

Walsh Associates

# Camden Lock Village, London

*Geotechnical and Geoenvironmental Interpretative Report* 

January, 2015



Card Geotechnics Limited 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey, GU7 1XW Telephone: 01483 310 600 www.cgl-uk.com



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Author	James Morrice, I MSc BEng (Hons) M	Engineer <i>CSM</i>		Ome	
Checked	Dan Matthews, J BEng CSci CEnv MIE	Associate Dir nvSc	ector	Dulla	40
Approved	Nick Langdon, D MSc BEng DIC CEnv FCMI MIoD	irector CEng CMgr FICE	FGS	Nha	- Al
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#### **EXECUTIVE SUMMARY**

Card Geotechnics has been commissioned by Walsh Associates to undertake a Geotechnical and Geoenvironmental Interpretative Report for a site at Camden Lock Village, London. The site currently comprises a car park, office buildings, retail units and market stalls. It is proposed to demolish the existing buildings and construct a number of mixed use multi-storey residential buildings with associated hardstanding and communal garden areas.

The historical development of the site was previously investigated by RPS in their October 2009 and November 2009. In summary, the site comprised open fields until the *Regent's Canal* was constructed in the early 1800s, with associated wharf buildings and residential properties constructed across the site. These buildings were subsequently redeveloped or were demolished during construction of the North London Overground Railway viaducts in the mid-1800s. No further significant changes were noted at the site.

The area experienced intensive bombing during the Second World War, with a number of properties along Torbay Street suffering serious blast damage. A detailed unexploded ordnance (UXO) risk assessment was undertaken by 6 Alpha Associates Limited in September 2014 which noted that there is a low to medium risk due to UXO across the northern and eastern part of the site and a medium to high risk across the southwestern part.

Local geotechnical mapping indicates that the site is directly underlain by the London Clay Formation. This is supported by historical BGS records from the surrounding area. An intrusive investigation, comprising six cable percussion boreholes to a maximum depth of 39.5mbgl (-12.14mOD), six window sampler boreholes to a maximum depth of 5mbgl (20.79mOD) was undertaken from 28<sup>th</sup> October to 18<sup>th</sup> November 2014. An additional investigation, comprising three rotary boreholes to a maximum depth of 30mbgl (-4mOD), was undertaken from 24<sup>th</sup> November to 17<sup>th</sup> December 2014. Ground gas and groundwater monitoring wells were installed in the boreholes.

The investigation encountered limited Made Ground (0.5m to 3.0m) underlain by the London Clay Formation. No groundwater strikes were encountered during the investigation; however slight seepage was noted in a number of boreholes when drilling through the Made Ground and shallow Weathered London Clay. Groundwater was encountered during monitoring at levels ranging between 26.6mOD to 1.5mOD.



Negligible concentrations and flow of ground gas were recorded during the subsequent monitoring visits and a gas screening value of 0.0611l/hr has been calculated for the site. The site therefore conforms to Characteristic Situation 1 (NHBC 'Green') and no ground gas protection measures are therefore considered to be required in the development.

In order to mitigate the potential risk to human health due to contaminant exceedances encountered in samples from the Made Ground, a capping layer is recommended across the site. For communal landscaped areas, the capping layer may comprise hardstanding or a minimum of 150mm topsoil over 300mm subsoil and a geotextile membrane.

A preliminary assessment of the Topsoil/Made Ground for waste classification purposes indicates that the majority of this material may be classified as 'not hazardous' with respect to waste disposal. However, two samples were found to be 'hazardous' due to elevated pH and PAHs. Waste acceptance criteria (WAC) testing demonstrates that the 'not hazardous' samples may be disposed of in an inert landfill and that the 'hazardous' samples may be disposed of as 'stable non-reactive waste in non-hazardous landfill'. Asbestos screens confirmed loose fibres of chrysotile asbestos to be presented in two samples of Made Ground (BH6 at 0.3mbgl and BH10 at 0.5mbgl) tested. Quantification testing should be undertaken to confirm the appropriate disposal route should the material in these regions of the site require offsite disposal.

Piled foundations are considered suitable for the proposed development of the site. A preliminary assessment of pile working loads demonstrates that a range of capacities from 240kN to 6,320kN is achievable using piles 0.45m to 1.5m in diameter and 10m to 25m in length, respectively, with the piles being driven from ground level, 21.7mOD or 11.7mOD, depending on the depth of the proposed on site. The final pile design should be undertaken by the specialist piling contractor engaged to undertake the works.

The London Clay Formation has a high volume change potential and floor slabs should therefore be designed as suspended in order to mitigate potential damage due to heave. It is anticipated that shallow excavations will remain stable in the short term.

Buried concrete within the London Clay Formation should be designed to DS-4 and AC-3s if disturbed during construction (i.e. during basement excavation), or DS-3 and AC-2s if undisturbed during construction, for example where piled foundations are employed. The basement slab will be protected by the presence of heave board. Buried concrete within the Made Ground should be designed to DS-1 and AC-1.



# 1. INTRODUCTION

CGL has been commissioned by Walsh Associates to undertake a geotechnical and geoenvironmental intrusive investigation to assess the ground conditions at a site proposed for development at Camden Lock Village, London.

The proposed development of the site is divided into two sections; the 'School Site', which comprises the northeastern part of the wider site, and the remainder of the site. A separate report<sup>1</sup> has been produced for the School Site area.

The objectives of this report are to:

- provide a summary of the site history and environmental setting;
- provide information on the ground conditions;
- provide an assessment and recommendations relating to the potential for soil and groundwater contamination and ground gas; and
- provide geotechnical recommendations to assist with foundation, floor slab and pavement design.

The site has been the subject of a number of previous reports, including;

- Phase 1 Environmental Risk Assessment (RPS 2009)<sup>2</sup>
- Archaeological Desk Based Assessment (RPS 2009)<sup>3</sup>

Pertinent information within these reports is summarised in Section 2, but the reports should be referred to for further details.

<sup>&</sup>lt;sup>1</sup> CGL (2014) Camden Lock, London – Proposed School Site. *Geotechnical and Geoenvironmental Interpretative Report*. Ref: CG/18067. December 2014

<sup>&</sup>lt;sup>2</sup> RPS (2009) Camden Lock Village London Borough of Camden. *Phase 1 – Environmental Risk Assessment*. Ref: HLEI4880/001R. October 2009

<sup>&</sup>lt;sup>3</sup> RPS (2009) Camden Lock Village London Borough of Camden. An Archaeological Desk Based Assessment. Ref: JLK0617 RO1. November 2009



# 2. SITE LOCATION AND DESCRIPTION

#### 2.1 Site location

The site is situated off Torbay Street in Camden, northwest London. The Ordnance Survey grid reference for the approximate centre of the site is 528813N, 184210E.

A site location plan is presented as Figure 1.

#### 2.2 Site description and proposed development

The wider site is bordered by Hawley Road to the north, residential properties and Kentish Town Road to the east, the *Grand Union Towpath* and *Regent's Canal* to the south and Camden High Street and Castlehaven Road to the west.

The site is naturally split into four sections by the National Rail viaducts which cross the site. The sections of the site are shown on Figure 2 and are detailed below, along with the proposed development in each area;

### 2.2.1 Building A

Building A is situated in the southwest of the site and was subject to Phase 3 of the ground investigation. At the time of the investigation, the area was occupied by Camden Lock Village Market, which comprised a large number of single storey wooden market stalls with additional retail premises situated in the arches beneath the railway viaducts.

The development in Building A is proposed to comprise the demolition of the existing structures and construction of three multi storey buildings, comprising market and retail areas, office space and restaurant areas.

# 2.2.2 Building C

Building C occupies the western and central parts of the site, between the two National Rail viaducts. This area was investigated as part of the Phase 2 ground investigation. At the time of the ground investigation, this area comprised an office building with associated car parking, a waste transfer depot and vehicle maintenance and repair workshops, situated in the arches beneath the railway viaduct.



The proposed development in Building C comprises two multi storey buildings with basement levels and communal landscaped areas. The upper floors of the buildings will comprise residential properties and the lower floors and basement levels will predominantly comprise retail units, office space and leisure facilities.

# 2.2.3 Building D

Building D is situated in the southeast of the site and was also investigated during the Phase 2 ground investigation. At the time of the ground displacement, the area comprised office buildings with associated car parking.

The proposed development in Building D comprises a multi storey building with a basement and communal landscaping. The upper floors of the building will comprise residential properties, with office space and a restaurant on the ground and basement levels.

# 2.2.4 Buildings X and W

Buildings X and W are situated in the northern part of the site and was investigation as part of the Phase 1 ground investigation. During the investigation, the site was noted to comprise a car park with associated temporary office buildings, a number of mid-19<sup>th</sup> century residential properties and vehicle maintenance and repair businesses, predominantly situated in the arches beneath the railway viaducts.

The proposed development at Buildings X and W will comprise the demolition of the existing structures and construction of two multi storey residential buildings, with communal landscaped areas.



# 2.3 Historical Development

The historical development of the site was established by RPS in their October 2009<sup>2</sup> and November 2009<sup>3</sup> reports and is summarised below.

The site consisted of open fields until the *Regent's Canal* was constructed in the early 1800s, with associated wharf buildings and residential properties constructed across the site. A number of these buildings were subsequently demolished during construction of the North London Overground Railway viaducts in the mid-1800s. No further significant changes were noted at the site.

### 2.4 Bomb damage and unexploded ordnance

The area experienced intensive bombing during the Second World War, with a number of properties being destroyed or damaged beyond repair.

A detailed unexploded ordnance (UXO) risk assessment<sup>4</sup> was undertaken by 6 Alpha Associates Limited in September 2014. The report notes that the risk posed by UXO at the site is 'low to medium' for basements and excavations within Buildings C, D, X and W and 'medium to high' in Building A.

# 2.5 Anticipated ground conditions

### 2.5.1 Published and unpublished geology

The British Geological Survey map sheet 256 indicates that the site is directly underlain by the London Clay Formation, which consists of stiff blue grey silty clay, weathering to brown silty clay.

The BGS holds records of a number of historical ground investigations within 300m of the site. Selected logs are summarised in Table 1 and are included in Appendix A.

<sup>&</sup>lt;sup>4</sup> 6 Alpha Associates Limited (2014) *Detailed Unexploded Ordnance (UXO) Risk Assessment*. Ref: P4063. September 2014



0				bgl)	Depth to top of stratum (mbgl)				
BH record reference	Distance (m)	Direction	Base of BH (mbgl)	Ground water level (ml	ЭW	London Clay Formation	Lambeth Group	Thanet Sand	Chalk
TQ28SE5	90	S	91.4	NR	-	0.0	42	NR	64
TQ28SE1203	300	SE	18.7	1.1	0.0	1.5	-	-	-
TQ28SE1204	300	SE	18.4	NR	0.0	0.9	-	-	-
TQ28SE1206	300	SE	9.6	1.1	0.0	2.1	-	-	-
TQ28SE1208	300	SE	9.4	NR	0.0	1.37	-	-	-
TQ28SE1239	180	NW	3.0	-	0.0	0.63	-	-	-
TQ28SE1240	180	NW	3.0	-	0.0	0.5	-	-	-
TQ28SE1241	180	NW	3.0	-	0.0	0.8	-	-	-
TQ28SE1242	180	NW	3.0	-	0.0	0.6	-	-	-
TQ28SE1491	190	SE	198.7	91.7	0.0	6.7	44.8	53.9	125.0
TQ28SE2272	257	SW	1.1	-	0.0	1.08	-	-	-

#### Table 1 - Summary of BGS historical borehole records

#### 2.5.2 Hydrogeology and hydrology

The Environment Agency<sup>5</sup> has produced an aquifer designation system consistent with the requirements of the Water Framework Directive. The designations have been set for superficial and bedrock geology and are based on the importance of aquifers for potable water supply and their role in supporting surface water bodies and wetland ecosystems.

The underlying London Clay Formation is classified as an 'Unproductive Strata' and the site is not within a Groundwater Source Protection Zone (SPZ)

The Environment Agency indicates that the site is not at risk from flooding. The nearest surface water to the site is the *Regent's Canal*, situated approximately 3m south of the site. Additionally, the historical *River Fleet* is noted to run some 60m west and 8m north of the site.

<sup>&</sup>lt;sup>5</sup> www.environment-agency.gov.uk (September 2014)



# 2.6 Environmental setting

The previous report by RPS<sup>2</sup> provides information on the environmental setting of the site and possible sources of soil and groundwater contamination. The key points are summarised below:

- There are no recorded landfill sites within 500m of the site. However, there are two waste transfer sites, located 120m southwest and 130m south of the site.
- No 'major' or 'significant' pollution incidents are noted within 500m of the site.
- There is the potential for arsenic and lead contamination to be present within the soils at the site, resulting from the spreading of ash in private gardens during the pre-Victorian period to the 1950s.
- There are eleven industrial activities within 500m of the site, including vehicle respraying, petrol stations and dry cleaners.
- The site is not in a radon affect area



# 2.7 Preliminary risk assessment

The October 2009 RPS report<sup>2</sup> included a preliminary risk assessment, the key points of which are summarised below:

- It is likely that contamination is present within the soils due to historical land use on site and in the surrounding area.
- The potential pathways to human health receptors include dermal contact, inhalation and ingestion of contaminants. Due to the underlying London Clay Formation, there is not considered to be a pathway for contaminants to reach the underlying Chalk aquifer.
- Overall, RPS considered the risk associated with potential contamination within the Made Ground to be low due to the absence of a source-pathway-receptor linkage (hardstanding across the site).

In addition to the potential risks identified by RPS, due to the age of the buildings on site, it is considered that there is the potential for asbestos-containing material to be present within the building fabric.



# 3. CURRENT GROUND INVESTIGATION

# 3.1 Fieldwork

Intrusive investigation was undertaken at Buildings X and W (Phase 1 of the ground investigation) from 21<sup>st</sup> October to 6<sup>th</sup> November 2014, with subsequent investigation at Blocks C and D (Phase 2) from 31<sup>st</sup> October to 18<sup>th</sup> November 2014 and at Building A (Phase 3) from 24<sup>th</sup> November to 17<sup>th</sup> December 2014.

The investigation at Buildings C, D, X and W comprised six cable percussive boreholes (BH2 to BH7) to a maximum depth of 39.5mbgl (-12.14mOD) and six window sampler boreholes (WS4 to WS9) to a maximum depth of 5mbgl (20.79mOD). The investigation at Building A comprised three rotary boreholes (BH8 to BH10) to depths of between 25mbgl to 30mbgl (2.07mOD and -4mOD). The investigation was broadly undertaken in accordance with the requirements of BS 5930:1999<sup>6</sup>.

The borehole arisings were recorded and representatively sampled by a suitably qualified geotechnical engineer from CGL in order to obtain samples for laboratory testing, and to characterise the near surface ground conditions across the site. Soil samples were obtained for chemical and geotechnical laboratory analysis. Standpipes were installed in all boreholes to enable subsequent gas and groundwater monitoring to be undertaken.

A plan showing the exploratory locations is presented as Figure 2 and the borehole logs are included as Appendix B.

# 3.2 Monitoring

A programme of fortnightly ground gas and groundwater monitoring visits is being undertaken at the standpipes installed across the site. The monitoring commenced on 5<sup>th</sup> November 2014 following completion of the ground investigation at Buildings X and W. Five visits have been undertaken to date, on 5<sup>th</sup> and 19<sup>th</sup> November 2014, 1<sup>st</sup> and 18<sup>th</sup> December 2014 and 8<sup>th</sup> January 2015. Copies of the monitoring records to date are included as Appendix C.

<sup>&</sup>lt;sup>6</sup> BS 5930:1999; Code of practice for site investigations, Incorporating Amendment 2, British Standards Institute. 1999.



# 3.3 Laboratory testing

# 3.3.1 Chemical

Representative soil samples and one groundwater samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical testing. The analysis included the following determinants.

- Soil Organic Matter (SOM);
- Heavy metals including; arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc;
- Total Petroleum Hydrocarbons (TPH) and Polycyclic Aromatic Hydrocarbons (PAH);
- Total Monohydric Phenols;
- Total Cyanide;
- Sulfate;
- Asbestos identification; and
- pH determination.

The laboratory analysis results are presented in Appendix D.

### 3.3.2 Geotechnical

Soil samples were sent for geotechnical laboratory analysis at Geolabs Limited. The analysis included:

- Moisture Content;
- Atterberg Limits and;
- Quick Undrained Triaxial testing.

The results of the analysis are presented in Appendix E.



# 4. GROUND AND GROUNDWATER CONDITIONS

#### 4.1 Summary

The ground conditions encountered on site broadly corresponded to published geology and are summarised in Table 2. The borehole and window sampler logs are included as Appendix B.

#### Table 2. Summary of ground conditions (whole site)

Stratum	Level to top of stratum (mOD) [mbgl]	Typical thickness (m)
MADE GROUND Concrete overlying soft dark brown sandy gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick, flint and occasional concrete.	25.79 to 28.64 [0.0]	0.5 to 3.0
Form dark orange brown slightly silty CLAY with occasional fine selenite crystals [WEATHERED LONDON CLAY FORMATION].	22.79 to 27.44 [0.5 to 3.0]	4.6 to 9.8
Stiff closely fissured dark grey silty CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION]	17.56 to 19.12 [8.9 to 11.2]	>29.7 (Base not encountered in boreholes)

The cable percussion boreholes extended to a maximum depth of 39.5m bgl (-12.14mOD), the window sampler boreholes extended to a maximum depth of 5m bgl (20.79mOD) and the rotary boreholes extended to a depth of 30m bgl (-4mOD).

The ground conditions encountered during the ground investigation generally correlated with the BGS mapping of the area, with Made Ground directly overlying the London Clay Formation. The upper surface of the London Clay Formation was found to be relatively consistent across the majority of the site.



# 4.2 Made Ground

The Made Ground at the site was found to be relatively consistent across the majority of the site and comprised concrete or paving slabs overlying soft dark brown sandy gravelly silt or gravelly silty clay. The gravel comprised brick and flint, with occasional concrete. A moderate hydrocarbon odour was noted in the Made Ground in WS4. No other visual or olfactory evidence of contamination was noted in the boreholes.

Deeper Made Ground was encountered at borehole WS9 in the area of Building D (Phase 2 site investigation), possibly due to the construction of the nearby office blocks. It is anticipated that other areas of deeper Made Ground may be present across the site in areas which were inaccessible at the time of the site investigation.

# 4.3 London Clay Formation

The London Clay Formation was proved to a maximum depth of -12.14mOD. The upper 4.6m to 9.8m of the clay was found to consist of firm silty clay (Weathered London Clay Formation), becoming stiff (unweathered) from 17.56mOD to 19.12mOD. SPT 'N' values in this stratum ranged from 5 to >50. Undrained shear strength values can be derived from these values using established Stroud correlations<sup>7</sup>. These values range from 22.5kPa to >225kPa, indicating that the clay is low to very high strength.

Laboratory testing on the London Clay Formation gave undrained shear strength (c<sub>u</sub>) values of 47kPa to 533kPa, generally increasing with depth. Plots of SPT 'N' values and undrained shear strength against level (mOD) are presented as Figure 3 and Figure 4 respectively. The moisture content and atterberg limits of the clay are summarised in Table 3.

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hlo 2 Summary of liquid limits and Attorborg limits

Strata	Moisture content (%)	Liquid limit (%)	Plastic limit (%)	Modified plasticity index, l' (%)
London Clay Formation	20 to 34	48 to 83	20 to 31	28 to 55

These indicate that the material at this site is a high to very high plasticity clay of medium to high volume change potential.

<sup>&</sup>lt;sup>7</sup> Tomlinson, M.J. (2001) *Foundations Design and Construction (7<sup>th</sup> Ed.)*. Pearson Prentice Hall



# 4.4 Groundwater

No groundwater strikes were noted in the cable percussion boreholes during drilling. However, perched groundwater was encountered from 1.0mbgl to 3.0mbgl in WS9, within the Weathered London Clay Formation.

Groundwater was noted in all boreholes during the subsequent monitoring visits. The groundwater levels noted during the visits are summarised in Table 4. Due to the nature of the site, some positions were not accessible during monitoring visits due to parked vehicles.

