg	0.04			0.04		0.09		0.04	0.04
Fluoranthene	mg/kg	0.21			0.08		1.34		0.08	0.17
Fluorene	mg/kg	0.01			0.01		0.03		0.01	0.01
Indeno(123cd)pyrene	mg/kg	0.12			0.03		0.49		0.03	0.06
Naphthalene	mg/kg	0.03			0.03		0.03		0.03	0.03
Phenanthrene	mg/kg	0.10			0.03		0.59		0.03	0.08
Pyrene	mg/kg	0.19			0.07		1.16		0.07	0.16
Coronene	mg/kg									
Total PAHs (16 or 17)	mg/kg									
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	15.0			2.0		52.0		1.0	32.0
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									
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

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Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
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Haswaste, developed by Dr. Iain Haslock.

Hatfield P5100

TP/WS/BH	WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05	TP06
Depth (m)	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5	0.15
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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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.

Hatfield P5100

TP/WS/BH	WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05	TP06
Depth (m)	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5	0.15
Envirolab reference									
Asbestos in Soil	Thresholds								
Asbestos detected in Soil (enter Y or N)	Y	N			N		N		N	N

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%	0.00534	0.00000	0.00000	0.00682	0.00000	0.00406	0.00000	0.00571	0.00450
Irritant HP4	≥10%	<1%	0.00172	0.00000	0.00000	0.00385	0.00000	0.00294	0.00000	0.00109	0.00213
Irritant HP4	≥20%	<1%	0.00325	0.00000	0.00000	0.00574	0.00000	0.00456	0.00000	0.00381	0.00412
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	0.00000	0.00000	0.00000	0.00000	0.00006	0.00000	0.00000	0.00001
Specifc Target Organ Toxicity HP5	≥1%		0.00442	0.00000	0.00000	0.00505	0.00000	0.00326	0.00000	0.00518	0.00384
Specifc Target Organ Toxicity HP5	≥10%		0.00160	0.00000	0.00000	0.00120	0.00000	0.00610	0.00000	0.00130	0.00500
Aspiration Toxicity HP5	≥10%		0.00150	0.00000	0.00000	0.00020	0.00000	0.00520	0.00000	0.00010	0.00320
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%	0.00094	0.00000	0.00000	0.00319	0.00000	0.00082	0.00000	0.00055	0.00068
Acute Toxicity HP6	≥5%	<0.1%	0.00456	0.00000	0.00000	0.00379	0.00000	0.00341	0.00000	0.00533	0.00398
Acute Toxicity HP6	≥25%	<1%	0.00490	0.00000	0.00000	0.00700	0.00000	0.01073	0.00000	0.00516	0.00918
Acute Toxicity HP6	≥0.25%	<0.1%	0.00002	0.00000	0.00000	0.00002	0.00000	0.00003	0.00000	0.00002	0.00002
Acute Toxicity HP6	≥2.5%	<0.1%	0.00442	0.00000	0.00000	0.00365	0.00000	0.00326	0.00000	0.00518	0.00384
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%	0.00005	0.00000	0.00000	0.00006	0.00000	0.00006	0.00000	0.00005	0.00006
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%	0.00448	0.00000	0.00000	0.00373	0.00000	0.00335	0.00000	0.00525	0.00392
Acute Toxicity HP6	≥3.5%	<0.1%	0.00014	0.00000	0.00000	0.00014	0.00000	0.00014	0.00000	0.00014	0.00014
Acute Toxicity HP6	≥22.5%	<1%	0.00482	0.00000	0.00000	0.00693	0.00000	0.01047	0.00000	0.00510	0.00910
Carcinogenic HP7	≥0.1%		0.00442	0.00000	0.00000	0.00505	0.00000	0.00610	0.00000	0.00518	0.00500
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	0.00000	0.00000	0.00000	0.00000	0.00005	0.00000	0.00000	0.00001
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		15.00	0.00	0.00	2.00	0.00	52.00	0.00	1.00	32.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		0.80000	#DIV/0!	#DIV/0!	2.00000	#DIV/0!	1.19231	#DIV/0!	4.00000	0.21875
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00242	0.00000	0.00000	0.00505	0.00000	0.00610	0.00000	0.00323	0.00500
Toxic for Reproduction HP10	≥3%		0.00442	0.00000	0.00000	0.00365	0.00000	0.00520	0.00000	0.00518	0.00384
Mutagenic HP11	≥0.1%		0.00442	0.00000	0.00000	0.00365	0.00000	0.00326	0.00000	0.00518	0.00384
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		15.00	0.00	0.00	2.00	0.00	52.00	0.00	1.00	32.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		0.80000	#DIV/0!	#DIV/0!	2.00000	#DIV/0!	1.19231	#DIV/0!	4.00000	0.21875
Mutagenic HP11	≥1%		0.00242	0.00000	0.00000	0.00505	0.00000	0.00222	0.00000	0.00323	0.00263
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%		0.00442	0.00000	0.00000	0.00505	0.00000	0.00326	0.00000	0.00518	0.00384