Borehole [surface level	Level of groundwater (mOD) [Level of base of well (mOD)]								
(mOD)]	05/11/14	19/11/14	01/12/14	18/02/14	8/01/15	13/01/15			
BH2	NR	NR	18.56 [16.23]	19.44	20.02	21.39			
	22.06	22.05	22.26	22.02	24.24	24.22			
DID [26.2]	[21.06]	[21.05	[21.11]	[21.07]	24.24 [21.16]	[21.25			
[20.2] BH/	[21.00]	[21.10]	26.10	26.01	25.0/	22.10			
[27 27]	*	NR	[18 30]	[10 17]	[10 05]	[10 15]			
[27.57] BH5			22.57	23.78	25 78	24 71			
[27.36]	*	NR	[19.80]	[20.31]	[20.31]	[20.31]			
BH6			[]	19.86	20.06	20.26			
[27.96]	*	NR	NR	[19.51]	[19.56]	[19.43]			
BH7		18.34	18.55	18.78		18.69			
[25.79]	*	[18.29]	[18.27]	[18.24]	NR	[18.26]			
BH8	*	*	*	12.12	18.29	18.39			
[28.64]				[2.64]	[5.51]	[3.38]			
BH9	*	*	*	1.54	20.35	20.42			
[28.12]				[-2.73]	[-1.36]	[-1.96]			
BH10	*	*	*	26.64	27.04	27.12			
[27.07]				[4.64]	[4.42]	[4.44]			
WS4	25.37	25.64	25.62	25.61	25.60	25.76			
[26.29]	[24.99]	[24.99]	[24.99]	[25.00]	[25.00]	[25.00]			
WS5	23.99	23.88	24.11	24.07	24.20	24.97			
[26.14]	[23.47]	[23.55]	[23.47]	[23.47]	[23.46]	[23.46]			
WS6	*	26.44	26.41	26.51	26.44	19.36			
[27.06]		[25.00]	[24.97]	[25.97]	[25.00]	[24.96]			
WS7	*	NR	25.79	26.01	26.20	26.28			
[27.06]			[24.98]	[25.03]	[24.99]	[24.96]			
WS8	*	26.53	26.48	NR	NR	26.76			
[26.99]		[24.93]	[24.93]			[24.96]			
WS9	*	24.59	24.54	NR	24.63	24.71			
[25.79]		[22.96]	[23.01]		[23.07]	[22.99]			

#### Table 4. Summary of groundwater monitoring undertaken to date

\* - Borehole not completed at time of visit

NR – Borehole not accessible at time of visit due to obstruction



Further visits are to be undertaken and the results will be reported in a revision to this report.

The monitoring records indicate that standing groundwater recorded in monitoring wells across the site range from between approximately 0.55mbgl to 8.1mbgl. Due to the recorded variability in rest groundwater level, this is considered unlikely to represent a continuous water body across the site. It is considered that the groundwater in the boreholes during monitoring is likely to be due to water seepage at the interface between the Made Ground and London Clay Formation and also potentially due to very slow seepage within the silty sandy layers/pockets within the upper weathered London Clay Formation .

The above was confirmed during bailing dry of a number of boreholes during monitoring visits which confirmed that the infiltration rate is very slow.

### 4.5 Sulfate and pH conditions

At the time of writing, a total of 28 soil samples from across the site had been tested for pH and sulfate conditions. The results of the testing are summarised in Table 5. Further tests have been scheduled on samples obtained during the Phase 3 investigation, which will be incorporated into a revised version of this report once available.

Table 5. Summary of sulph	nate and pH conditions
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Borehole	Depth (mbgl)	Strata	Water soluble sulfate (g/l)	Acid soluble sulfate (%)	Total sulfur (%)	Total potential sulfate (%)	рН
WS4	0.3	Made Ground	0.28	0.055	_	-	7.6
WS7	0.6	Made Ground	0.099	0.02	-	-	7.7
WS8	0.6	Made Ground	0.22	0.043	-	-	8.1
WS9	2.0	Made Ground	0.28	0.055	-	-	8.9
BH9	1.2	Made Ground	0.51	0.1	-	-	7.1
BH2	1.5	London Clay Formation	0.11	0.11	0.039	0.12	7.7
BH2	3.5	London Clay Formation	2.4	0.64	0.27	0.81	7.6
BH2	6	London Clay Formation	2.7	1.1	0.41	1.23	7.6

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Borehole	Depth (mbgl)	Strata	Water soluble sulfate (g/l)	Acid soluble sulfate (%)	Total sulfur (%)	Total potential sulfate (%)	рН
BH2	15	London Clay Formation	0.4	0.086	0.32	0.96	7.7
BH3	2.5	London Clay Formation	2.3	2.9	1.0	3.0	7.5
BH3	4.5	London Clay Formation	2.4	1.5	0.59	1.77	7.5
BH3	7.5	London Clay Formation	0.72	0.18	0.41	0.42	7.6
BH3	13.5	London Clay Formation	0.65	0.15	0.64	1.92	7.7
BH4	4.5	London Clay Formation	0.85	0.18	0.071	0.033	7.5
BH4	19.5	London Clay Formation	0.43	0.087	0.43	1.203	7.9
BH5	3.5	London Clay Formation	0.061	0.049	0.017	0.002	7.9
BH5	9	London Clay Formation	0.81	0.21	0.42	1.05	7.8
BH5	18	London Clay Formation	0.36	0.086	0.72	2.074	8.1
BH6	4.5	London Clay Formation	2.8	1.9	0.62	0.04	7.9
BH6	16.5	London Clay Formation	0.42	0.094	0.44	1.226	8.1
BH7	4.5	London Clay Formation	0.77	0.16	0.071	0.053	7.2
BH7	22.5	London Clay Formation	0.28	0.056	0.85	2.494	8.3
BH8	24.0	London Clay Formation	1.1	0.23	0.56	1.68	7.8
BH9	7.0	London Clay Formation	3.5	0.7	0.36	1.08	7.6
BH9	9.0	London Clay Formation	3.4	0.68	0.35	1.05	7.5
BH10	2.8	London Clay Formation	2.7	0.54	0.24	0.72	8.2
BH10	7.0	London Clay Formation	3.1	0.53	0.33	0.99	7.9
BH10	20.5	London Clay Formation	1.7	0.33	0.59	1.77	7.5

The implications of these results are discussed in further detail in Section 7.7.



### 5. CONTAMINATION ASSESSMENT

# 5.1 Risks to human health (long-term chronic risks)

*Soil Guideline Values* (SGVs) have not been issued by the Environment Agency for the *"Residential (without plant uptake)"* land-use category. The soil results have therefore been compared to *Generic Assessment Criteria* (GACs) that have been derived in-house by CGL using the *Contaminated Land Exposure Assessment (CLEA)* model<sup>8</sup> and version 1.06 of the CLEA software to assess the risk to human health from chemical contamination in the soils.

The GACs represent conservative screening criteria and have been calculated using the default parameters for the standard land use scenario set out in the CLEA technical report and toxicological inputs in line with the requirements of *Science Report SC050021/SR2*<sup>9</sup> and, in the case of petroleum hydrocarbons, Science *Report P5-080/TR3*<sup>10</sup>. In the case of selenium, mercury, arsenic, nickel and the BTEX compounds, SGVs have been issued by the Environment Agency for other land-use categories and the physical-chemical and toxicological inputs have been taken from the published SGV reports.

The GACs have been generated assuming a sandy loam soil type and a Soil Organic Matter of 1%, which are suitable assumptions for the site in question. More detailed information on the derivation of the CGL GACs can be provided upon request.

<sup>&</sup>lt;sup>8</sup> Environment Agency. (January 2009). *Updated technical background to the CLEA model*. Science Report SC050021/SR3.

<sup>&</sup>lt;sup>9</sup> Environment Agency. (January 2009). *Human health toxicological assessment of contaminants in soil*. Science Report SC050021/SR2.

<sup>&</sup>lt;sup>10</sup> Environment Agency. (February 2005). *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils*. Science Report P5-080/TR3.



The results of the assessment are set out below in Table 6 to Table 9. Assessment against the SGVs and GACs is carried out at the 95<sup>th</sup> percentile on the sample mean (designated US<sub>95</sub>), which is considered to represent a reasonable worst-case scenario. Statistical assessment of the results has been completed in accordance with the recommendations set out in the recently published CL:AIRE guidance<sup>11.</sup> In this regard, an assessment of the normality of the data has been undertaken. Where datasets are normally distributed the *one sample t-test* has been applied to calculate the US<sub>95</sub>. In the case of non-parametric datasets, the Chebychev Theorem has been applied. The Grubbs Test has also been used to identify potential outliers within datasets. Copies of the relevant statistical analysis are available on request.

In March 2014, the Department for Environment, Food and Regional Affairs (DEFRA) issued SP1010 Development of Category 4 Screening Levels (C4SLs) for assessment of land affected by contamination - Policy companion document<sup>12</sup>, along with the results of the work by the C4SLs development team<sup>13</sup>. This includes a set of C4SL values for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead for sandy loam soil with SOM =6%.

These values are primarily to support site assessment with respect to Part IIA of the Environmental Protection Act 1990, being indicative of low health risk and therefore of a site not determinable under Part2A. This is in comparison with the SGVs and GACs which represent minimal risk. The C4SLs are based on revised slightly less conservative exposure models and toxicology based on Low Level of Toxicological Concern (LLTC) rather than the Heath Criteria Values (HCV) on which the SGVs/GACs are based. The difference in risk level between HCV (minimal risk) and LLTC (low risk) is slight, and it is noted that both are still within the Category 4 level and below the Category 3/4 level boundary considered by DEFRA to be the likely de facto minimum standard chosen by developers. The C4SLs are still strongly conservative in accordance with the Contaminated Land Regulations and meet the objectives of the NPPF that:

<sup>&</sup>lt;sup>11</sup> J. Lowe et al. (May 2008). *Guidance on comparing soil contamination data with a critical concentration*. CL:AIRE, CIEH & SAGTA.

<sup>&</sup>lt;sup>12</sup> DEFRA (March 2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document

<sup>&</sup>lt;sup>13</sup> CL:AIRE (March 2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination



- the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation; and
- after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990.

On this basis CGL considers it is appropriate to use C4SLs for the published contaminants. In the event impacts are identified on a site above the GAC/SGV level for these contaminants, CGL will utilise the C4SLs to assess whether these pose a low risk to developments and Public Open Space applications.

It is noted that the BGS has published background levels for a number of organic and inorganic constituents. In the event that the C4SL or a GAC is found to be exceeded, the risk may still be considered to be low, unlikely to meet the definition of contaminated land under Part IIA and potentially suitable for use from a development perspective, if the contaminant concentrations are below local background levels, assuming no other contributing factors.

It is noted that the SGV for lead has been withdrawn and that the C4SL for lead will be used in its place, based on latest toxicology research.



Contaminant SGV or GAC @ 1% SOM		Notes on soil saturation	Measured range	US <sub>95</sub>	US <sub>95</sub> > Assessment Criteria?
	for Residential (without plant uptake) land-use	limits (SSL) <sup>-</sup>			(Y/N) #- outlier detected
	(mg/kg)		(mg/kg)	(mg/kg)	
SOM (%)	*2		<0.1 to 3.2	*	*
Arsenic	35 <sup>3</sup>	-	7.4 to 48.0	30.95	N
Cadmium	85 <sup>3</sup>	-	<0.2 to 1.0	0.59	N#
Chromium (total)	38	-	13.0 to 52.0 <sup>8</sup>	37.69	N
Lead	310 <sup>7</sup>	-	29.0 to 1,100.00	729.02	Y
Mercury (inorganic)	240 <sup>3</sup>	-	<0.3 to 8.5	3.57	N#
Selenium	600 <sup>3</sup>	-	<1.0	1.0	N
Boron	*		<0.2 to 10.0	5.20	*
Copper	6,700	-	30.0 to 320.0	183.03	N
Nickel	130 <sup>3</sup>	-	11.0 to 77.0	52.72	N
Zinc	20,000	-	43.0 to 680.0	425.0	N
Barium	*		53.0 to 370.0	234.24	*
Beryllium	26	-	0.3 to 4.7	2.80	N
Vanadium	210	-	28.0 to 200.0	116.15	N#
Phenols <sup>4</sup>	310 <sup>3</sup>	-	<1.0	1.0	N
Cyanide	*		<1.0	1.0	*
BTEX compounds					
Benzene	0.27 <sup>5</sup>	-	<0.001	0.001	N
Toluene	610 <sup>5</sup>	-	<0.001	0.001	N
Ethyl benzene	170 <sup>5</sup>	-	<0.001	0.001	N
m-xylene <sup>6</sup>	55 <sup>5</sup>	-	<0.001	0.001	N
o-xylene <sup>6</sup>	60 <sup>5</sup>	-	<0.001	0.001	N
p-xylene <sup>6</sup>	53 <sup>5</sup>	-	<0.001	0.001	N

Notes:

1. -= green; (a) = amber i.e. GAC set to model output, [SSL provided in square brackets]; (b) = red i.e. SSL exceeded & considered to affect interpretation. GAC calculated in accordance with the CLEA Software Handbook; (c) = based on direct contact; (d) GAC limited to SSL.

2. \* = no value currently defined

3. Based on the published Soil Guideline Value (Environment Agency, 2009), adjusted for no plant uptake and 1% SOM

4. GAC relates to Phenol ( $C_6H_5OH$ ) only.

5. Based on the published SGVs for BTEX at 6% SOM (Environment Agency, 2009), adjusted for 1% SOM without plant uptake

6. Concentrations for total xylenes should be compared to the value for m-xylene for fresh spills and to o-xylene for all other cases.

7. Published C4SL for lead (DEFRA, 2014)

8. Exceedances are for Total Chromium. Further analysis indicates that the exceedances are due to Chromium III and the concentrations of the more toxic Chromium VI are below the assessment criteria.



Summary of Son contamination (insks to numan neutrin) - wade Ground cont.						
Contaminant	SGV or GAC @ 1% SOM for Residential (without plant untake) land use	Notes on soil saturation limits (SSL) <sup>1</sup>	Measured range	US <sub>95</sub>	US <sub>95</sub> > Assessment Criteria? (Y/N) #- outlier	
	uptake) land-use				detected	
	(mg/kg)		(mg/kg)	(mg/kg)		
Total Petroleum Hydrocarb	ons (TPH)					
TPH aliphatic EC5-6	24	-	<0.1 to 0.4	0.26	N#	
TPH aliphatic EC>6-8	49	-	<0.1 to 0.3	0.18	N#	
TPH aliphatic EC>8-10	10	-	<0.1	0.10	Ν	
TPH aliphatic EC>10-12	540	(b)	<1.0 to 20.0	8.27	N#	
TPH aliphatic EC>12-16	1,500	(b)	<2.0 to 64.0	25.83	N#	
TPH aliphatic EC>16-35	89,000	(b)	<16.0 to 121.0	63.32	N#	
TPH aromatic EC5-7	0.27	-	<0.1	0.10	Ν	
TPH aromatic EC>7-8	610	-	<0.1	0.10	Ν	
TPH aromatic EC>8-10	17	-	<0.1	0.10	Ν	
TPH aromatic EC>10-12	88	-	<1.0 to 2.9	1.90	N#	
TPH aromatic EC>12-16	1,500	(b)	<2.0 to 51.0	24.77	N#	
TPH aromatic EC>16-21	1,300	(b)	<10.0 to 490.0	218.0	N#	
TPH aromatic EC>21-35	1,300 [4.8]	(a)	<10.0 to 650.0	279.6	N#	
Polycyclic Aromatic Hydroc	arbons (PAH)					
Acenaphthene	4,500	(b)	<0.1 to 8.4	3.54	N#	
Anthracene	24,000	(b)	<0.1 to 30.0	13.68	N#	
Benzo(a)anthracene	7.7 [1.7]	(a)	<0.1 to 78.0	33.73	Y	
Benzo(a)pyrene	2.3 [0.9]	(a)	<0.1 to 64.0	28.11	Y	
Benzo(b)fluoranthene	22 [1.2]	(a)	<0.1 to 73.0	31.86	Y	
Benzo(g,h,i)perylene	240 [0.02]	(a)	<0.05 to 29.0	13.40	N	
Benzo(k)fluoranthene	23 [0.7]	(a)	<0.1 to 31.0	13.94	N	
Chrysene	170 [0.4]	(a)	<0.05 to 54.0	24.50	N	
Dibenzo(a,h)anthracene	2.1 [0.004]	(a)	<0.1 to 5.5	2.67	Y#	
Fluoranthene	3,100 [19]	(a)	<0.1 to 160.0	71.45	N	
Fluorene	3,100	(b)	<0.1 to 11.0	5.40	N#	
Indeno(1,2,3-cd)pyrene	21 [0.06]	(a)	<0.1 to 28.0	13.01	N	
Naphthalene	1.6	-	<0.05 to 1.6	0.66	N#	
Pyrene	2,300 [2.2]	(a)	<0.1 to 1300	58.15	N	

Table 7.	Summary	of soil	contamination	(risks to human	health)	- Made G	round cont.
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Notes:

1. -= green; (a) = amber i.e. GAC set to model output, [SSL provided in square brackets]; (b) = red i.e. SSL exceeded & considered to affect interpretation. GAC calculated in accordance with the CLEA Software Handbook; (c) = based on direct contact; (d) GAC limited to SSL.



Contaminant	SGV or GAC	Notes on	Measured range	Measured
	@ 1% SOM	soil saturation		range > Assessment
	for Residential	limits (SSL) <sup>1</sup>		Criteria?
	(without plant uptake) land-use			(1/14)
	(mg/kg)		(mg/kg)	
SOM (%)	*2		<0.1 to 0.2	*
Arsenic	35 <sup>3</sup>	-	13.0 to 14.0	N
Cadmium	85 <sup>3</sup>	-	<0.2 to 0.6	N
Chromium (total)	38	-	37.0 to 47.0	۲ <sup>8</sup>
Chromium (III)	1,100	-	37.0 to 47.0	N
Chromium (VI)	4.2	-	<1.2	N
Lead	310 <sup>7</sup>	-	14.0 to 20.0	N
Mercury (inorganic)	240 <sup>3</sup>	-	<0.3	N
Selenium	600 <sup>3</sup>	-	<1.0	N
Boron	*		0.5 to 4.4	*
Copper	6,700	-	22.0 to 31.0	N
Nickel	130 <sup>3</sup>	-	30.0 to 45.0	N
Zinc	20,000	-	59.0 to 87.0	N
Barium	*		35.0 to 130.0	*
Beryllium	26	-	1.4 to 1.7	N
Vanadium	210	-	69.0 to 87.0	N
Phenols <sup>4</sup>	310 <sup>3</sup>	-	<1.0	N
Cyanide	*		<1.0	*
BTEX compounds				
Benzene	0.275	-	<0.001	Ν
Toluene	610 <sup>5</sup>	-	<0.001	Ν
Ethyl benzene	170 <sup>5</sup>	-	<0.001	N
m-xylene <sup>6</sup>	55⁵	-	<0.001	N
o-xylene <sup>6</sup>	60 <sup>5</sup>	-	<0.001	N
p-xylene <sup>6</sup>	53 <sup>5</sup>	-	<0.001	N

Table 8. Summary of soil contamination (risks to human health) - natural soil

Notes:

- = green; (a) = amber i.e. GAC set to model output, [SSL provided in square brackets]; (b) = red i.e. SSL exceeded & considered to affect interpretation. GAC calculated in accordance with the CLEA Software Handbook; (c) = based on direct contact; (d) GAC limited to SSL.

3. Based on the published Soil Guideline Value (Environment Agency, 2009), adjusted for no plant uptake and 1% SOM

4. GAC relates to Phenol (C<sub>6</sub>H<sub>5</sub>OH) only.

5. Based on the published SGVs for BTEX at 6% SOM (Environment Agency, 2009), adjusted for 1% SOM without plant uptake

6. Concentrations for total xylenes should be compared to the value for m-xylene for fresh spills and to o-xylene for all other cases.

7. Published C4SL for lead (DEFRA, 2014)

8. Exceedance is for Total Chromium. Further analysis indicates that the exceedance is due to Chromium III and the concentration of the more toxic Chromium VI is below the assessment criteria.

<sup>2. \* =</sup> no value currently defined



Contaminant	SGV or GAC @ 1% SOM for Residential (without plant uptake) land-use	Notes on soil saturation limits (SSL) <sup>1</sup>	Measured range	Measured range > Assessment Criteria? (Y/N)
	<i>, , ,</i> , ,		<i>( (</i> ) )	
	(mg/kg)		(mg/kg)	
Total Petroleum Hydrocarb	ons (TPH)			
TPH aliphatic EC5-6	24	-	<0.1	N
TPH aliphatic EC>6-8	49	-	<0.1	N
TPH aliphatic EC>8-10	10	-	<0.1	N
TPH aliphatic EC>10-12	540	(b)	<1.0	N
TPH aliphatic EC>12-16	1,500	(b)	<2.0	N
TPH aliphatic EC>16-35	89,000	(b)	<16	N
TPH aromatic EC5-7	0.27	-	<0.1	Ν
TPH aromatic EC>7-8	610	-	<0.1	Ν
TPH aromatic EC>8-10	17	-	<0.1	Ν
TPH aromatic EC>10-12	88	-	<1.0	Ν
TPH aromatic EC>12-16	1,500	(b)	<2.0	Ν
TPH aromatic EC>16-21	1,300	(b)	<10.0	Ν
TPH aromatic EC>21-35	1,300 [4.8]	(a)	<10.0 to 20.0	Ν
Polycyclic Aromatic Hydroca	arbons (PAH)			
Acenaphthene	4,500	(b)	<0.1 to 0.18	N
Anthracene	24,000	(b)	<0.1 to 0.17	N
Benzo(a)anthracene	7.7 [1.7]	(a)	<0.1 to 0.33	N
Benzo(a)pyrene	2.3 [0.9]	(a)	<0.1 to 0.3	N
Benzo(b)fluoranthene	22 [1.2]	(a)	<0.1 to 0.3	N
Benzo(g,h,i)perylene	240 [0.02]	(a)	<0.05	N
Benzo(k)fluoranthene	23 [0.7]	(a)	<0.1 to 0.21	N
Chrysene	170 [0.4]	(a)	<0.05 to 0.36	N
Dibenzo(a,h)anthracene	2.1 [0.004]	(a)	<0.1	N
Fluoranthene	3,100 [19]	(a)	<0.1 to 0.87	N
Fluorene	3,100	(b)	<0.1 to 0.2	Ν
Indeno(1,2,3-cd)pyrene	21 [0.06]	(a)	<0.1	Ν
Naphthalene	1.6	-	<0.05 to 0.45	N
Pyrene	2,300 [2.2]	(a)	<0.1 to 0.69	N

#### Table 9. Summary of soil contamination (risks to human health) - natural soil cont.

Notes:

2. -= green; (a) = amber i.e. GAC set to model output, [SSL provided in square brackets]; (b) = red i.e. SSL exceeded & considered to affect interpretation. GAC calculated in accordance with the CLEA Software Handbook; (c) = based on direct contact; (d) GAC limited to SSL.



The contaminant concentrations in the natural soils were below the acceptable limit for all contaminants tested. Although the testing indicated that concentrations of total chromium recorded in the London Clay were above the assessment criteria (which is based chromium VI), further testing of these samples indicates that the concentrations of total chromium were both due to chromium III, with the recorded concentrations of the more toxic chromium VI being below the laboratory limit of detection and assessment criterion. Therefore the concentrations of chromium recorded are not considered to present an unacceptable risk to human health.

The statistical assessment has indicated that the representative concentration (US<sub>95</sub>) for lead and a number of PAHs exceed the applicable human health assessment criteria. Further details of the locations where the concentrations of these contaminants were above the assessment criteria are presented in Table 10. In addition, an asbestos screen was undertaken on 14 samples of Made Ground. Loose fibres of chrysotile asbestos were detected in two samples (BH6 at 0.3mbgl and BH10 at 0.5mbgl), which are also included in Table 10.

Borehole	Depth	Contaminants which	Contaminant	Acceptable limit for the
	(mbgl)	exceed acceptable limit	concentration	Residential (without plant
			(mg/kg)	uptake) land use (mg/kg)
BH2	0.2	Lead	570	310
BH6	0.3	Lead	340	310
		Benzo(a)anthracene	78	7.7
		Benzo(b)fluoranthene	73	22.0
		Benzo(a)pyrene	64	2.3
		Dibenzo(a,h)anthracene	5.5	2.1
		Asbestos (chrysotile fibres)	Present	No fibres detected
WS5	0.2	Lead	1,100.0	310
		Benzo(a)pyrene	5.8	2.3
WS6	0.7	Benzo(a)pyrene	3.7	2.3
WS9	0.3	Benzo(a)anthracene	29	7.7
		Benzo(b)fluoranthene	28	22.0
		Benzo(a)pyrene	26	2.3
		Dibenzo(a,h)anthracene	3.4	2.1
BH10	0.5	Asbestos (chrysotile fibres)	Present	No fibres detected

Table 10. Summary of contaminant exceedances (Made Ground)



# 5.2 Risks to plant growth

As indicated in Section 5.1, concentrations of phytotoxic chemicals are below the human health assessment criteria prescribed by the Sludge Regulations. The risks to plant growth are therefore considered to be low.

#### 5.3 Ground gas assessment

Five rounds of ground gas monitoring have been completed to date on 5<sup>th</sup> and 19<sup>th</sup> November 2014, 1<sup>st</sup> and 18<sup>th</sup> December 2014 and 8<sup>th</sup> and 13<sup>th</sup> January 2015, during atmospheric pressures in the range of 999mb to 1019mb. The local pressure system was noted to be rising during all visits, aside from the fifth and sixth, which were noted to be falling and steady, respectively. The monitoring records are presented in Appendix C and are summarised below:

- Maximum carbon dioxide concentration: 4.7 % v/v;
- Maximum methane concentration: <0.1 % v/v;
- Maximum flow rate: 1.3 l/hr;
- Minimum oxygen concentration: 7.7 % v/v.

Based on these findings, and with reference to CIRIA guidance<sup>14</sup>, a gas screening value (GSV) of 0.0611l/hr has been calculated for the site, corresponding to a Characteristic Situation 1 (NHBC 'Green') site.

Higher values of carbon dioxide (5.3% and 5.4%) and flow rate (2.2l/hr) were encountered in boreholes WS6 and BH3, respectively. These values were not sustained and are considered to be anomalous. Further, NHBC guidance recommends that steady state conditions are used when assessing carbon dioxide. Given that these values were not sustained it is considered appropriate to use the more representative conditions presented within the bullets above within the ground gas assessment. Additional monitoring visits are to be undertaken and the results will be used to confirm the gas regime at the site and reported within a revised version of this report.

<sup>&</sup>lt;sup>14</sup> CIRIA (2007) Assessing the risks posed by hazardous ground gases to buildings



### 6. REFINED RISK ASSESSMENT

#### 6.1 Introduction

In accordance with Contaminated Land Report (CLR) 11<sup>15</sup>, the conceptual site model has been updated based on the information gathered during the intrusive investigation and the potential pollutant linkages have been evaluated through a semi-quantitative risk assessment. The risks ratings identified have been assigned in accordance with the DEFRA and Contaminated Land Report (CLR) 6<sup>16</sup>, site prioritisation and categorisation rating system which is summarised in Table 11.

Risk Rating	Description			
	Contaminants very likely to represent an unacceptable risk to identified targets			
High Risk	Site probably not suitable for proposed use			
	Enforcement action possible,			
	Urgent action required			
	Contaminants likely to represent an unacceptable risk to identified targets			
Medium Risk	Site probably not suitable for proposed use			
	Action required in the medium term			
Low Risk	Contaminants may be present but unlikely to create unacceptable risk to identified targets			
	Site probably suitable for proposed use			
	Action unlikely to be needed whilst site remains in current use			
Negligible Risk	If contamination sources are present they are considered to be minor in nature and extent			
	Site suitable for proposed use			
	No further action required			

Table 11. Risk Rating Terminology

Based on the terminology within this table, a refined assessment of the risks posed by the potential pollutant linkages at the site is outlined in Table 12. A diagrammatic representation of the conceptual site model is provided in Figure 5.

<sup>&</sup>lt;sup>15</sup> The Environment Agency. (2004). *Model Procedures for the Management of Land* Contamination. CLR 11.

<sup>&</sup>lt;sup>16</sup> M.J. Carter Associates. (1995). Prioritisation and Categorisation Procedure for Sites which may be Contaminated. Department of the Environment. CLR 6



Table 12. Semi-quantitative risk assessment	
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Source/Medium	Receptor	Potential Exposure Route	Risk Rating
Organic/inorganic contaminants within Made Ground	Construction workers	Direct ingestion of soil & dust, inhalation of particulates & vapours and dermal contact	Medium (due to concentrations of lead and benzo(a)pyrene recorded in Made Ground)
	Future site occupiers	Direct ingestion of soil & dust, inhalation of particulates & vapours, indirect ingestion by means of vegetable uptake and dermal contact	Medium (where soil is exposed due to concentrations of lead and benzo(a) pyrene recorded in Made Ground)
	Vegetation and plants	Root uptake	Low
	Buildings & structures	Direct contact and migration & accumulation within building spaces. Damage to water supply pipes.	Low (assumes appropriate concrete design and agreement of water pipe materials)
	Groundwater or surface water	Leaching and vertical migration of contaminants	Low
Explosive / asphyxiating gases from Made Ground on site, if present.	Internal building spaces & future occupiers	Migration of gases through the surface and via permeable soils	Negligible (based on the results of the three rounds of monitoring)
Asbestos in existing building fabric.	Construction workers	Direct ingestion of dust and inhalation of particulates	Medium

# 6.1.1 Risks to human health

The risk to future site occupiers is considered to be medium, given the elevated contaminant concentrations encountered in the Made Ground on site and the limited areas of communal landscaping proposed in the development. No private gardens are proposed.

The risk to construction workers from the Made Ground and possible asbestos containing material within the fabric of the existing buildings is considered to be medium. It is considered that the potential risks can be controlled through site working practices, including PPE.



# 6.1.2 Risks to controlled waters

The site is not situated above an aquifer and therefore the risk to groundwater is considered to be negligible. The nearest surface water receptor (*Regent's Canal*) is some 3m south of the site and consists of a clay-lined man-made canal. Given the generally low concentrations of contaminants and cohesive nature of the underlying London Clay Formation, the risk to controlled waters is considered to be low.

# 6.1.3 Risks to buildings and structures

Due to the generally limited nature of the Made Ground and low concentrations of contaminants recorded, the risk to buildings and structures is considered to be low. The design of buried concrete should take into consideration the pyritic nature of the London Clay Formation and the resultant risk of sulfate attack on the concrete.

# 6.1.4 Risks to vegetation and plants

No exceedances of phytotoxic chemicals were noted at the site and only limited soft landscaping is proposed. Therefore, the risk to vegetation and plants is considered to be low.



# 7. GEOTECHNICAL RECOMMENDATIONS

#### 7.1 General

The following sections provide recommendations for the proposed development with regard to geotechnical aspects, based on the information obtained during the intrusive investigation and the laboratory results.

#### 7.2 Geotechnical design parameters

Geotechnical design parameters are recommended based on the available information from the intrusive investigation and published information. These are summarised in Table 13. The values are unfactored (Serviceability Limit State) parameters and are considered to be characteristic values for the local soils.

#### Table 13. Geotechnical parameters

Stratum	γ (kN/m³)	φ' (°)	Cu (kPa) [c']	Eu (MPa) [E']
Made Ground	18	30ª	30 [0]	18 <sup>b</sup> [13.5 <sup>c</sup> ]
London Clay Formation	20	24 <sup>d</sup>	50+6z <sup>e</sup> [5]	30+3.6z [22.5+2.7z]

a. Burland et. al (Eds) (2001) Building response to tunnelling, CIRIA Special Publication 200, CIRIA

b. Based on 600c<sub>u</sub>

c. Based on 0.75Eu

d. BS 8002:1994 Code of practice for Earth retaining structures, British Standards institution.

e. z = depth below surface of London Clay

### 7.3 Foundations

It is understood that a piled foundation solution is the preferred option for the proposed development of the site.

Where basements are proposed at the site, the piles will be driven from basement level. Where no basements are proposed, the piles will be installed from ground level.

Indicative pile working loads (kN) are shown below for Buildings C, D, X and W, based on pile diameters of 0.45m to 1.5m and pile lengths of 10m to 25m. An overall design factor of safety of 2.6 and adhesion factor of 0.5 have been assumed. These factors may be modified based on the design approach adopted, the piling methodology, the further ground investigation and on the results of pre-construction pile testing.

These calculations are based on the geotechnical design parameters presented in Table 13.



# 7.3.1 Building C

The proposed development at Building C includes a basement to some 15mbgl and piles will therefore be installed from basement formation level (11.7mOD). Indicative working loads (kN) for this Block are shown in Table 14 and are presented graphically in Figure 6.

Table 14.	Indicative pile workin	a loads (kN) – piled	from basement level	l at Buildina C (11.7mOD)
10010 141	malcative pric working		ji olili bascilicilit icvel	at bananig e (1117 mob)

Pile Length (m)	Pile diameter (m)						
	0.45	0.6	0.75	0.9	1.2	1.5	
10	510	730	970	1,230	1,820	2,510	
15	800	1,100	1,480	1,860	2,690	3,640	
20	1,150	1,590	2,070	2,570	3,680	4,910	
25	1,530	2,110	2,720	3,370	4,780	6,320	

### 7.3.2 Blocks A and D

The proposed development at Blocks A and D include a basement to some 5mbgl and piles will therefore be installed from basement formation level (21.7mOD). Indicative working loads (kN) for this Block are shown in Table 15 and are presented graphically in Figure 7.

Table 15. Indicative pile working loads (kN) – piled from basement level at Blocks A and D (21.7mOD)

Pile Length (m)		Pile diameter (m)					
	0.45	0.6	0.75	0.9	1.2	1.5	
10	530	750	990	1,250	1,850	2,530	
15	800	1,110	1,450	1,820	2,620	3,522	
20	1,100	1,520	1,970	2,440	3,470	4,610	
25	1,430	1,960	2,530	3,130	4,410	5,810	



# 7.3.3 Buildings X and W

No basements are proposed for Buildings X and W and piles will therefore be installed from ground level, taken as 26.7mOD. Indicative working loads (kN) for this Block are shown in Table 16 and are presented graphically in Figure 8.

Table 16. Indicative pile working loads (kN) – piled from ground level at Buildings X and W (26.7mOD)

Pile Length (m)	Pile diameter (m)					
	0.45	0.6	0.75	0.9	1.2	1.5
10	240	350	460	600	900	1,250
15	420	590	780	990	1,450	1,980
20	640	900	1,170	1,470	2,130	2,860
25	910	1,260	1,640	2,040	2,910	3,880

### 7.4 Excavations and retaining structures

### 7.4.1 Building C

A 15m deep basement is proposed at Building C and it is proposed to adopt contiguous piled walls as the support system. In order to control ground movements, a 'top-down' construction sequence is recommended. Preliminary retaining wall analysis has been undertaken by CGL and is presented in a separate report<sup>17</sup>.

Additionally, a Basement Impact Assessment (BIA) will be undertaken by CGL in accordance with Camden Council's guidance for basement construction to assess the impact of the basement on adjacent roads, buildings and infrastructure.

# 7.4.2 Blocks A and D

Blocks A and D are to include single storey basements to a maximum depth of 5mbgl. A 'bottom-up' construction methodology is recommended, utilising temporary berms and/or propping during installation of the contiguous piled wall.

A BIA is to be undertaken by CGL for these blocks to assess the impact on adjacent roads, buildings, the canal and infrastructure.

<sup>&</sup>lt;sup>17</sup> CGL (2014) Camden Lock – Preliminary Piled Wall Analysis. Ref: CG/18067A. December 2014


### 7.4.3 Buildings X and W

No basements are proposed for Buildings X and W and the piled foundations are to be installed from surface.

It is anticipated that shallow excavations within the Made Ground and London Clay Formation will remain stable over the short term if dry. Where water is encountered in excavations, such as perched water within Made Ground or surface run-off, temporary sidewall support and dewatering (sump pumping) may be required to maintain excavation stability.

No operatives should enter unshored or otherwise protected excavations identified as unstable by a competent person, however shallow they are, in accordance with the guidelines presented in CIRIA Report 97<sup>18</sup>.

### 7.5 Floor slabs and pavement design

The underlying London Clay Formation has been found to have a high volume change potential. Floor and basement slabs should therefore be designed as suspended in order to prevent damage due to heave movements.

Recommendations for the design of the basement slabs in relation to the design groundwater level and calculation of the potential heave movements will be included within the Basement Impact Assessments for Blocks A, C and D. These assessments will also include recommendations for heave protection for the basement slabs.

Based on the geotechnical testing undertaken at the site, a design CBR of 2.5% is recommended for pavement design.

### 7.6 Drainage

Soakaway drainage is not considered suitable for the site, given the cohesive nature of the underlying ground.

<sup>&</sup>lt;sup>18</sup> CIRIA (1992). *Trenching Practice (Second Edition)*. Construction Industry Research and Information Association Report 97.



### 7.7 Buried concrete

The availability of total potential sulfate (TPS) in pyritic soils is dependent on the extent to which the soils are disturbed, and the level to which the soils may oxidise, resulting in sulfate ions that may reach the concrete. In this regard, BRE SD1 guidance states that *"Concrete in pyritic ground which is initially low in soluble sulfate does not have to be designed to withstand a high potential sulfate class unless it is exposed to ground which has been disturbed to the extent that contained pyrite might oxidise and the resultant sulfate ions reach the concrete. This may prompt redesign of the structure or change to the construction process to avoid ground disturbance; for example, by using precast or cast-in-situ piles instead of constructing a spread footing within an excavation".* 

On this basis, the appropriate DS and ACEC class for the pyritic soils, i.e. based on water soluble sulfate (WSS) or total potential sulfate (TPS), should be adopted dependant on the extent to which the soils will be disturbed during construction.

Where open excavations will be required into the London Clay (i.e. during basement excavations), the soils may be disturbed to the extent that contained pyrite might oxidise and allow the resultant sulfate ions to reach the concrete, and as such the TPS DS and ACEC classes should be adopted. However, where cast-in-situ piles are adopted, as Blocks A, C and D of this site, the WSS DS and ACEC classes may be adopted.

The results of pH and sulfate testing undertaken at this site indicate that buried concrete within the London Clay Formation should be designed to Design Class DS-4 and ACEC Class AC-3s if disturbed (based on TPS) and Design Class DS-3 and ACEC Class 2s if undisturbed (based on WSS).

It is anticipated that the basement slabs will not be able to oxidise as they will not be in direct contact with the underlying ground due to the layer of heave protection which is to be installed.

The Made Ground at the site is not pyritic and buried concrete in this stratum should be designed to Design Class DS-1 and ACEC Class AC-1.



### 8. GEOENVIRONMENTAL RECOMMENDATIONS

#### 8.1 Contamination and remediation

Due to the contaminant exceedances noted in the Made Ground across the site, it is recommended that a capping layer is installed to prevent the migration of contaminants. For communal landscaped areas, the capping layer may comprise hardstanding or a minimum of 150mm topsoil over 300mm subsoil and a geotextile membrane. Alternatively, the Made Ground across the site may be removed and disposed of off-site at an appropriate facility.

Based on the results of the six ground gas monitoring visits undertaken to date, the site conforms to Characteristic Situation 1 and no ground gas protection measures are therefore required in the development.

#### 8.2 Material management

A preliminary assessment of the results of analysis of Made Ground for waste classification purposes indicates that the majority of this material may be classified as 'not hazardous' with respect to waste disposal.

However, samples at 0.7mbgl from WS6 and 0.3mbgl from BH6 were found to be 'hazardous' with respect to waste disposal due to elevated pH and PAHs. In addition, the sample from 0.3mbgl at BH6 was found to contain loose fibres of chrysotile asbestos, which will require further consideration with respect to waste classification, as described below.