Table 3 of the CLP, CL Inventory, ATPs, IARC, Concawe, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDS's used for "*" STOT + Acute Toxicity.

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Haswaste, developed by Dr. Iain Haslock.

Hatfield P5100

TP/WS/BH			WS01	WS02	WS04	WS05	WS06	TP01	TP02	TP05	TP06
Depth (m)			0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.5	0.15
Envirolab reference											
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.01562	0.00000	0.00000	0.02277	0.00000	0.02494	0.00000	0.01658	0.02079
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%).	0.01712	0.00000	0.00000	0.02297	0.00000	0.03014	0.00000	0.01668	0.02399
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%).	1.57670	0.00000	0.00000	2.27920	0.00000	2.54590	0.00000	1.65870	2.11060
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

If other contaminants need adding to Haswaste, please contact Envirolab.

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Hatfield P5100

TP/WS/BH		TP08	TP11	TP12	TP14	TP14	TP15a	TP10	TP14	TP14
Depth (m)		0.2	0.5	0.4	0.5	1	0.5	0.7	2.6	3.3
Envirolab reference										
% Moisture	%									
pH (soil)										
pH (leachate)										
Arsenic	mg/kg	5	2		5					
Cadmium	mg/kg	0.6	0.5		0.5					
Copper	mg/kg	20	6		16					
CrVI or Chromium	mg/kg	19	19		18					
Lead	mg/kg	64	18		44					
Mercury	mg/kg	0.17	0.17		0.17					
Nickel	mg/kg	12	10		13					
Selenium	mg/kg	1	1		1					
Zinc	mg/kg	56	29		51					
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	0.14	0.01		0.01					
Acenaphthylene	mg/kg	0.02	0.01		0.01					
Anthracene	mg/kg	0.32	0.02		0.02					
Benzo(a)anthracene	mg/kg	0.78	0.04		0.17					
Benzo(a)pyrene	mg/kg	0.67	0.04		0.15					
Benzo(b)fluoranthene	mg/kg	0.79	0.05		0.21					
Benzo(ghi)perylene	mg/kg	0.38	0.05		0.10					
Benzo(k)fluoranthene	mg/kg	0.35	0.07		0.09					
Chrysene	mg/kg	0.78	0.06		0.17					
Dibenzo(ah)anthracene	mg/kg	0.08	0.04		0.04					
Fluoranthene	mg/kg	1.81	0.08		0.26					
Fluorene	mg/kg	0.10	0.01		0.01					
Indeno(123cd)pyrene	mg/kg	0.44	0.03		0.14					
Naphthalene	mg/kg	0.03	0.03		0.03					
Phenanthrene	mg/kg	1.27	0.04		0.10					
Pyrene	mg/kg	1.54	0.07		0.24					
Coronene	mg/kg									
Total PAHs (16 or 17)	mg/kg									
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	910.0	2.0		32.0					
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									
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

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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.

Hatfield P5100

TP/WS/BH		TP08	TP11	TP12	TP14	TP14	TP15a	TP10	TP14	TP14
Depth (m)		0.2	0.5	0.4	0.5	1	0.5	0.7	2.6	3.3
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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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.