Waste acceptance criteria (WAC) testing demonstrates that the 'not hazardous' samples may be disposed of in an inert landfill and that the 'hazardous' samples may be disposed of as 'stable non-reactive waste in non-hazardous landfill'.

If asbestos-containing material, such as cement-bound asbestos, is visibly noted within the soil matrix, the material will be classified as *hazardous*. Hand picking of the asbestos containing material should be undertaken to reduce the volume of hazardous waste and potentially allow the residual soils to be disposed of to a non-hazardous facility, subject to the volume of fibres (categorised as *not hazardous* only if asbestos fugitive fibres comprise less than 0.1% of soil by weight and therefore asbestos quantification analysis would be required to confirm the appropriate disposal route). If asbestos-containing material is noted, the Environment Agency should be notified. Removal of impacted material should



only be undertaken by trained operatives with appropriate PPE, including respirators and dust suppression and the material removed from site should be double bagged.

Uncontaminated natural soils, as encountered at the site, can be disposed of at an inert landfill as listed inert waste.

It should be noted that in May/June 2012 HMR&C issued Briefs 15/12 and 18/12 clarifying how construction spoil and excess soils will be assessed for landfill tax purposes. Detailed accurate descriptions of waste are required for all wastes to support the landfill tax assessment. Uncontaminated naturally occurring soils will remain inert by default and eligible for the lower rate of landfill tax. Similarly 'reworked soils' and demolition 'stone' comprising ONLY materials listed in the Schedule of the Landfill Tax (Qualifying Material) Order 2011 (SI 2011/1017) will also be eligible for the lower rate of landfill tax. However, Made Ground containing soil and foreign objects such as timber, plastic, rubber, metal, paper, plasterboard, asbestos, etc., regardless of the results of chemical analysis for waste classification purposes, will be eligible for the standard (higher) rate of landfill tax. Therefore, to maximise eligibility for lower rate landfill tax on waste construction spoil/ reworked ground, careful waste segregation and controls are necessary.

All material intended for offsite disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations, 1991 and the Landfill (England and Wales) Regulations, 2002 (as amended). Waste legislation stipulates that hazardous and not hazardous waste should be pre-treated prior to disposal. Pre-treatment can be undertaken either at the site of origin or may be carried out at a licensed off-site facility and can include selective segregation of soils conducted on site.

#### 8.3 Buried services

Based on the measured concentrations of contaminants within the Made Ground, it is anticipated that PE or PVC pipes will be suitable for use at the site. However, it is recommended that the water supply company is contacted to confirm this recommendation is acceptable to them.



### 8.4 Discovery Strategy

The investigation was limited by the presence of buildings across the majority of the site. A watching brief should therefore be undertaken by the Contractor during earthworks and construction works. Should areas of unexpected contamination be encountered or suspected, a qualified geoenvironmental engineer should be informed and the risk associated with the contamination assessed. Where necessary, an appropriate remediation strategy will be devised and implemented. The regulators will be informed of any additional areas of contamination so identified and will be provided with the risk assessment and proposed remediation methodology for agreement before undertaking such works. Appropriate verification works to be completed if remedial measures are required will also be identified and agreed.

The following nominal discovery strategy is recommended:

- 1. Work to cease in that area.
- 2. Notify geoenvironmental engineer, to attend site and sample material. Notify Environmental Health Officer at Camden Council.
- 3. Geoenvironmental engineer to supervise the excavation of contaminated material, which should be placed in a bunded area and covered to prevent rainwater infiltration.
- 4. Soil samples should be obtained by the geoenvironmental engineer from both the excavated material and the soils in the sides and base of the excavation to demonstrate that the full area of contamination has been excavated. If appropriate, in-situ testing should be undertaken on the sides and base of the excavation to assess the presence of residual contamination in the soils.
- 5. On receipt of chemical test results, the soils may be appropriately classified for treatment or disposal, and dealt with accordingly.
- Detailed records, including photographs and duty of care records, of the excavations, stockpile sizes, source and location should be kept and regularly updated to allow materials to be easily tracked from excavation until disposal off site.
- Backfilling to be undertaken with material certificated as suitable for the proposed end land use.



### 8.5 Health and safety

Precautions should be taken to minimise exposure of workers and the general public to any potentially harmful substances during earthworks.

The risks to construction workers can be controlled through the implementation of site safety procedures and the use of suitable personal protective equipment (PPE). Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions. All work should be carried out in accordance with the Contractor's Construction Health and Safety Plan.

Precautions will include but not be limited to:

- Personal hygiene, washing and changing procedures.
- Adequate personal protective equipment.
- Dust and vapour suppression methods, including damping down, minimising the working face exposed and covering stockpiles, where required.
- Regular cleaning of all site roads, access roads and the public highway.
- Safe storage of fuel and other potentially polluting liquids and the provision of spill control and clean up facilities.
- Positive collection and disposal of on-site run-off.

**FIGURES** 





F	Borehole ID	SI Phase	Maximum depth (m)
	BH1	1	15
	WS1 - WS3	1	3.15
	BH2	1	30
	BH3	1	15
	WS4 - WS5	1	5
	BH4 & BH6	2	25
	BH5	2	40
	BH7	2	30
⊢,		2	5 ٦٢
	BH9	3	30
	Proposed location of BH	11 moved	15/10/14
	Proposed location of BH	tt moved	15/10/14 Date: Card Geotechnics Ltd. 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW T: 01483 310600 Sorder
Dwn	Proposed location of Bi-	ti moved	I 5/10/14 Dote: Card Geotechnics Ltd. 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW T: 01483 310600 e, London NTS
Dwn Ckd	Date:         Project           JLA         7/10/14         Client           DWM         9/01/15         Title*	tt moved	And exploratory hole location plan













## **APPENDIX A**

Historical BGS boreholes logs



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Project Briti	ARLINGTON HO CAMDEN, LOND sh Geologic	USE, 220 ARLINGTON ROAD, ON al Survey	Client	В	ritish Geo	y 🦏	Survey		Trial Pit Excavation Methods	BRA	DFORD	WATTS	HAND	PIT Hole No. TH8A
Ground Le	vel	25.33 m.A.O.D.	Coordinates		" " m.E			m.N.	Orientatio	on:	Ler	igth -	1.00	Job No 10482
WAT	ER		STRATA				SAMPL	ING/IN S	ITU TEST	r	LAB	TEST	ING	· · ·
Date/Time at Depth	Depth to Water m	Description		Legend	Level m.A.O.D.	Depth	Depth	Typ & N	e Test o. Resu	t <4	% W 425 %	/ W	WL	OTHER TESTS AND NOTES
		Made Ground (Brickwork wall)			-	_	0.20	D1		10	0 34	27	75	TH8A logged from north west face of Trial hole - CLEA screen with speciated polyaromatic hydrocarbons (D1) No groundwater recorded during fieldwork
30/10/06	_ DRY C	Made Ground (Concrete)			24.60	0.73		-						_Water in hole from Diamond Drilling corehole in wall above pit
		British Geological Survey			_	_	Britis	h Geolo	igical Su	rvey			3	British Geological Surve Trial pit complete at 1.09m
Briti	sh Geologic	al Survey		В	ritish Ger	logical I	Survey							- British Geological Survey
	-	British Geological Survey			-	-	Britis	sh Geolo	igical Su	rvey				Pit Stability, Shoring, etc. No collapse of sides of trial pit British Geological Surve
Water Level o Strike	Depth Obs. 5r	g digging, depths below GL. Depth after nim 10 min 15 min 20 min	WATER ▼ 1 First Strik ∇ 2 Subseque N - Overnight i C - Completion S Seepage no	e nt Strike Depth Depth t rising	SAMPLE ANI D Small distu B Bulk disturi W Water san U Undisturbe K Percolation	D TEST KEY arbed sample bed sample nple od sample n Test	Y HV SRD S CBR I PB	Perth Penet Hand shear Sand replac In situ CBR Plate Bearin	rometer Tes vane test cement densi test ng Test	t ty test	TES Np = V = t BD = CBR	Np V Avera In-Sit	ULT alue age Har tu Bulk ornia Be	Ind Shear Vane Strength - kN/m <sup>2</sup> Density - Mg/m <sup>3</sup> Log GJB



#### N-WHITAKERS BREWERY HAMPSTEAD



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BOREHOLE NO	TQ28SE
Contract Name Canden Town	Report No. 8. 808/15 1203
Client	Site Address Corner of Canden Street
Engineers: teopard; & Partpars, British Geological Survey 344 - 360 South Lambeth Rd.	and Canden Road
London S.W.8.	.2 Yub 5'4(C)
Standing Water Level 55'0" 17.6.65.	Diameter 8"
ologi Wates Struck	Method of Boring Shall/Amger
Ground Level 78.49	Start. 14.6.65. Finish 16.6.65.
Remarks:	

	Description of Strata	Thickness	Depth	Disturbed Samples	'U' Cores and 'N' P. Test
	Made ground (sand, bricks stones etc.)	1'0"	1'0"	J2101 0'6"	
	Seft brown mottled clay	216"	3'6"	J2102 2'6"	
British	Geological Survey Brewn sandy clay with gravel	urvey 5'0"	816"	B2103 5'0" J2104 7'6"	ogical Survey 5°0™ N=14
	Stiff brown mottled clay with layers of silt and sylphate crystals	8'0"	16'6"	J2106 12'6"	U2105 10'0" U2107 14'0"
	Stiff fissured brown clay with sulphate crystals	British Geolog 516	cal Survey 22°0*	J2108 17'6"	British Geological Surv
	Hard fissured grey silty clay with traces of organic material	6'0"	28'0"	J2110 22'6" J2112 27'6"	U2111 <b>34</b> '0"
Britis	Hard fissured silty grey clay	10' <b>0</b> "	38'0"	J2114 32'6" J2116 37'6"	U2113 29'0" U2115 34'0"
	Hard fissured grey clay with layers of silt and occasional sulphate crystals	23'6"	6116=	J2118 42'6" J2120 47'6" J2122 52'6" J2124 57'6"	U2117 39'0" J2119 45'0" U2121 49'0" U2123 54'0" U2125 60'0"
	British Geological Survey	British Geolog	ical Survey	W2126	British Geological Surv :
					5
	TOTALS	6116**	61*6*		

NOTES: 1. Descriptions are given in accordance with the B.S. Civil Engineering Code of Practice C.P.2001 "Site Investigations"

2. J indicates Jar Samples.

Britis

Britis

- B **Bulk Samples** .
- W Water Samples . **39**
- υ

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BOREHOLE	NO. 2
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Contract Name Canden Terra

Client Jan Dals in ident.

Report No. 8. 808/15 1204

TQ285E

British Ge

Site Address Corner of Conden Street.

Engineers : Jacoberd & Bariness.

British Geological Survey 360 South Lembeth Rd.,

Nene

None

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Londen N.W.l.

2410, 5400

Lenden S.W.8.

Diameter 8" Method of Boring Shell/Auger British Geological Survey Start 19.6.65. Finish 21.6.65.

Remarks:

Water Struck.

Ground Level

Standing Water Level ....

binan Geological Guile <del>y</del>	Dilian Geolog	cal ourvey		
Made ground (concrete, grey silty clay with bricks)	3'0"	3'0"	J3724 2'6"	
Brown sandy clay with gravel	2'6"	5'6"	B3725 5'0"	
Stiff fissured mottled brown clay more with essasional sulphate crystals and layers of silt	17'6" Sirvey	23104	J3727 8'6" J3729 12'6" J3731 17'6" J3733 22'6"	U3726 6'0" U3728 10'0" U3730 14'0" U2732 19'0"
Hard silty mottled grey clay with sulphate crystals	5'0"	28'0"	J3735 27'6"	U3734 24'0"
Stiff to hard fismured gray silty clay with layers of lightgray silt. Small crystalline aggregates of pyrites towards the base	32 <sup>16</sup> British Geolog	cal Survey	J3737 32'6" J3739 37'6" J3741 42'6" J3743 47'6" J3745 52'6" J3745 52'6" J3747 57'6"	U3736 29'0" U3738 34'0" U3740 59'0" dical Surve U3742 44'0" U3744 49'0" U3746 54'0" U3746 59'0"
eplogical Survey British Geological	Storvey	-	British G	logical Survey
British Geological Survey	British Geolog	al Survey		British Geological Surve -
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Norat: 1. Descriptions are given in accordance with the B.S. Civil Engineering Code of Practice C.P.2001 "Site Investigations"

2. J indicates Jer Samples.

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. Undisturbed Case Rangies. These are nominal 4 in. diam. and 18 in. long. Depths shows are lap

" Humber of blows per A. prestration with Standard Penetration Tests.

Contract Name C	amden Tewn	Re	port No	<b>8. 808/15</b>	1206					
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Ba <b>35477360</b> s <b>Ba</b>	with Lambeth Rd.	British Geo	ological Survey		British Geologica					
Londen . S.	¥_8.			2910, 8410	)					
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gical Survey Ground Level	British Geologic	al Survey	6.6.65	British	Geological Survey					
Remarks:				Finish						
	141 (F									
		T			· · · ·					
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NADS	Sand brickssand Stones etc.	0'9"	0'9"							
CROWN Stolle	Brown sandy, clay with bricks and stones	219" al Survey	3'6"	J2127 2*6	Geological Survey					
Grey silty cla	nji3 ic]∼A	7'0"	10'6"	B2128 5'0" J2129 7'6"	U2130 9'0"					
Brown mattled	clay	12 '6"		12151 12 16	10130 1/108					
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Grey/ clay.se . u.	بر به ا	8'6"	31 '6"	J3127 27 '6"	U2136 24 '0" U2138 30 '0"					
				W2139						
gical Survey	British Geologi	al Survey		. British	Geological Survey					
2 ° 2 ° 2					8					
ай с. А. 201		1 - C			242					
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	TOTALS	31 '6"	51 %							

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Londa	n			- 11 <u>5</u> , 0 TIL	
Standing Wa	ater Level	Dian	neter	8*	
cal Water Struck	NoneOritisk Geologics + 6	mvey Meth	nod of Bor	ing Shell/A	logical survey
Ground Lev	76.27	Start	17.6.6	5 Finish	17.6.65
Kemarks :	2 MPCA: breaking out and pitting to 1*6".	Concrete	from gro	und level to	6"
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cal Survey	British Geological S <b>a. mettled</b> (militys icley · ] · y	uvey 4 16"	6'0"	British Geo J3712 246* J3713 5*0*	igical Survey
Hett	led brow clay stuy	1410"			
British Geologia	al Survey	British Geologic	I Survey 20'0"	J3714 7'6" J3716 12'6" J3718 17'6"	U3715 9'0" U3717 15'0' U3719 19'6'
Gney	a <b>ciay</b> ottay	4'0"	24 '0"	J2720 22'6"	
Cal Survey	British Geological S	<b>7'0"</b>	31 '0"	<b>J3722 27 '6"</b> British Geo	U3721 25'0' U3723 29*6'
ĸ		2			
	al Survey	British Geologic	a Survey		British Geologi
British Geologia			-		1

"Undisturbed Core Samples. These are nominal 4 in. diam. and 18 in. long. Depths shown are top of sample.

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British CeContyPact: Hawle Client: Materials S	y Road, Solution Sheet No. 1 Of 1. Depth 0 to 5 me	rvey 1 stres.
Equipment and Methods Hand Auger 100mm diameter	Ground Level : m.O.D. Job Number : S91,	/191
	Coordinates : Location :	239
	Dates : 20/	11/91
Daily Water Ge Remarks vey	In Situ Samples Depth Reduced Description	British Geolog
	- 8:85 - MADE GROUND (tarmac)	
	0.15 MADE GROUND (concrete)	×0
	(0.48) scattered gravel traces	
	J 13 0.63	
British Geological Strivey	British Geological Survey	Ity X-
	U_14	Ē
		×
		=
	J 15	*
Dritich Contaginal Purpose		
British Geological Survey	Le (52:33) diodical 2014a	
		-
		×
British Geological Survey	British Geological Survey British Geological Su	rvey
.20/11		-
British Geological Survey	-British Geological Survey	British Geolog
British Geological Survey	British Geological Survey British Geological Su	rvey
General Remarks:		
Operator NF		Appendix 1
	British Geological Survey	British Geolog



,										Terre	eseal	rch
British Gerlolic	ontr lient:	act	: Hawl aterials	ey Roa Science	Cons	Camd Sultan	en ts Lt	d		Borehole Sheet No. 1 C	BogicNOrvey 2	
Equ	ipment a	and Me	thods		Groun	d Leve:	1 :	m.C	).D.	Job Number	: S91/191	
	IU AUGUI	100111	U I GIAL COT		Coord	inates	:			Location	70285	e
										Dates	: 20/11/91	
Ori Dai	ientatio	n : V	ertical Remarks		In Situ	Samples	287, Depth	483 Reduced	Descript	tion		Legend
Pro	jĝ. Lev	els	ntarsulvey		Tests	Taken	(Thick)	2evej <sup>urve</sup>	Y		British G	eological Su
							0.05		MADE GRO	DUND (tarmac) DUND (concrete)		
	1						(0.35)		Firm gre	eyish brown silty	CLAY	 
						J 20	0.50		Firm bro	own silty CLAY wi	th frequent	 xx
									blue-gre pockets	ey reduction zone of orange-brown	s, occasional sandy clay	
British Geologic	al Survey				British Geo	logical Surv	ey		becoming	g more abundant w	ith depth	
						U¥ 21						
						n 55						
						J 23						
												×
	Britis	sh Geolog	jical Survey				<b>(2.50)</b> British Geo	ogical Surve	ev		British G	01 <u>0001</u> 50
						UT 24						
												×
												351
						J 26						××
					D-W-h O-					D.Wh.O		125-
British Geologic	ai Survey			8	British Geo					British Geo	logical Sulvey	xx
	20/11					1	F 3.00_ F			End of Borehol	e	
					3		-	-				
							-					
	Eritis	sh Geolog	jical Survey				British Geol	gical Surve	Эý		British G	aological Su
							Ē.	-				
							Ē					
							Ę	1				1
							Ę.,	-				
British Goologic	al Survar				British Gar	alogical Sup	Ē			British Goo	logical Survey	
bhash Geologic	al ourvey				onuan oet	siogical Sulv	Ē			Billian Oec	logical ourvey	
							F ·	-				
0	perato	r	General Remar	'KS:							Apper	dix
N	F											
S	cale	sh Geolog	ical Survey				British Geol	ogical Surve	ЭУ		Sheet	Nocal Su
5	m/shee	t										2

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,									Terre	seal	rch	
British Gei	₀CO∩ Clie	trac nt: 1	t: Hawley R Materials Scien	Dadşman ce Cons	Camd sultan	en ts Lt	d		Borehole Sheet No. 1 Of Depth 0 to	1. NOrvey 3		
	Equipmen Hand Au	nt and M	ethods m diameter	Groun	d Leve	1 :	m.C	).D.	Job Number :	S91/191	56	
		ger 100m		Coord	inates	:			Location :	56		
									Dates :	19/11/91		
	Orienta	tion :	Vertical	In Situ	Samples	287, 1	843	Descript	ion		Legend	
	Prog.	Levels	gical Survey	Tests	Taken	(Thick)	Leve Turve	y coci ipe	1011	British G	eological Su	rvey
					J 1	0:05		MADE GRO	UND (tarmac)		XXX	
						(0.45)		MADE GRO	IUND (dark grey cla)	yey sand	$\otimes$	
					J 2			MICH DI I			$\otimes$	
					JЗ	0.60		MADE GRO	UND (ash with brick	ks and	XXX	
British Geo	logical Surv	18717 18717		British Ge	ological Sun	0.80		Firm bro	wn silty CLAY with	occasional	XXXXX	
					J_4 U*			DIGE-Gre	y reduction zones		-x	
					U_5						xx	
					1.6		-				_x	
											x	
		British Geol	gical Survey			British Geo	logical Surve	ąv.		British G	201 <b>0 sc</b> al st	rvey
					U <sub>T</sub> Z	- 12.20).					 	
					ľΓ		-					
							•					
					J 9							
British Geo	logical Sun	/9V		British Ge	Haic 10sun	E .			British Geolog	ical Survey		
Dimon 000	10/11	(PT)		Dimbir Co		3 00			Dimon Goolog	iour ourroy	122	
	- 19711				1	E 3.001			End of Borehole			
						r F						
						Ē						
		British Geol	gical Survey			British Geo	logical Surve	ey .		British G	eological Su	vey
							-					
						Ē	-					
			-				-					
British Geo	logical Surv	/ðy		British Ge	clogical Surv	ey .			British Geolog	lical Survey		
						-	-					
	00000	1	General Remarks:	l	1	I	1	L		Annen	dix	1
	NF	CUI.									1	
	Scale	British Geol	gical Survey			British Geo	logical Surve	ву		Sheet	ed <b>NG</b> ical Su	ivey
	5m/sh	eet									3	

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•		Terresearch
British Ge Contract: Hawley Ro Client: Materials Scienc	ad, ©@amden e Consultants Ltd	Boreholes Novey 4 Sheet No. 1 Of 1. Depth 0 to 5 metres.
Equipment and Methods Hand Auger 100mm diameter	Ground Level : m.O.D. Coordinates :	Job Number : \$91/191 Location : <b>TQ285</b> <b>1242</b> Dates : 20/11/91
Orientation : Vertical	287,843	
Daily Nateceol Bemarks, Prog. Levels	In Situ Samples Depth Reduced Descript Tests Taken (Thick) Level	100 British Geological Survey
British Geological Survey	British Geological Survey U = 33 J = 32 J = 32 J = 33 J = 33 J = 35 J = 35 J = 35 J = 35 J = 35 J = 35 J = 35 MADE GRO MADE GRO Clay with tracesion Soft to CLAY with Soft to	UND (tarmac) UND (concrete) UND (soft silty sandy brown h occasional gravel and brick firm dark brownish grey silty h organic traces British Geological Survey stiff brown silty CLAY with le-grey reduction zones and al organic traces British Geological Survey Stiff brown silty CLAY with 
- 20/11		End of Borehole
Eritish Geolopical Survey	British Geological Surve	British Geological Sulvey
British Geological Survey Operator NF	British Geological Survey	British Geological Survey
British Geological Survey Scale 5m/sheet	British Geological Survey	Sheet No.