Hatfield P5100

TP/WS/BH		TP08	TP11	TP12	TP14	TP14	TP15a	TP10	TP14	TP14
Depth (m)		0.2	0.5	0.4	0.5	1	0.5	0.7	2.6	3.3
Envirolab reference										
Asbestos in Soil	Thresholds									
Asbestos detected in Soil (enter Y or N)	Y	N	N		N					
		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%	0.00431	0.00391	0.00000	0.00412	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00292	0.00094	0.00000	0.00247	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	0.00501	0.00271	0.00000	0.00447	0.00000	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%		0.00013	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00365	0.00365	0.00000	0.00346	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥10%		0.09100	0.00180	0.00000	0.00440	0.00000	0.00000	0.00000	0.00000	0.00000
Aspiration Toxicity HP5	≥10%		0.09100	0.00020	0.00000	0.00320	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%	0.00068	0.00028	0.00000	0.00068	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	0.00379	0.00379	0.00000	0.00360	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	0.01146	0.00456	0.00000	0.00892	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00002	0.00002	0.00000	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00365	0.00365	0.00000	0.00346	0.00000	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	0.00005	0.00000	0.00005	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	≥0.5%	<0.1%	0.00373	0.00372	0.00000	0.00352	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00014	0.00014	0.00000	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.01108	0.00450	0.00000	0.00883	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.00640	0.00365	0.00000	0.00440	0.00000	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%		0.00004	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		910.00	2.00	0.00	32.00	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%		0.07363	2.00000	#DIV/0!	0.46875	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00640	0.00202	0.00000	0.00440	0.00000	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.09100	0.00365	0.00000	0.00346	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00365	0.00365	0.00000	0.00346	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		910.00	2.00	0.00	32.00	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%		0.07363	2.00000	#DIV/0!	0.46875	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00242	0.00202	0.00000	0.00263	0.00000	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%		0.00365	0.00365	0.00000	0.00346	0.00000	0.00000	0.00000	0.00000	0.00000

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Haswaste, developed by Dr. Iain Haslock.

Hatfield P5100

TP/WS/BH			TP08	TP11	TP12	TP14	TP14	TP15a	TP10	TP14	TP14
Depth (m)			0.2	0.5	0.4	0.5	1	0.5	0.7	2.6	3.3
Envirolab reference											
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.02351	0.01230	0.00000	0.01969	0.00000	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%).	0.11451	0.01250	0.00000	0.02289	0.00000	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%).	3.26140	1.23240	0.00000	2.00130	0.00000	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

If other contaminants need adding to Haswaste, please contac

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Haswaste, developed by Dr. Iain Haslock.

Hatfield P5100

TP/WS/BH		BH06	BH03a	BH02	BH04	BH04	BH08	BH08		
Depth (m)		8	3.5	5.5	2.5	3	6.3	8		
Envirolab reference										
% Moisture	%									
pH (soil)										
pH (leachate)										
Arsenic	mg/kg									
Cadmium	mg/kg									
Copper	mg/kg									
CrVI or Chromium	mg/kg									
Lead	mg/kg									
Mercury	mg/kg									
Nickel	mg/kg									
Selenium	mg/kg									
Zinc	mg/kg									
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									
Acenaphthylene	mg/kg									
Anthracene	mg/kg									
Benzo(a)anthracene	mg/kg									
Benzo(a)pyrene	mg/kg									
Benzo(b)fluoranthene	mg/kg									
Benzo(ghi)perylene	mg/kg									
Benzo(k)fluoranthene	mg/kg									
Chrysene	mg/kg									
Dibenzo(ah)anthracene	mg/kg									
Fluoranthene	mg/kg									
Fluorene	mg/kg									
Indeno(123cd)pyrene	mg/kg									
Naphthalene	mg/kg									
Phenanthrene	mg/kg									
Pyrene	mg/kg									
Coronene	mg/kg									
Total PAHs (16 or 17)	mg/kg									
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									
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

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Haswaste, developed by Dr. Iain Haslock.

Hatfield P5100

TP/WS/BH		BH06	BH03a	BH02	BH04	BH04	BH08	BH08		
Depth (m)		8	3.5	5.5	2.5	3	6.3	8		
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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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.

Hatfield P5100

TP/WS/BH	BH06	BH03a	BH02	BH04	BH04	BH08	BH08		
Depth (m)	8	3.5	5.5	2.5	3	6.3	8		
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%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	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%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	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%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<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%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	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%	0.00000	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	≥0.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	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		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	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%		0.00000	0.00000	0.00000	0.00000	0.00000	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%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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.

Hatfield P5100

TP/WS/BH			BH06	BH03a	BH02	BH04	BH04	BH08	BH08
Depth (m)			8	3.5	5.5	2.5	3	6.3	8
Envirolab reference									
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.00000	0.00000	0.00000	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%).	0.00000	0.00000	0.00000	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%).	0.00000	0.00000	0.00000	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
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		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

If other contaminants need adding to Haswaste, please contac