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**RECORD** of WELL or B Survey. No 1" N S Canden Road prink den on County inch map # 5 NW ta sheet 16 Vol a tracing from a map is and dire ection from parish wn on maps). a little 5 the SW from Com In low one-inch map. Surface level of ground 62 ft. above Ordnance Datum. Well or Bore commenced at ft. below surface level of ground. Sunk 4 ft., diameter 4 2. of 16 m. lop. 34 6/0 Bored. Details of lining tubes (internal diameters preferred) 333 Water struck at depths of (feet) 301, 313 NGR TO 2902 8412 Rest-level of water below top of well or bore 278 ft. Pumping level 278 ft. Time of recovery. ...hours. alls. perhoer, (ii) normal O: Temp 4? 7 Suction at 75 ft. depth. Yield: (i) on test 1000/8000 talls. Quality (attach copy of analysis if available) galls. per. lotat 4 Made by E GRAND, SUTCLIFF & GELL, LD. for Gented Great Co. 100 Date of boring any lot Information from LE GRAND, SUTCLIFF & GELL, LD. \$1346.673. (For Survey use only). THICKNESS. DEPTH. GEOLOGICAL CLASSIFICATION NATURE OF STRATA. (and any additional remarks) Inches. Fect. Inches. Feet. made, hed a nou rown class 20 28 L.C 196 to done W.R.S. net T.S. lint CK. 474 SYS. 26:10:35. 300 uly British Gellogics British Ged unorsited controll dena Top i Jasen 10' he and leve Vater very poft. havy も P.W.L. 300 Yield 10, 328 Nag-1937 British Geological Surve British Geological Survey British Geological Survey For Survey use only. GEOLOGICAL SURVEY AND MUSEUM, Date SOUTH KENSINGTON, M. of H. Site marked G.S.M. received notified. on 1" map. LONDON, S.W.7. (11969B) Wt 10256/0175 2,500 9/32 H, J, R & L, Ld 600,143

## **APPENDIX B**

CGL borehole logs



Project										BC	OREHOLE	No
Ca	mden Lo	ock Villa	ge,	Londo	on							
Job No		Dat	e 20	2_10_1	4	Ground Le	evel (m)	Co-Ordinates (m)			BHZ	
CG/1	L8067A		30	)-10-1	4	20	6.16	E 528,836.9 N 1	84,261.6			
Client										Shee	et	
Wa	alsh Asso	ociates									1 of 4	
SAMP	LES & T	ESTS	<u>ب</u>					STRATA				
Depth	Type No	Test Result	Wate	Reduce Leve	ed Legend	Depth (Thick- ness)		DESCRIPTI	N			lnstrum /Backfil
	D1			25.9	)6 [1] [1] [1] [1] [1] [1] [1] [1] [1] [1]	0.20	Concrete.	) JUND]			,	
0.20-0.80	D2			25.5		(0.40)	Soft dark bi	rown slightly sandy gravelly s	ilt. Sand is fine t	to coars	se. Gravel	
- 0.60	D3			25.5		- 0.60	[MADE GRC]	DUND]		mmt.	/	
-						-	Firm dark o	range brown occasionally mo	ottled grey sligh	tly silty	CLAY.	
-						-						
-						-						
1.50-1.95	U100	14 blows				-						
-						-						
2.00	D5					- - -						
2.25	D6					-						
2.50-2.95	D7				[	1_ -						
2.50		N7				-						
- 3.00-3.50	B8											
-					[	-						
- 3.50-3.95	U100	12 blows				-						
-						-						
- 4.00	D10					- 						
4 25	D11					-						
4 50-4 95	D12					-						
4.50	012	N10				-						
-						_ (8.70)						
						-						目目
	012					-		Mudatana natad				
- 5.50-5.90	DI3					-	5.50 - 5.90	Mudstone noted.				
						-						
- 6.00-6.45	0100	19 blows				-						IE.
- -						-						
- 6.50	D15				<u> </u>	-						
						-						
2- 7.00-7.50	B16					-						
						- - -						
; - 7.50-7.95 7.50	D17	N13			[	- -						
Boring P	rogress	and Wa	ater	Obse	rvation	s	General	Remarks				
Date C	Comment	Strike Depth	D	Cas epth	ing Dia. mm	Standing Depth	1. No grour	ndwater encountered in bore	hole.			
				- 1			2. ES= envir value, U100	onmental samples, D= distu )= U100 sample.	bed sample, B=	bulk sa	ample, N= SP	PT 'N'
							3. Installati	on details: 0.0-1.0mbgl: plain	pipe with bent	onite b	ackfill;	1
							11.0-10.0mb	gi. slotted pipe with gravel b bgl: arisings backfill. Gas tap	bung and flush	cover	installed.	acktill;
			1									
Method/	Method/							Field Crew Logged By Checked B				
j Plant Used	t l	Cable pe	ercu	ssion			Gary Wheeler Drilling Ltd JJM DWN					1



Project											BC	REHOLE	No
Cam	den Lo	ock Villa	ge,	Londoi	n						виз		
Job No		Dat	e 29	9-10-14	4	Ground Le	evel (m)	Co-Ordinates (m)				σπζ	
CG/18	067A		30	0-10-14	4	2	6.16	E 528,836.9	N 184	,261.6			
Client											Sheet	t	
Wals	sh Asso	ociates										2 of 4	
SAMPLE	ES & TI	ESTS	_					STRATA					ent
Depth	Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESC	RIPTION				Instrum /Backfil
- - - - 8.50	D18						Firm dark or [WEATHERE	ange brown occasiona D LONDON CLAY FOR	ally mottl MATION]	ed grey slight (continued)	ly silty	CLAY.	
- - 9.00-9.45 -	U100	25 blows		16.86	s	- - - 9.30	Ctiff de de see				-1		
- 9.50 -	D20						LONDON CI	AY FORMATION]	e selenite	crystals note	u.		
10.00	D21												
- 10.50-10.95 - 10.50 	D22	N23											
- 11.50	D23												
12.00-12.45	U100	24 blows											
- 13.00	D26												
- - 13.50-13.95 - 13.50	D27	N22											
14.00-15.00	B28												
5- 15.00-15.45	U100	29 blows											
Boring Pro	gress	and Wa	ater	Obser	vation	s	General F	Remarks					
Date Co	mment	Strike Denth	п	Casir epth	ng Dia, mm	Standing Denth	1. No ground	dwater encountered in	n boreho	e.			
							2. ES= enviro value, U100 3. Installatio 1.0-10.0mbg 11.0-30.5mb	onmental samples, D= = U100 sample. n details: 0.0-1.0mbg gl: slotted pipe with gr gl: arisings backfill. G	disturbe : plain pi avel back as tap, bu	d sample, B= pe with bento fill; 10.0-11.0 ing and flush	bulk sa nite ba mbgl: I cover i	mple, N= SP ackfill; bentonite ba nstalled.	Τ 'N' ackfill;
Plant Used		Cable pe	ercu	ssion			Gary Wheeler Drilling Ltd Logged By DWM						1



Project											BOREHOLE No	
Cam	den Lo	ock Villa	ige,	Londo	n						вир	
Job No		Dat	<sup>te</sup> 29	9-10-1	4	Ground Le	evel (m)	Co-Ordinates (m)				DΠZ
CG/18	067A		3	0-10-1	4	2	6.16	E 528,836.9	N 184	,261.6		
Client											Shee	t
Wals	sh Asso	ociates										3 of 4
SAMPLE	ES & TI	ESTS	<u> </u>					STRATA				ent
Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESC	RIPTION			Instrum /Backfill
- 15.50	D30					-	Stiff dark gre	Y CLAY. Frequent fine	e selenite	crystals noted	ł.	i i i i i i i i i i i i i i i i i i i
- - 16.00	D31					- - - - - -			ninaeu)			
- 16.50-16.95 - 16.50	D32	N22										
- - - -												
17.50	D33											
- 18.00-18.45	U100	29 blows	5									
- 18.50	D35											
- 19.00	D36					+ + - - -						
- 19.50-19.95 - 19.50 -	D37	N28				- - - (21.20)						
- 20.00-21.00 - - - -	B38											
- 21.00-21.45	U100	38 blows	5									
- 21.50	D40											
					====	-						
22.00	D41					-						
5-						- - -						
<u>위</u> 	D42					-						668
22.50		N38				-						
					<u> </u>							
						- -						
Boring Pro	ogress	and W	ater	Obse	rvation	S	General R	emarks				
Date Co	mment	Strike Depth	D	Casi	ing Dia. mm	Standing Depth	1. No ground	lwater encountered i	n boreho	le.		
		Depth		eptn		Deptin	2. ES= enviro value, U100=	nmental samples, D= - U100 sample.	disturbe	d sample, B= b	oulk sa	mple, N= SPT 'N'
CG 1000/ J ALL							3. Installation 1.0-10.0mbg 11.0-30.5mb	n details: 0.0-1.0mbg I: slotted pipe with gr gl: arisings backfill. G	l: plain pi avel bacł as tap, bu	pe with benton (fill; 10.0-11.0) ung and flush o	nite ba mbgl:   cover i	nckfill; bentonite backfill; nstalled.
											,	
ا Method Plant Used		Cable p	ercu	ssion			Field Crew         Logged By         Checked By           Gary Wheeler Drilling Ltd         JJM         DWM					Checked By DWM



Project										BC	REHOLE	No
Cam	den Lo	ock Villa	ige,	Londo	n					рц <b>э</b>		
Job No		Da	te 20	9-10-1	4	Ground Le	evel (m)	Co-Ordinates (m)			БПС	
CG/18	067A		30	0-10-1	4	2	6.16	E 528,836.9 N 184	,261.6			
Client								1		Shee	t	
Wals	sh Asso	ociates									4 of 4	
SAMPLE	-S & T	ESTS						STRATA				ent
Depth	Type No	Test Result	Water	Reduce Level	ed Legend	Depth (Thick-		DESCRIPTION	1			nstrume Backfill
23.50	D43					-	Stiff dark gre [LONDON CL	ey CLAY. Frequent fine selenite AY FORMATION] (continued)	crystals note	d.		
24.00-24.45	U100	34 blows	5									
24.50	D45											
- 25.00	D46											
- 25.50-25.95 25.50	D47	N41				+ - - - - - - - - -						
26.00-27.00	B48					+- - - - - -						
- - - - 27.00-27.45	U100	40 blows	5									
27.50	D50											
28.00	D51											
- 28.50-28.95 - 28.50 - - -	D52	N55										
29.50	D53					- 						
5 30.00-30.45	U100	34 blows	5									
30.50	D55			4.5	<u> </u>		(Borehole te	rminated at 30.5m)				n destan
Poring Der		and M	1 	l Obco	nuation	L	Gonoral P	omarks				
	nmont	Strike	ater	Casi	ing	Standing		Water encountered in hereba	10			
Date Co	mnent	Depth	D	epth	Dĩa. mm	Depth	1. NO ground	iwater encountered in boreho	ie.			
							2. ES= enviro value, U100=	onmental samples, D= disturbe = U100 sample. n details: 0.0-1.0mbgl: plain pi	ed sample, B=	bulk sa	imple, N= SP	' ſ 'N'
							1.0-10.0mbg	l: slotted pipe with gravel bac gl: arisings backfill. Gas tap, b	kfill; 10.0-11.0 ung and flush	)mbgl: cover i	bentonite ba nstalled.	ackfill;
δ <u> </u>									1			
b Method/ B Plant Used		Cable p	ercu	ssion			Field Crew Gary V	Wheeler Drilling Ltd	Logged By JJM		Checked By DWN	/ 1



Project									B	BOREHOLE No		
Cam	nden Lo	ock Vi	llage,	Londo	n					C110		
Job No		C	Date 2	8-10-1	4	Ground Le	evel (m)	Co-Ordinates (m)		BH3		
CG/18	8067A		2	9-10-1	4	2	6.20					
Client									Shee	et		
Wal	sh Asso	ociate	es							1 of 2		
SAMPL	ES & TI	ESTS						STRATA		ent	_	
Depth	Type No	Test Resu	t Nater	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	I	Instrume	/Backfill	
-				25.0		- 030	Concrete.	[חמו]				
- 0.30 - 0.30-0.60 - 0.40 - 0.60	D1 B2 ES115 D3			25.6	50 50	0.60	Loose to me to coarse. Gi Occasional c [MADE GRO	dium dense dark brown very s ravel is fine to coarse subroun obble of brick. Occasional ash UND]	andy gravelly silt. Sa ded to subangular o noted.	and is fine of brick.		
- - - 1.20-1.65 - 1.20	D4	N9					[WEATHERE	ange brown occasionally mott D LONDON CLAY FORMATION	led grey slightly silty ]	y CLAY.		
- 1.80	ES116											
- 2.00-2.30 - - - - 2.00-2.30	U1100	16 blo										
-	0100	10 010	////									
- 3.00											4	
3.25	D8											
- 3.50-3.95 - 3.50 -	D9	N12	2			- - - - - - - - - - - - - - - - - - -						
- 1 25	D10											
4.23	11100	17 blo	w/s									
- 4.90-4.99 - 5.00 - 5.00-6.00	D12 B13	17 510	ws.			-[          						
- - 6.00-6.45 - 6.00	D14	N14	1									
- 6.50-6.80 -	D15					 	6.50 Mudsto	one noted.				
7.00	D16					- - - - - - - - - - - - - - - - - - -						
- 7.50-7.95	0100	26 010	ows		<u> </u>						Ř	
Boring Pro	ogress	and \ Strik	vvate .e	r Ubse Cas	rvation	S Standing		kemarks				
	mment	Dept	<u>th [</u>	Depth	<u>Dĩa. mm</u>	Depth	2. ES= enviro value, U100=	onmental samples, D= disturbe = U100 sample.	ed sample, B= bulk s	ample, N= SPT 'N	ľ	
							3. Installatio 1.0-5.0mbgl: Gas tap, bun	n details: 0.0-1.0mbgl: plain pi : slotted pipe with gravel backi g and flush cover installed.	pe with bentonite b fill; 5.0-15.45mbgl: a	oackfill; arisings backfill.		
Method/							Field Crew		Logged Ry	Checked By		
Plant Used	nt Used Cable percussion							Wheeler Drilling Ltd	JJM	DWM		



Project								BORE	HOLE No			
Cam	iden Lo	ock Vill	age,	Londo	n					C110		
Job No		Da	ate 2	8-10-1	Δ	Ground Le	evel (m)	Co-Ordinates (m)		B	6H3	
CG/18	067A		2	9-10-1	4	2	6.20					
Client								1		Sheet		
Wal	sh Ass	ociates								2	of 2	
SAMPL	ES & T	ESTS	Ι.					STRATA			ent	
Depth	Type No	Test Result	Water	Reduce Level	d Legend	Depth (Thick-		DESCRIPTION	1		astrume Backfill	
-					<u> </u>	-	Firm dark ora	ange brown occasionally mott	led grey slight	ly silty CLA	Y. 200	
- 8.00	D18						[WEATHEREI	D LONDON CLAY FORMATION	] (continued)			
8.50	D19					-  - -						
- - 9.00-9.45 - 9.00	D20	N26				+ - - - - -						
-						- - - - - -						
10.00-10.50	10.00-10.50 B21 10.50-10.95 U100 29 blows 10.50-10.95 U100 29 blows						Stiff dark gre	y CLAY. Frequent fine selenite	e crystals note	d.		
- 10.50-10.95							[LONDON CL 10.40 Becom noted.	AY FORMATION] ning stiff dark grey CLAY. Frequ	uent fine selen	ite crystals		
11.00	220					-  	10.50 Claysto	one noted.				
	023											
- 11.50 -	D24					- - - -						
- 12.00-12.45 12.00	D25	N29				- - - - -						
-						 (5.35)						
13.00	D26											
13.50-13.95	U100	29 blow	/S									
2 - 14.00	D28					- - - - -						
14.50	D29											
2- - - 15.00-15.45	D30											
_ 15.00		N31		10.7	5	[ - 15.45						
<u></u>						-	(Borehole te	rminated at 15.45m)				
Boring Pro	ogress	and W	/ater	Obse	rvation	S	General R	emarks				
Date Co	Date Comment Strike Casing Stan Depth Depth Dia.mm Dep							lwater encountered in boreho	le.			
							2. ES= enviro value, U100=	nmental samples, D= disturbe - U100 sample.	ed sample, B=	bulk sample	e, N= SPT 'N'	
3 1800/A ALL							3. Installation 1.0-5.0mbgl: Gas tap, bun	n details: 0.0-1.0mbgl: plain pi slotted pipe with gravel backi g and flush cover installed.	ipe with bento fill; 5.0-15.45n	nite backfil nbgl: arising	ll; gs backfill.	
Method/	ethod/ ant Used Cable percussion							Field Crew Logged By Checked By Gary Wheeler Drilling Ltd JJM DWM				



Project										BORE	HOLE	No
Ca	mden Lo	ock Villa	ge,	Londo	n					BH/		
Job No		Dat	e 1	7-11-14	4	Ground Le	evel (m)	Co-Ordinates (m)		D		
CG/	18067A		1	8-11-14	4	2	7.37	E 528,783.9 N 184	,238.5			
Client										Sheet		
W	alsh Ass	ociates								1	of 4	
SAMF	PLES & T	ESTS	L					STRATA				lent
Depth	Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESCRIPTION				Instrum /Backfil
- 0.20				27.12		0.25	Concrete. No MADE GRO	o rebar noted. UND]				
- 0.20 - 0.20-0.50 - 0.50 - 0.50-1.20	B2 D3 B4					(1.15)	Loose to me to coarse. G Occasional c [MADE GRO	dium dense dark brown very s ravel is fine to coarse subround obbles of brick noted. UND]	andy gravelly ded to subang	silt. Sand is ular of bric	fine k.	
1.20-2.95	D5			25.97	7	1.40						
1.20		N6					Firm dark or	ange brown slightly silty CLAY.	Occasional fir	ne selenite		
-						-	[WEATHERE	D LONDON CLAY FORMATION				
E .					× *							
2 25-3 00	D6					* - *						
2.50-2.95	U100	11 blows				+ *						
	0100					<del>}</del>						
- 3.00	80					-						
3.00-3.50	B9				×_*	1 - }						
2 3 50-3 95	010					+						
3.50 3.55	010	N11				-						
-												
- 1 25	D11					1- - 1-						
4.23	11100	16 blows										
- 4.50-4.95	0100	10 010 003			<u> </u>							
5 00	13				× ×	-						
5.00					× ×							
	D14											
- 5.50-6.00	D14				× ×							
600645	D15					1						
- 6.00-6.45 6.00		N14				- (9.80)						
12/1/-						- (5.00)						
						+ -						
~	D1C				× ×	<u> </u> 						
	DIG					-						
						+						
z- 7.50-7.95	0100	21 blows				* - -						
Boring F	rogress	and Wa	ater	r Obser	vation	S	General F	Remarks				
Date	Comment	Strike Depth	D	Casir epth I	ng Dia. mm	Standing Depth	1. No ground	dwater encountered in boreho	le.			
H FORG		•				•	2. Down hol drilling.	e magnetrometer testing unde	rtaken at 2m	intervals fo	or first 51	m of
ALLE							3. D= disturb	oed sample, B= bulk sample, N	= SPT 'N' samp	ole, U100=	U100 sa	mple.
0G CG18067A							4. Installatio 1.5-9.0mbgl 10.0-25.0mb	n details; 0.0-1.5mbgl: plain pi : slotted pipe with gravel backf pgl: arisings backfill. Gas tap, bi	pe with bento ill; 9.0-10.0ml ung and flush	nite backfil ogl: benton cover insta	ll; ite back lled.	fill;
J Method/	Method/							Field Crew Logged By Checked By				
Plant Use	lethod/ lant Used Pilcon						Gary V	Wheeler Drilling Ltd	JJM		DWN	1


Pr	oject										BOREHC	DLE No
	Cai	nden Lo	ock Villa	ge,	Londo	n					ווס	Λ
Jo	b No		Dat	e 17	7_11_1	4	Ground Le	evel (m)	Co-Ordinates (m)		BH	4
	CG/1	8067A		18	, 11-1 3-11-1	4	27	7.37	E 528,783.9 N 184	,238.5		
C	lient								1		Sheet	
	Wa	alsh Asso	ociates								2 of	4
	SAMP	LES & T	ESTS						STRATA	I		ant
	Depth	Type No	Test Result	Water	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	I		Instrume /Backfill
- 8.	.00	D18						Firm dark ora crystals note [WEATHEREI	ange brown slightly silty CLAY d. D LONDON CLAY FORMATION	Occasional fine ] (continued)	e selenite	
- 8.	50-9.00	B19					- <del>  x   - y</del>					
- 9. - 9.	.00-9.45 .00	D20	N33				<u>,</u> → → → + → + →					
- 9. -	.50-9.70	D21					┿┶╷┿ ┿┶╷┿					
- 10	0.00	D22					* 					
	1.00	0100	25 blows									
1	1.50-12.0	00 B25			16.1		- <u>11.20</u>	Stiff closely f crystals note [LONDON CL	issured dark grey slightly silty d. AY FORMATION]	CLAY. Occasion	al fine seleni	te 600
- 12	2.00-12.4 2.00	15 D26	N28									
- 13	3.00	D27					× - , × - , × - , × - , × - ,					
- 13	3.50-13.9	95 U100	27 blows				<del>* • * *</del>					
	4.00	D29										
	14.50-15.00 B30 15.00 D31 15.00 N31 X - X - X - X - X - X - X - X - X - X -											
							<u>x</u>					
B	oring P	rogress	and W	ater	Obse	rvation	s	General R	emarks			
	Date C	omment	Strike		Casi	ing Dia mm	Standing	1. No ground	lwater encountered in boreho	le.		
			υεριπ				υσρίπ	2. Down hole drilling.	e magnetrometer testing unde	ertaken at 2m in	itervals for fi	rst 5m of
ALL								3. D= disturb	ed sample, B= bulk sample, N	= SPT 'N' sample	e, U100= U10	00 sample.
70 CG 1800/A								4. Installation 1.5-9.0mbgl: 10.0-25.0mb	n details; 0.0-1.5mbgl: plain p slotted pipe with gravel back gl: arisings backfill. Gas tap, b	pe with benton fill; 9.0-10.0mbg ung and flush co	ite backfill; gl: bentonite over installed	backfill; I.
	ethod/			1				Field Crew		Logged By	Checke	ed By
3 Pla	ant Used		Pil	con				Gary V	Wheeler Drilling Ltd	MIT	D	ŴŴ



Proje	ct											BC	DREHOLE	No
	Cam	den Lo	ock Vill	age,	Londo	n								
Job N	lo		Da	te 1	7-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)				БП4	
0	G/18	067A		1	, 11-1 8-11-1	4	2	7.37	E 528,783.9	N 184	,238.5			
Clien	t											Shee	:t	
	Wals	sh Asso	ociates										3 of 4	
SA	MPLE	ES & T	ESTS						STRATA					ent
Dej	pth	Type No	Test Result	Water	Reduce Level	ed Legend	Depth (Thick- ness)		DESC	RIPTION				  nstrume /Backfill
16.00	)	D32						Stiff closely f crystals note [LONDON CL	issured dark grey slig d. AY FORMATION] <i>(con</i>	htly silty ( ntinued)	CLAY. Occasio	onal fin	e selenite	
16.50	)-16.95	U100	25 blow	rs										
17.00	)	D34				× × × × × × ×	×   + + +							
17.50	)-18.00	B35												
- 18.00 18.00	)-18.45 )	D36	N28				(13.80)							
- 19.00	)	D37					<u> </u>							
- 19.50 - 20.00	)-19.95 )	U100 D39	27 blow	'S			<u> </u>							
20.50	)-21.00	B40					┙┲╌┍╤┍╌┍╋							
- 21.00 21.00	)-21.45 )	D41	N34				· + <del>} · + </del>							
22.00	)	D42					┽╌ <del>┥</del> ┍┽┍╸							
22.50	)-22.95	U100	28 blow	'S										
	)	D44				× × ××	- - - - - - - - - - - - - - - - - - -							
Borir	ng Pro	ogress	and W	/ater	Obse	rvation	Standing	General R	emarks					
Date	e Co	mment	Depth	D	epth	Dia. mm	Depth	1. No ground	lwater encountered ir e magnetrometer test	n borehol ting unde	e. rtaken at 2m	interva	als for first 5	im of
								3. D= disturb	ed sample, B= bulk sa	ample, N=	SPT 'N' sam	ple, U1	.00= U100 sa	ample.
								4. Installatio 1.5-9.0mbgl: 10.0-25.0mb	n details; 0.0-1.5mbgl slotted pipe with gra gl: arisings backfill. Ga	l: plain pij vel backf as tap, bu	pe with bento ill; 9.0-10.0m Ing and flush	onite ba Ibgl: be cover i	ackfill; ntonite back installed.	kfill;
Metho Plant	od/ Used		P	ilcon				Field Crew Gary \	Wheeler Drilling Lt	:d	Logged By JJM		Checked B DWN	у Л



Project											BOF		No
Cam	den Lo	ock V	ïllage,	Londo	n								
Job No			Date 1	7-11-14	4	Ground Le	evel (m)	Co-Ordinates (m)				БП4	
CG/18	067A		1	8-11-14	4	2	7.37	E 528,783.9	N 184,	238.5			
Client											Sheet		
Wals	h Asso	ociat	es									4 of 4	
SAMPLE	S & TE	ESTS						STRATA					ent
Depth	Type No	Tes Resi	st Mate	Reduce Level	d Legend	Depth (Thick- ness)		DESC	CRIPTION				Instrum /Backfill
23.50-24.00	B45				× × * × ×		Stiff closely crystals note [LONDON Cl	fissured dark grey slig ed. LAY FORMATION] <i>(cor</i>	htly silty C ntinued)	LAY. Occasic	onal fine	selenite	
- 24.00-24.45 24.00	D46	N3	7			┑ <mark>┥ ┝╴┝╴┝╴╴┝╴╵</mark>							
- 25.00	D47			2.37	7 <u> </u>	<u>25.00</u>	(Borehole te	erminated at 25m)				X	<u>1993</u>
Boring Pro	gress	and	Wate	r Obser	vation	S	General F	Remarks					
Date Cor	nment	Stril Dep	ke oth D	Casir Depth	ng Dia. mm	Standing Depth	<ol> <li>No ground</li> <li>Down holdrilling.</li> <li>D = disturb</li> </ol>	dwater encountered ir e magnetrometer test ped sample, B= bulk sa	n borehole ting under ample, N=	e. taken at 2m SPT 'N' samı	intervals	s for first 5m D= U100 san	n of nple.
							4. Installatio 1.5-9.0mbgl 10.0-25.0mb	n details; 0.0-1.5mbgl : slotted pipe with gra ogl: arisings backfill. G	l: plain pip vel backfil as tap, bu	e with bento l; 9.0-10.0m ng and flush	onite bac bgl: bent cover ins	kfill; conite backfi stalled.	ill;
Method/ Plant Used			Pilcon				Field Crew Gary	Wheeler Drilling Lt	d	Logged By JJM	С	hecked By DWM	



Project											BC	DREHOLE	No
Carr	nden Lo	ock Villa	ge,	Londor	า								
Job No		Dat	e 10	0-11-14	1	Ground Le	evel (m)	Co-Ordinates (m)				БПЭ	
CG/18	3067A		12	2-11-14	1	2	7.36	E 528,775.3	N 184	,211.1			
Client											Shee	t	
Wal	sh Asso	ociates	-									1 of 6	
SAMPL	ES & T	ESTS	er.					STRATA					l nent
Depth	Type No	Test Result	Wat	Reduced Level	Legend	Depth (Thick- ness)		DESC	RIPTION				Instrun /Backfi
0.15-0.60	B1			26.86	, <b>I</b>	_ _ (0.50) _ 0.50	Brick paving [MADE GRC	g over light orange bro DUND]	wn fine to	o medium sai	nd.		
0.65-1.00	B2			26.72	<u>2 *****</u> [	0.64	Loose to me is fine to co brick.	edium dense dark gree arse. Gravel is fine to o	n grey sli coarse sul	ghtly sandy g prounded to	ravelly subang	silt. Sand ular of	
 1.25	D3						IMADE GRO Firm dark o WEATHERE	DUND] range brown slightly si ED LONDON CLAY FOR	lty CLAY. MATION]			)	
- 1.50-1.95 -	U100	16 blows											
- - 2.00	D5				F===								
2.25	D6				[								
2.50-2.95	D7					- - -							
2.50		N8				-							
3.00-3.50	B8					-							
						-							
3.50-3.95	U100	16 blows											
4.00	D10												
4.25	D11					-							
4.50-4.94 4 50	D12	N16			<u> </u>	-							
-						-							
-						- - (9.16)							
-					E								
5.50	D13					-							
	11100	17 blows			<u> </u>	- -							
0.00-0.43	0100	17 010WS				- - -							
6.50	D15												
-						-							
- 7.00	D16					- -							
-													
7.50-7.95	D17	N147				- -							
7.50 Boring Pr	ograss	and W:	ator	) Ohser	<u>⊢                                    </u>	-[	General	Remarks					
Date Co	mment	Strike		Casir		Standing	1. No groun	dwater encountered i	n borehol	e.			
		Deptil			21a. 11111	Deptii	2. Down ho drilling.	le magnetrometer test	ting unde	rtaken at 2m	interva	als for first 5	5m of
							3. D= distur	bed sample, B= bulk sa	ample, N=	SPT 'N' sam	ple, U1	00= U100 sa	ample.
							4. Installatio 1.0-7.0mbg 8.0-39.0mb	on details; 0.0-1.0mbg I: slotted pipe with gra gl: arisings backfill. Ga	l: plain pij vel backf s tap, bur	pe with bento ill; 7.0-8.0mb ng and flush o	onite ba gl: ben over in	ackfill; tonite backl stalled.	fill;
Method/							Field Crew					Checked P	
Plant Used		Pil	con				Gary	Wheeler Drilling Lt	:d	JJM		DWN	Ń



Project											BC	REHOLE	No
Cam	den Lo	ock Vi	illage,	Londo	n							DUE	
Job No		[	Date 1	0_11_1	4	Ground L	evel (m)	Co-Ordinates (m)				BH2	
CG/18	067A		1	2-11-1	.4	2	7.36	E 528,775.3	N 184	,211.1			
Client		I									Shee	t	
Wals	sh Ass	ociate	es									2 of 6	
SAMPLE	ES & T	ESTS						STRATA					ent
Depth	Type No	Tes Resu	t Nate Aate	Reduce Level	ed Legenc	Depth (Thick- ness)		DESC	RIPTION				  nstrume /Backfill
							Firm dark or	ange brown slightly si	Ity CLAY.	(continued)			
-						+		D LONDON CLAT FOR	MATION	(continueu)			885
- 8.50-9.00	B18												
-					F								
- 9.00-9.45	U100	28 blo	ows			-							
- 9.50	D20			17.5	6	- 9.80							
-				1/10	× ×	1	Stiff closely f	fissured dark grey silty	CLAY. F	requent fine s	elenite	crystals	685
10.00	D21						LONDON CL	AY FORMATION]					<b>B</b>
					× ×								
- 10.50-10.95 - 10.50	D22	N24	1		××	1 							
-					××	+ +							
E						7							
F					× – × – ×	1							
11.50-12.00	B23				×	7							685
-					× ×	+							
12.00-12.45	U100	24 blo	ows		× ×	F							
-					× ×	7							
12.50	D25												
-													
13.00	D26				× – × – ×	Į.							
-					× ×								685
13.50-13.95	D27	NOT	,		× × ·								<b>BOS</b>
- 15.50		1127	/										
					× ×								
121-													
g 14.50-15.00	B28				× ×								
N -													
15.00-15.45	U100	30 blo	ows		× *	≠ ↓							
					××	1							<b>BOS</b>
ซี <u> </u>					<u>xx</u>	1							RSA
Boring Pro	ogress	and	Wate	r Obse	rvation	S Standing	General R	Remarks					
Date Co	mment	Dept	th I	Depth	Dia. mm	Depth	1. No ground	dwater encountered in	1 boreho	le.			
BH FOR							2. Down hole drilling.	e magnetrometer test	ing unde	rtaken at 2m i	interva	lls for first 5	m of
ALL							3. D= disturb	oed sample, B= bulk sa	mple, N	= SPT 'N' samp	ole, U1	00= U100 sa	ample.
06 061806/A							4. Installatio 1.0-7.0mbgl: 8.0-39.0mbg	n details; 0.0-1.0mbgl solotted pipe with gra gl: arisings backfill. Gas	: plain pi vel backf s tap, bui	pe with bento ill; 7.0-8.0mb§ ng and flush co	nite ba gl: bent over in	ackfill; tonite backf stalled.	ill;
≝ Method/						1	Field Crew			Logged Bv		Checked B	v
ਰੂ Plant Used			Pilcor	۱			Gary \	Wheeler Drilling Lt	d	JJM		DWN	, Л



	Project											BC	REHOLE	No
	Car	nden Lo	ock Vill	age,	Londo	n							рце	
	Job No		Da	ate 1	0-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)				БЦЭ	
	CG/1	8067A		1	2-11-1	4	2	7.36	E 528,775.3	N 184	,211.1			
	Client											Sheet	t	
	Wa	lsh Asso	ociates	5									3 of 6	
Γ	SAMPL	.ES & T	ESTS						STRATA					ent
	Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESC	RIPTION				Instrum /Backfil
F	15.50	D30				× *	× · · · ·	Stiff closely t	fissured dark grey silty	/ CLAY. Fi	requent fine s	elenite	crystals	
	16.00	D31					1 <del>x   1x  </del>	[LONDON CI	AY FORMATION] (con	ntinued)				
	16.50-16.9 16.50	5 D32	N28				<del>, , , , , , , , , , , , , , , , , , , </del>							
	-						╷ <mark>╷</mark> ╷ ╷ ╷ ╷ ╷ ╷ ╷ ╷							
	17.50-18.0	0 B33					* + + *							
	18.00-18.4	5 U100	31 blow	/S		× × · · · · · · · · · · · · · · · · · ·	<del>7.  </del>							
	18.50	D35					┶┯┿┍┿┯							
	19.50-19.9	5 D37												
	19.50 -		N38				<u> </u>							
	20.50-21.0	D B38					<del> </del>							
	21.00-21.4	5 U100	28 blow	/S			┿ ┿ ┿							
01/1 01/1	21.50	D40					<mark>╶<sub>┝</sub>╷╴<sub>┿</sub></mark>							
	22.00	D41												
	22.50-22.9 22.50 -	5 D42	N40				<del>, , , , , , , , , , , , , , , , , , , </del>							
							7							
5	Boring Pr	ogress	and W	Vater	. Obse	rvation	s	General F	Remarks					
ЧЧ Ч	Date C	omment	Strike Depth	D	Cas epth	ing Dia. mm	Standing Depth	1. No ground	dwater encountered in	n boreho	le.			
םם רטע פ			- 2001		-1			2. Down hol drilling.	e magnetrometer test	ting unde	rtaken at 2m	interva	ls for first 5	m of
ALL								3. D= disturb	oed sample, B= bulk sa	ample, N=	= SPT 'N' sam	ole, U1	00= U100 sa	ample.
<u>16 CG1800/A</u>								4. Installatio 1.0-7.0mbgl 8.0-39.0mbg	n details; 0.0-1.0mbgl : slotted pipe with gra gl: arisings backfill. Gas	l: plain pi vel backf s tap, bur	pe with bento ill; 7.0-8.0mb ng and flush c	onite ba gl: bent over in:	ickfill; conite backf stalled.	ill;
	Method/ Plant Used		Р	ilcon			1	Field Crew Gary	Wheeler Drilling Lt	:d	Logged By JJM		Checked B DWN	у Л



Camden Lock Wilage, London         BHS           Job Ne         Co.11-14         Ground Level (m)         Co.Ordinates (m)         E 528,775.3 N 184,211.1           Client         Walsh Associates         Sheet         4 of 6           SAMPLES & TESTS         Image: Control of the selent te crystals         Image: Control of the selent te crysta	Project										BOR	EHOLE	No
Job No         Date         Date         Date         Conditionation         Co-Ordinates (m)         Description           Clent         Walsh Associates         Sheet         Sheet         4 of 6           SAMPLES & TESTS         Enduced         Enduced         Depth         Description         Description           23.00-24.00         Ba3         Enduced         Depth         Description         Description         Description           24.00-24.45         U100         31 blows         Enduced         Description         Description         Description         Description           24.50         D45         Enduced         Logand         Test         Description         Descri	Cam	den Lo	ock Villa	ge,	Londo	n							
Color         12-11-14         27.36         E 528,775.3         N 184,211.1           Client         Walsh Associates         4 of 6           SAMPLES & TESTS         Image: Client Color         Street         4 of 6           SAMPLES & TESTS         Image: Client Color         Street         1 of 6           23.0-24.00         B43         Image: Client Color         Description         Description           24.50         Data         Image: Client Color         Description         Description         Description           24.50         Data         Image: Client Color         Image: Client Color         Description         Description         Description           24.50         Data         Image: Client Color         Image: Client Color         Image: Client Color         Escription         Description         Description <td>Job No</td> <td></td> <td>Dat</td> <td>.e 1(</td> <td>0-11-1</td> <td>4</td> <td>Ground Le</td> <td>evel (m)</td> <td>Co-Ordinates (m)</td> <td></td> <td></td> <td>БЦЭ</td> <td></td>	Job No		Dat	.e 1(	0-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)			БЦЭ	
Sheet         4 of 6           SAMPLES & TESTS         Stream         4 of 6           SAMPLES & TESTS         Test test is the result of the result is the r	CG/18	067A		1	2-11-1	4	2	7.36	E 528,775.3 N 184	1,211.1			
Walch Associates         4 of 6           SAMPLES & TESTS         B         Reduced Legend (Thick, Description)         Description         Description           23.50 24.00         843         24.00 24.45         U100 31 blows         24.50         Description         Descrip	Client										Sheet		
STRATA           Depth         Type         Test         B           23.50-24.00         B43         Image: Colspan="2">STRATA           23.50-24.00         B43         Image: Colspan="2">STRATA           24.00-24.45         U100         31 blows         Image: Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           24.00-24.45         U100         31 blows         Image: Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           24.50         D45         Image: Colspan="2">Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           25.50-25.00         D45         Image: Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           25.50-27.00         D48         Image: Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           25.50-27.00         D48         Image: Colspan="2">Stiff closely fisured dark grey sity CLAV. Frequent fine selente crystals           25.50-27.00         D48         Image: Colspan="2">Stiff closely fisured closely fisure	Wals	sh Asso	ociates									4 of 6	
Depth         Type         Test Result         Methods         Depth Level         Depth (Trick- ress)         Description           23.50-24.00         B43         Image: State of the selente crystals roltd, ress         Stiff Closely fissured dark gray sity CLV. Frequent fine selente crystals roltd, rol	SAMPL	ES & TI	ESTS	L					STRATA				ent
23.0-24.00       P43       Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         24.00-24.45       U100       31 blows       Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         24.50       D45       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         24.50       D45       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         25.50       25.0       D46       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         26.50       27.00       P48       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         27.50       D50       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         28.50       P52       N50/         28.50       P52       N50/         28.50       D51       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         29.50       D50       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         29.50       D51       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         30.50       D53       Total Stiff closef fastred dark grey slip CLAY. Frequent fine selenite crystals         21.00       Date       Comment       Stiff closef fastred dark grey sli	Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	J			lnstrum /Backfill
24.00-24.45       U100       31 blows       Image: Construct of the second se	- 23.50-24.00	B43				× ×	×	Stiff closely f	fissured dark grey silty CLAY. F	requent fine s	elenite ci	rystals	
24.00 24.45       U100       31 blows       Image: Constraint of the second s	-					× – × – ×	7	[LONDON CL	AY FORMATION] (continued)				
24.50         D45         24.90 25.20         D46         25.50 25.95         D47         N49         25.50 25.95         D52         N50/         25.50 25.95         D52         D52 <t< td=""><td>- 24.00-24.45</td><td>U100</td><td>31 blows</td><td></td><td></td><td>× ×</td><td>¥</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	- 24.00-24.45	U100	31 blows			× ×	¥						
24.50         D45         25.70         26.70           24.90-25.20         D46         25.70         26.70           25.50-25.95         D47         N49         27.70           25.50-25.95         D47         N49         27.70           26.50-27.00         B48         27.70         27.70           27.00-27.45         U100         47 blows         27.70           28.00         D51         27.70         27.70           28.50         D52         NS0/ 246 mm         27.70           29.50-30.00         B51a         27.70         27.70           30.50         D53         27.70         27.70           30.00         D51         27.70         27.70           29.50-30.00         B51a         27.70         27.70           30.00         D53         27.71         27.71           31.00         D54         Depth         Depth         Depth           29.80         D53         27.71         27.71         27.71           31.00         D54         Depth         Depth         Depth           10.8         Depth         Depth         Depth         Deph           10.77         27.72	-					* <u>*</u>	 ≯						
24.90-25.20       D46       Image: Construction of the second sec	24.50	D45				× 	[ (20,70)						
24.90-25.20       D46       A         25.50-25.95       D47       N49         26.50-27.00       B48       A         27.00-27.45       U100       47 blows         27.50       D50       A         28.00       D51       A         28.50-28.95       D52       N50/ 245 mm         28.50-28.95       D52         30.00       B51a         30.00       D53         31.00       D54         28.00       D53         31.00       D54         28.00       D53         31.00       D54         29.50-30.00       B51a         31.00	-					× ×	+ (29.70) +						
25.50-25.95       D47       N49       Image: Construction of the second of the secon	24.90-25.20	D46				× – × ×	*						
25.50-25.95       D47       N49       N49       N49         26.50-27.00       B48       N49       N49       N49         27.50       D50       N50       N50       N50         28.50-28.95       D52       N50/       N50/       N50/         28.50-28.95       D52       N50/       N50/       N50/         28.50-30.00       B51a       N50/       N50/         30.00-30.45       U100       44 blows       N50/         30.00       D53       N50/       N50/         30.00       D54       N50/       N50/         3	-					×	1_ ≯						
25.50       0.00       0.01	25 50-25 95	D47					± ₹						
26.50-27.00       B48       B48       B48         27.00-27.45       U100       47 blows       B48         27.00-27.45       U100       47 blows       B48         28.00       D51       D50       D50         28.00       D51       D50       D51         28.00       D51       D50       D50         28.00       D51       D50       D50         28.00       D51       D50       D50         29.50-30.00       B51a       D50       D50         30.00-30.45       U100       44 blows       D54         30.00       D53       D54       D54       D54         Boring Progress and Water Observations       D54       Deption Bian       D54         Date       Comment       Standing       Deption Bian       Deption Bian         1.0       groundwater encountered in borehole.       Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.         3. D= disturbed sample, B= bulk sample, N= SPT N' sample, U100       U100 sample.         4. Installation details; 0.0-1.0mgt; beinomite backfill; 1.0-7.0mgt; border pew thit beentometackfill; 1.0-7.0mgt; border pew thit gave backfill; 2.0-3.0mgt; bentomite backfill; 2.0-3.0mgt; bentomite backfill; 2.0-3.0mgt; bentomite backfill; 2.0-3.0mgt; bentomite backfill; 2.0-3.0mgt	25.50	047	N49			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	£						
26.50-27.00       B48         27.00-27.45       U100       47 blows         27.50       D50         28.00       D51         28.00       D52         NS0/       246 mm         29.50-30.00       B51a         30.00-30.45       U100         30.50       D53         31.00       D54         D53       Standard         29.50-30.00       B51a         29.50-30.00       B51a         31.00       D54         D53       Standard         20.00-30.45       U100         44 blows       Standard         29.50-30.00       B51a         31.00       D54         D53       Standard	-					× _ × -	≯ +-						685
26.50-27.00         B48         A         A         A           27.00-27.45         U100         47 blows         A         A           27.00-27.45         D50         A         A         A           28.00         D51         A         A         A           28.00         D51         A         A         A           28.50-28.95         D52         N50/ 246 mm         A         A           30.00-30.45         U100         44 blows         A         A           30.50         D53         A         A         A           31.00         D54         A         A         A           Boring Progress and Water Observations         Secretal Remarks         I. No groundwater encountered in borehole.           2.00         D54         A         A         A	-												
26:30-27:00       B48         27:00-27:45       U100       47 blows         27:50       D50         28:00       D51         29:00:30.05       D52         N50/       246 mm         29:50:30.00       B51a         30:50       D53         30:50       D53         31:00       D54         Boring Progress and Water Observations       General Remarks         1. No groundwater encountered in borehole.       2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.         3. De disturbed sample, B= bulk sample, N= SPT N' sample, U100 = U100 sample.         4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 8.0-39.0mbgl: and flush cover						× ×	1 7						
27.00-27.45       U100       47 blows       47 blows       47 blows         27.50       D50       D50       1       1       1         28.00       D51       1       1       1       1         28.50-28.95       D52       NSD/ 246 mm       1       1       1       1         29.50-30.00       B51a       1       1       1       1       1       1         30.00-30.45       U100       44 blows       1 <t< td=""><td>- 26.50-27.00</td><td>848</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	- 26.50-27.00	848					1						
27.00-27.45       U100       47 blows       Image: Comparison of the comparison	-					× ×	≨ 						
27.50       D50       D50       D50         28.00       D51       D52       NS0/ 246 mm       D51         29.50-30.00       B51a       D52       NS0/ 246 mm       D51         30.00-30.45       U100       44 blows       D51       D52         30.50       D53       D52       D52       D53         Social Strike       Casing Depth       Depth       Date Casing Date Comment       Strike Depth       Casing Date Casing Date Comment       Strike Depth       Casing Date Casing Date Casing Date Comment Strike Depth       Casing Date Casing Date Casing Date Casing Date Comment Strike Depth       Standing Date Casing Date Casing Date Comment Strike Depth       Standing Date Casing Date Casing Standing Date Comment Strike Depth       Casing Standing Date Casing Date Casing Standing Date Comment Strike Date Comment Strike Depth       Casing Standing Date Casing Date Casing Standing Date Comment Strike Date Comment Strike Depth       Casing Standing Date Casing Date Casing Standing Date Comment Strike Date Comment Strike Date Comment Strike Date Comment Strike Date Comment Strike Date Casing Date Casing	- 27.00-27.45	U100	47 blows			× ×	¥ +						
27.50       D50       D50       D50       D50       D50         28.00       D51       D52       N50/ 246 mm       D51       D52       D52         29.50-30.00       B51a       D52       N50/ 246 mm       D50       D50       D50         30.00-30.45       U100       44 blows       D50       D51       D52       D52         30.00-30.45       U100       44 blows       D50       D53       D52       D52         30.00       D53       D54       D54       D55       D52       D52         Boring Progress and Water Observations       D53       D53       D53       D53       D54         Date       Comment       Strike Depth       Depth       D54       D53       D53       D53         Date       Comment       Strike Depth       D54       D54       D55       D55       D55       D56       D56       D56       D57	-						í Í						
28.00       D51       N50/ 246 mm       N50/ 246 mm       N50/ 246 mm         29.50-30.00       B51a       N50/ 246 mm       N50/ 246 mm       N50/ 246 mm         30.00-30.45       U100       44 blows       N50/ 24.5       N50/ 24.5         30.00-30.45       U100       Harrow       N51/ 24.5       N51/ 24.5         30.00-30.45       U100       Harrow <td>27.50</td> <td>D50</td> <td></td> <td></td> <td></td> <td>× ×</td> <td>×</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	27.50	D50				× ×	×						
28.00       D51       D52       N50/ 246 mm       D52       N50/ 246 mm         29.50-30.00       B51a       D52       D52       D52         30.00-30.45       U100       44 blows       D54       D54         31.00       D54       D54       D54       D55         Boring Progress and Water Observations       General Remarks       1. No groundwater encountered in borehole.         2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.       3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.         4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	-						}						
28.50-28.95       D52       N50/ 246 mm       N50/ 246 mm       N50/ 246 mm         29.50-30.00       B51a       N50/ 246 mm       N50/ 246 mm       N50/ 246 mm         30.00-30.45       U100       44 blows       N50/ 24 mm       N50/ 24 mm         30.00-30       D53       D54       D52 mm       N50/ 24 mm       N50/ 24 mm         30.00       D54       D54       D54 mm       D54 mm       N50/ 24 mm       N50/ 24 mm         30.00       D54       D54 mm       D54 mm       D56 mm       N50/ 24 m	28.00	D51				×	¥						
28.50-28.95       D52       N50/ 246 mm       N50/ 246 mm         29.50-30.00       B51a       N50/ 246 mm       N50/ 246 mm         30.00-30.45       U100       44 blows       N50/ N50/ N50/ N50/ N50/ N50/ N50/ N50/	-					× ×	1						1665
28.50       NS07       246 mm       A X X X X X X X X X X X X X X X X X X X	28.50-28.95	D52	NEO			×	- *						
29.50-30.00       B51a       B51a <td>28.50</td> <td></td> <td>246 mm</td> <td></td> <td></td> <td></td> <td><u>}</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	28.50		246 mm				<u>}</u>						
29.50-30.00       B51a       B51a         30.00-30.45       U100       44 blows         30.00       D53       Standing         Boring Progress and Water Observations       General Remarks         1       No groundwater encountered in borehole.         2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.         3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.         4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	-					× — × _ ×	⊁- ]-						
29.50-30.00       B51a       A       A       A       A         30.00-30.45       U100       44 blows       A       A       A       A         30.00       D53       D53       A       A       A       A         31.00       D54       D54       A       A       A       A         Date       Comment       Strike Depth       Depth       Depth       Depth       Depth       I. No groundwater encountered in borehole.       2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.         3. Detsturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.       4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	-					× ×	*						
30.00-30.45       U100       44 blows       Image: Construction of the second	29.50-30.00	B51a				× ×	_ }						
30.00-30.45       U100       44 blows       Image: Constant of the second sec							¥						
30.50       D53       D53 <td< td=""><td></td><td>U100</td><td>44 blows</td><td></td><td></td><td>× ×</td><td>≨ +</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		U100	44 blows			× ×	≨ +						
30.50       D53       D53       D53       D54         31.00       D54       D54       D54       D54         Boring Progress and Water Observations       General Remarks         Date       Comment       Strike Depth       Depth       Date Depth       Depth       Date         0       Date       Comment       Strike Depth       Depth       Depth       Standing Depth       1. No groundwater encountered in borehole.         2.       Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.       3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.         4.       Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	5- -					× –							
Boring Progress and Water Observations       General Remarks         Date       Comment       Strike Depth       Dia. mm       Standing Depth         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0         0       0       0       0       0       0       0         0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0         0       0       0       0       0       0	2- 30.50	D53				×	1						685
Boring Progress and Water Observations       General Remarks         Date       Comment       Strike Depth       Depth       Dia. mm       Depth         0       0       0       0       0       0       0         0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0         0 <td< td=""><td></td><td>200</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		200					1						
Boring Progress and Water Observations       General Remarks         Date       Comment       Strike Depth       Casing Depth       Standing Depth         0       Date       Comment       Strike Depth       Casing Depth       1. No groundwater encountered in borehole.         2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.       3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.         4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	∞- 	D54				× ×	*						
Boring Progress and Water Observations       General Remarks         Date       Comment       Strike Depth       Casing Depth       Standing Depth         0       Date       Comment       Strike Depth       Casing Depth       1. No groundwater encountered in borehole.         2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.       3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.         4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.		0.04	1 > 4 /	_			¥		• • • • • • • •				IRSOI
Date       Comment       Depth       Depth       Depth       Depth       I. No groundwater encountered in borenole.         2       2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.       2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.         3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.       4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.	Boring Pro	ogress	Strike	ater	Casi	rvation	S Standing	General R	kemarks				
<ul> <li>2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.</li> <li>3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.</li> <li>4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.</li> </ul>	Date Co	mment	Depth	D	epth	Dĩa. mm	Depth	1. No ground	dwater encountered in borenc	ole.			
3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample. 4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.								2. Down hole drilling.	e magnetrometer testing unde	ertaken at 2m	intervals	for first 5	im of
4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.								3. D= disturb	ped sample, B= bulk sample, N	= SPT 'N' sam	ple, U100	= U100 sa	ample.
8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.								4. Installatio	n details; 0.0-1.0mbgl: plain p	ipe with bento	onite back	cfill; nite backf	fill•
								8.0-39.0mbg	l: arisings backfill. Gas tap, bu	ng and flush c	over insta	alled.	,
	2												
Method/Field CrewLogged ByChecked ByPlant UsedPilconGary Wheeler Drilling LtdJJMDWM	hethod/ j Plant Used		Pil	con				Field Crew Gary \	Wheeler Drilling Ltd	Logged By JJM	CI	necked B DWN	y vl



Project											BO	REHOLE	No
Cam	den Lo	ock Villa	ige,	Londo	n							рцг	
Job No		Dat	<sup>.e</sup> 1(	0-11-14	4	Ground Le	evel (m)	Co-Ordinates (m)				рпр	
CG/18	067A		12	2-11-14	4	2	7.36	E 528,775.3	N 184	,211.1			
Client											Sheet	t	
Wals	sh Asso	ociates										5 of 6	
SAMPLE	ES & T	ESTS						STRATA					ent
Depth	Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESC	RIPTION				lnstrum /Backfill
- 31.50-31.95 - 31.50 	D55	N50/ 279 mm					Stiff closely f noted. [LONDON CL	issured dark grey silty AY FORMATION] <i>(con</i> i	CLAY. Fr	equent fine s	elenite	crystals	
32.50-33.00	B56					1- 							
- 33.00-33.45	U100	47 blows	5		× × · · · · · · · · · · · · · · · · · ·								
- 33.50	D58					+ * + * *							
- 34.50-34.95 34.50 -	D60	N51				┙┯┙╺┯┙╸┯┙╴							
- 35.50-36.00 - 36.00-36.45	B61 U100	48 blows	5										
- 37.00 - 37.50 - 37.50 - 37.50	D63 D64	N50/ 252 mm											
2- - - - - - - - - - - - - - - - - - -	B65												
Boring Pro	ogress	and W	ater	. Obser	rvation	S	General R	emarks					
Date Co	mment	Strike Depth	D	Casir epth I	ng Dia. mm	Standing Depth	1. No ground	lwater encountered in	boreho	e.			
							2. Down hole drilling.	e magnetrometer testi	ng unde	rtaken at 2m	interva	ls for first 5	m of
							3. D= disturb 4. Installation 1.0-7.0mbgl: 8.0-39.0mbg	ed sample, B= bulk sam n details; 0.0-1.0mbgl: slotted pipe with grav I: arisings backfill. Gas	mple, N= plain pi vel backf tap, bur	= SPT 'N' samp pe with bento ill; 7.0-8.0mb ng and flush co	ole, U10 nite ba gl: bent over ins	00= U100 sa ickfill; conite backfi stalled.	ill;
Method/		Pil	con			1	Field Crew Gary V	Wheeler Drilling Lto	d	Logged By JJM		Checked By DWN	y A



Project											BO	REHOLE	No
Cam	den Lo	ock Vil	llage,	Londo	n							DUE	
Job No		D	Date 1	0-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)				рпр	
CG/18	067A		1	2-11-1	4	2	7.36	E 528,775.3	N 184	,211.1			
Client											Sheet	t	
Wals	sh Asso	ociate	S									6 of 6	
SAMPLE	ES & T	ESTS	- L			1		STRATA					lent II
Depth	Type No	Test Resu	Kafe	Reduce Level	ed Legend	Depth (Thick- ness)		DESC	RIPTION				Instrun /Backfi
- 39.00-39.50	U100	56 blov	ws		× ×	7	Stiff closely f	fissured dark grey silt	y CLAY. Fi	equent fine s	elenite	crystals	
				-12.1	4 <u>x x</u>	39.50	[LONDON CL	AY FORMATION] (coi	ntinued)				
-						-	(Borehole te	erminated at 39.5m)					
Ē						-							
-						-							
Ē						-							
-						-							
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-						-							
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Ē.						-							
						-							
						-							
<u>19</u>						-							
2 2 2 2 2						-							
						-							
						-							
	<u> </u>		A/a+a				Cananal D	)					
	ugress	and V Strike	vatei e	Casi	i vation	S Standing		water encountered i	n horeho	e			
	mient	Dept	<u>n   D</u>	epth	<u>Dīa. mm</u>	Depth	2. Down hole	e magnetrometer test	ting unde	rtaken at 2m	interva	ls for first 5r	n of
							3. D= disturb	oed sample, B= bulk sa	ample. N=	= SPT 'N' samr	ole, U10	00= U100 sai	mple.
014 4							4. Installatio	n details: 0.0-1.0mbg	l: plain ni	be with bento	nite ha	ckfill:	
0180							1.0-7.0mbgl:	slotted pipe with gra	vel backf	ill; 7.0-8.0mb	gl: bent	tonite backfil	ll;
							0.0-59.0000	ii. ai isings dackiili. Ga	s tap, bur	ig and nush C	over m	standu.	
בעריים שניים שניים שני						1	Field Crew			Logged Rv		Checked By	,
Plant Used			Pilcon				Gary \	Wheeler Drilling Lt	d	JJM		DWM	1



Project										BOREHOL	E No
C	Camden L	ock Villa	ige,	Londo	n					рцс	
Job No		Da	te 1	3-11-14	4	Ground Le	evel (m)	Co-Ordinates (m)		DHO	
CG	/18067A		1	4-11-14	4	2	7.96	E 528,747.0 N 184	,197.8		
Client		·								Sheet	
V	Walsh Ass	ociates								1 of 4	ļ
SAM	1PLES & T	ESTS	5					STRATA			ent
Depth	h Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESCRIPTION	I		Instrum /Backfill
				27.7		- 0.25	Concrete. No	o rebar noted.			
0.25 0.25-1.2 0.30	D1 B2 ES220					(1.15)	Loose to me to subangula [MADE GRO	dium dense dark brown silty s ar gravel of brick. Frequent cob UND]	andy fine to co bles of brick n	oarse subrounde loted.	d
1.20-1.6	55 D3			26.5	5	1.40					
1.20		N5				1	Firm dark or	ange brown slightly silty CLAY.	Occasional fir	ne selenite	
- 2.00-2.5	50 B4 ES221						crystals note [WEATHERE	d. D LONDON CLAY FORMATION	l		
- 2.50-2.9	95   0100	12 blows	5		× × × ×	- <del>}</del> - -					
3.00	D6										
3.25	D7				× ×	\$- -					
3.50-3.9	95 D8	N13									
5.50		N13				- -					
4.00-4.5	50 B9										
-					×						
4.50-4.9	95 U100	20 blows	5		× ×	1- 1- 2-					
-											
5.00	D11										
-											
5.50	D12				×	1					
E .						- 7 -					
6.00-6.4	45 D13	N147			× ×						
6.00		N17				(9.80)					
-12						+ *					
						7					
ຊີ 7.00-7.5	50 B14				× – × –						
					× ×	1					
$\frac{1}{2}$ 7.50-7.9	95 U100	19 blows	5			+					
						[		I .			
BORINg	Common	Strike	1916	Casi		S Standing		Water encountered in herebe			
j Date	comment	Depth		epth	Dĩa. mm	Depth	1. NO ground	awater encountered in boreho	ie.		
							2. Down hole drilling.	e magnetrometer testing unde	ertaken at 2m i	intervals for first	5m of
							3. D= disturb	bed sample, B= bulk sample, N	= SPT 'N' samp	ole, U100= U100	sample.
00 00 1800/							4. Installatio 1.5-8.5mbgl 9.5-25.0mbg	n details; 0.0-1.5mbgl: plain pi : slotted pipe with gravel backf gl: arisings backfill. Gas tap, bu	pe with bento ill; 8.5-9.5mbք ng and flush co	nite backfill; gl: bentonite bac over installed.	kfill;
S Method	/						Field Crow			Checked	By
Plant Us	sed	Pi	lcon				Gary \	Wheeler Drilling Ltd	JJM	DW	/M



Proj	ject										BOREHOLE	No
	Cam	den Lo	ock Villa	ge,	Londo	n					рцс	
Job	No		Dat	.e 13	3-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)		рпо	
	CG/18	067A		14	4-11-1	4	27	7.96	E 528,747.0 N 184	,197.8		
Clie	ent									Sh	eet	
	Wals	sh Asso	ociates								2 of 4	
S	AMPL	-S & T	ESTS						STRATA			ent
D	epth	Type No	Test Result	Water	Reduce Level	dLegend	Depth (Thick- ness)		DESCRIPTION	I		Instrume /Backfill
- 8.00	0	D16						Firm dark or crystals note [WEATHERE	ange brown slightly silty CLAY. ed. D LONDON CLAY FORMATION	Occasional fine s ] (continued)	elenite	
8.50	0	D17					- <del> ,</del>  - <del> ,</del>  - <del> ,</del>					
- 9.00 - 9.00 -	0-9.45 0	D18	N21				╷ <mark>╷╷</mark> ┝╴╴┾					240
- 10.0	00-10.50	B19					╷ <del>╷</del> ╷╷╷ ╷╷╷╷					
10.5	0.50-10.95 U100 23 blows											
- 11.0	00	D21			16.7	6 × × ·	11.20	Stiff closely	fissured dark grey silty CLAY. C	occasional fine sele	enite crystals	
11.5	50	D22					- - - - - - - - - - - - - - - - - - -	ILONDON CI	LAY FORMATION]			
- 12.0 - 12.0 - - -	00-12.45 00	D23	N26									
- 13.(	00-13.50	B24					╷ ┾ ┾ ┾					
- 13.5	50-13.95	U100	25 blows				┶ ╋ ╋ ╋					
14.(	00	D25					┙					
5- 14.5 	50 00-15.45	D26										
] 15.0	00		N27				7 7 7					
b Bor	ing Pro	ogress	and Wa	ater	Obse	rvation	Standing	General F	Remarks			
B Da	ate Co	mment	Depth	D	epth	Dia. mm	Depth	1. No ground	dwater encountered in boreho	le.		
- BH FUK								2. Down hol drilling.	e magnetrometer testing unde	ertaken at 2m inte	rvals for first 5	5m of
JG CG1800/A ALL								3. D= disturi 4. Installatio 1.5-8.5mbgl 9.5-25.0mbg	oed sample, B= bulk sample, N on details; 0.0-1.5mbgl: plain pi : slotted pipe with gravel backi gl: arisings backfill. Gas tap, bu	= SPT 'N' sample, pe with bentonite iill; 8.5-9.5mbgl: b ng and flush cover	U100= U100 si backfill; entonite backf installed.	ample. fill;
31 5 Mot	hod/						<u> </u>	Field Crow			Checked P	v
j Plan	it Used		Pil	con				Gary	Wheeler Drilling Ltd	JJM	DWN	Ń



Project											BO	REHOLE	No
Cam	den Lo	ock Villa	ge,	Londo	n							DUC	
Job No		Dat	e 13	3-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)				БПО	
CG/18	067A		14	4-11-1	.4	2	7.96	E 528,747.0 N	N 184,19	97.8			
Client											Sheet		
Wals	sh Asso	ociates										3 of 4	
SAMPLE	S & TI	ESTS	L					STRATA					ent
Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRI	PTION				Instrum /Backfill
-					× ×	¥.	Stiff closely f	issured dark grey silty C	LAY. Occa	sional fine	selenit	e crystals	
16.00	B28					1 7 7 7	[LONDON CL	AY FORMATION] (contin	nued)				
-					× ×	<del>*</del> -							
- 16.50-16.95	U100	22 blows			×_×-	1							E S S
-					× ×	- *							
- 17.00	D30					- > -							
-					× × ·	<u>⊁</u> -							
- 17.50	D31				× ×	- - -							
-					×	- }-							
18.00-18.45	D32	N20				(13.80)							
18.00		N30			×	×							
-					× ×	*							
-					× × ·	- - -							E C S
- 19.00-19.50	B33					1_ 7_							
-					× ×	1							
- 19.50-19.95	U100	26 blows			× — × _ ×	<u>}</u>							
-					× ×	*							
-					× ×	<u>-</u> 							
-						- -							
20.50	D32				× ×	*							
- 20.30	055					× - -							Rest
	026				× ×	-							
21.00-21.24	030	N31				+ }							E C S
-					× ×	<u>⊁</u> -							
-					× ×	× +							
						 ▶							
22.00-22.50	B37				× ×	- 7-							
						+							
22.50-22.95	U100	36 blows			× ×	×							
					× × ·	*							
23.00	D39				×	<u> </u>  - 							
						7							
Boring Pro	ogress	and Wa	ater	· Obse	rvation	s	General R	lemarks					
Date Co	mment	Strike Depth	D	Casi <u>epth</u>	ing Dia. mm	Standing Depth	1. No ground	dwater encountered in b	orehole.				
							2. Down hole drilling.	e magnetrometer testing	g undertal	ken at 2m	interva	ls for first 5	im of
ALLE							3. D= disturb	ed sample, B= bulk sam	ple, N= SP	PT 'N' samp	ole, U10	00= U100 sa	ample.
2/20197 50							4. Installatio 1.5-8.5mbgl 9.5-25.0mbg	n details; 0.0-1.5mbgl: p slotted pipe with gravel l: arisings backfill. Gas ta	olain pipe v I backfill; 8 ap, bung a	with bento 8.5-9.5mb and flush c	onite ba gl: bent over ins	ckfill; onite backl stalled.	fill;
S Method/			<u> </u>				Field Crow			agod Pu		Chacked P	V
Bent Used		Pil	con				Gary \	Wheeler Drilling Ltd		JJM		DWN	Й



Project											BO	REHOLE N	No
Cam	den Lo	ock Vill	age,	Londo	n								
Job No		Da	ate 13	3-11-1	4	Ground Le	evel (m)	Co-Ordinates (m)				рпо	
CG/18	067A		14	4-11-1	4	2	7.96	E 528,747.0	N 184	,197.8			
Client											Sheet		
Wals	h Asso	ociates	5									4 of 4	
SAMPLE	S & TE	STS						STRATA					ent
Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESC	RIPTION				Instrum /Backfil
23.50	D41						Stiff closely noted. [LONDON C	fissured dark grey silty	y CLAY. O ntinued)	ccasional fine	selenit	e crystals	
 - 24.00-24.45 - 24.00	D42	N37				<del>*        </del>							
25.00	D43			2.9		25.00	(Borehole t	erminated at 25m)					
Boring Prc	ogress	and W	Vater	Obse	rvation	Standing	General F	Remarks					
Date Co	nment	Depth	<u> </u> D	epth	Dia. mm	Depth	1. No groun	dwater encountered i	n boreho	e.			
							2. Down hol	le magnetrometer test	ting unde	rtaken at 2m	interval	ls for first 5m	n of
												0.1/10-	
							3. D= distur 4. Installatic 1.5-8.5mbgl 9.5-25.0mb	bed sample, B= bulk sa on details; 0.0-1.5mbg I: slotted pipe with gra gl: arisings backfill. Ga	ample, N= l: plain pi vel backf s tap, bur	= SPT 'N' samp pe with bentc ill; 8.5-9.5mb ng and flush c	oie, U10 onite ba- gl: bent over ins	00= U100 sar ckfill; onite backfil stalled.	mple. II;
Method/						1	Eield Crew Lograd By Chacked By						
Plant Used		Р	ilcon				Gary	Wheeler Drilling Lt	:d	JJM		DWM	



	Project										BOREHOL	E No	
	Car	nden Lo	ock Villa	ge,	Londo	า					рц7		
	Job No		Dat	<sup>е</sup> з	1-10-14	1	Ground Le	evel (m)	Co-Ordinates (m)		DU1		
	CG/1	8067A		04	4-11-14	1	2	5.79					
	Client		•							5	Sheet		
	Wa	lsh Asso	ociates								1 of 4	ļ	
	SAMP	LES & T	ESTS	<u>ب</u>					STRATA			l I	
	Depth	Type No	Test Result	Wate	Reduce Level	dLegend	Depth (Thick- ness)		DESCRIPTION	I		nstrum 'Backfil	
	0.13	D1			25.66		0.13	Paving slab	over light orange brown fine to DUND1	medium sand.			
	0.38	D2			25.41		0.38	Concrete	DUND]				
	0.50-1.00	B3						Soft light br	own grey clayey silt with freque	ent claystone in	clusions.		
							_ (1.12)	INADE GRO	נאטע				
	1.20-1.65	D4											
	1.20		N6		24.29		1.50	Firm to stiff	light orange brown silty CLAV				
	1.70-2.20	B5					5	[WEATHERE	ED LONDON CLAY FORMATION				
	1.70	D6					1						
	2.20-2.65	U100	12 blows			× ×	- -						
	-						1 7 -						
	2.70	D8				×	÷ -						
		20					<u> </u>						
	3.00	D9					1- }						
	3.20-3.05	010	N10				- -						
	-					<u> </u>	+						
	-						<u>}</u>						
	4.00-4.50	B11				× ×							
	-						1-						
	4.50-4.95	U100	19 blows				- 1_						
	-					× –							
	-						(7.40)						
	-					×	[ (7.40)						
	5.50	D13											
	-					× ×							
	6.00-6.45	D14				× –							
/15	6.00		N16			× *	- <del>}</del>						
121	-						- - -						
GDT	-						+						
	6.90-7.40	B15				× ×	₽ 	6.90 - 7.40	Claystone band and seepage				
AGS	-					× ×	- 						
ST		11100	10 blow				-						
S N N	- 7.30-7.93	0100	19 010005				1						
CGPJ	Boring P	rogress	and W	ater	Obser	vation	S	General	Remarks				
GGEIF	Date C	omment	Depth	D	Casir epth   [	ng Dia. mm	Standing Depth	1. No groun	dwater encountered in boreho	le.			
3H FOR								2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.					
ALLE								3. D= distur	bed sample, B= bulk sample, N=	= SPT 'N' sample	e, U100= U100	sample.	
G CG18067A								4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.					
E S I S	Method/	Aethod/							Field Crew Logged By Checked By				
CGLE	Plant Used		Pil	con				Gary	Wheeler Drilling Ltd	ТОР	DW	ν Μ	



	Project										BO	REHOLE	No
	Cam	den Lo	ock Vi	llage,	Londo	n						DU7	
	Job No		C	Date a	1-10-1	4	Ground Le	evel (m)	Co-Ordinates (m)			DH/	
	CG/18	067A		Č	4-11-1	4	2	5.79					
	Client										Sheet		
	Wal	sh Asso	ociate	es								2 of 4	
	SAMPLI	ES & T	ESTS						STRATA				ent
	Depth	Type No	Test Resu	t Nate	Reduce Level	dLegend	Depth (Thick- ness)		DESCRIPTION	l			lnstrum /Backfill
	- 8.00	D17				× × × × × ×		Firm to stiff I [WEATHEREI	ight orange brown silty CLAY. D LONDON CLAY FORMATION	] (continued)			
	- - 8.50-9.00	B18			16.8		1 						
	9.00-9.45 9.00	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$							issured dark grey silty CLAY. AY FORMATION]				
	10.00	D20					<del>x   x  </del>						
	- 10.50-10.95	U100	24 blo	ws			┶┼╵┾╵╷┾						
	11.00												
	- 11.50-12.00 -	B23					┼┾╷╷╇╶╵┍						
	- 12.00-12.45 - 12.00 - -	D24	N22	2			┥┼┯┼┶┽						
	- - 13.00 -	D25											
	- 13.50-13.95 -	U100	31 blo	ws			<del></del> + - + - + - + - + - + - + - + -						
T 12/1/15	- 14.00	D27					, <del> </del> <del>, </del> <del>,</del>						
.GS 3_1.GD	- 14.50-15.00 	B28					<del>, , , , , , , , , , , , , , , , , , , </del>						
GINT STD A	- 15.00-15.45 - 15.00 -	D29	N29	)			× ×						
GPJ	Boring Pro	ogress	and \	Wate	r Obse	rvation	S	General R	emarks				
GEIR.	Date Co	mment	Strik Dept	te th [	Casi Depth	ng Dia. mm	Standing Depth	1. No ground	lwater encountered in boreho	le.			
BH FOR G								2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.				m of	
JG CG18067A ALL I								3. D= disturb 4. Installation 2.0-7.5mbgl: 8.5-30.5mbg	ed sample, B= bulk sample, N n details; 0.0-2.0mbgl: plain pi slotted pipe with gravel backl l: arisings backfill. Gas tap, bu	= SPT 'N' samp pe with bentor ill; 7.5-8.5mbg ng and flush co	ole, U10 nite ba gl: bent over ins	00= U100 sa ckfill; onite backfi stalled.	mple. ill;
CGL BH LC	Method/ Plant Used		I	Pilcor	<u> </u>		<u> </u>	Field Crew Gary V	Vheeler Drilling Ltd	Logged By TOP		Checked By DWN	/



	Project									BC	DREHOLE No	
	Can	nden Lo	ock Vil	llage,	Londo	n					0117	
	Job No		D	Date 2	1_10_1	Л	Ground Le	evel (m)	Co-Ordinates (m)		BH1	
	CG/18	8067A		0	4-11-1	4	2	5.79				
	Client									Shee	t	
	Wal	sh Asso	ociate	s							3 of 4	
	SAMPL	ES & T	ESTS						STRATA		ent	
	Depth	Type No	Test Resu	t Nater	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	I	Instrume /Backfill	
	-					× ×	¥	Stiff closely f	issured dark grey silty CLAY.			
	- - 16.00	D30					- <sup>1</sup> x					
	- 16.50-16.95	U100	30 blov	ws			, <del>,</del> <del>,,</del>					
	- 17.00	D32					<del>╱╵╱</del>					
	- 17.50-18.00	7.50-18.00 B33										
	18.00-18.45 D34 N30 N3						╋╵ <del>┝╱┥╱╎╸╱</del> ╵╸					
	- 19.00	19.00 D41 $\begin{array}{c c} x & x \\ x &$										
	19.50-19.95	U100	31 blov	ws			21.60)					
	- 20.00 - - 	D43					·+ 					
	21.00-21.45	D46	N35	;			┙╸ <del>┙</del> ╷┝┝╵┝╵┝					
SDT 12/1/15	22.00	D47					· <del>· · × · ×</del>					
D AGS 3_1.0	22.50-22.95	U100	34 blov	ws			<u></u>					
J GINT ST	23.00	D49				× ××						
IR.GP	Boring Pr	ogress	and \	Nate	r Obse	rvation	Standing	General R	emarks			
I FOR GGE	Date Co	Date Comment Depth Depth Dia. mm Dept					Depth	ling       1. No groundwater encountered in borehole.         2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.				
VLL BF								3. D= disturb	ed sample, B= bulk sample, N	= SPT 'N' sample, U1	.00= U100 sample.	
JG CG18067A A								4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.				
CGL BH L(	Method/ Plant Used Pilcon							Field Crew Gary \	Wheeler Drilling Ltd	Logged By TOP	Checked By DWM	



Project									B	OREHOLE	No	
Cam	den Lo	ock Vill	age,	Londo	n					рц7		
Job No		Da	te 3	1-10-1	4	Ground Le	evel (m)	Co-Ordinates (m)		DU1		
CG/18	067A		04	4-11-1	4	2	5.79					
Client									Shee	et		
Wals	sh Asso	ociates								4 of 4		
SAMPLE	S & T	ESTS						STRATA			ent	
Depth	Type No	Test Result	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	1		Instrum /Backfil	
23.50-24.00	B50				× ×	×	Stiff closely	fissured dark grey silty CLAY.				
- - 24.00-24.45 - 24.00	D51	N36				╷╵╱┽╴╵ <mark>╱</mark> ┥╴┝╱╺╎╴┝╱┽						
	D52					─ <del>┐</del> <del>┐</del> <del>┐</del> <del>┐</del> <del>┐</del>						
- - - 25.50-25.95	U100	31 blow	s									
- 26.00	D54											
26.50-27.00	B55											
- 27.00-27.45 27.00	D56	N34				┶╌┶╌┶╌┶┼						
- 28.00 - 28.50-28.95	D57 U100	34 blow	s									
- 29.00	D59					└ <del>┾</del> ╷┾╷╷┿╵┝┿						
29.50	D60					+ + + + + + + + + + + + + +						
2 30.00-30.43 2 30.00	001	N44		-4.7		* * 30.50						
						-	(Borehole t	erminated at 30.5m)				
Boring Pro	ogress	and W	/ater	Obse	rvation	S	General I	Remarks				
Date Co	mment	Strike Depth	D	Casi epth	ng Dia. mm	Standing Depth	1. No groun	dwater encountered in boreho	le.			
				-			2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.					
							<ul> <li>J= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample, U100= U10</li></ul>					
	pthod/							Eield Crow Chasked By				
Plant Used		P	lcon				Field Crew         Logged By         Checked By           Gary Wheeler Drilling Ltd         TOP         DWM					



Project										BOREHOLE	No
Cam	den Lo	ck Villa	ge,	Londo	n					рцо	
Job No		Dat	e o	9-12-1	д	Ground Le	evel (m)	Co-Ordinates (m)		БЦΩ	
CG/18	067A		1	1-12-1	4	28	8.64				
Client		•								Sheet	
Wals	sh Assc	ciates								1 of 4	
SAMPLI	ES & TE	STS						STRATA			ent
Depth	Type No	Test Result	Water	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	I		  nstrum€ /Backfill
- - - - - - -				28.4 28.3	9 × 4 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7	0.15 0.30 (0.90)	Tarmac. [MADE GRO] Concrete. 60 [MADE GRO] Loose to me to coarse. G	UND] D:40 aggregate to cement. No r UND] dium dense dark brown very g ravel is fine to coarse subround	ebar noted. ravelly sandy s ded to subangu	silt. Sand is fine ular of brick and	
1.20-2.50	D1			27.4	4	<u>1.20</u>	occasional ta [MADE GRO Firm to stiff [WEATHERE	armac. Frequent cobbles of bri UND] dark grey brown silty CLAY. D LONDON CLAY FORMATION]	ck.		
2.50-4.00 2.50-4.00	D2 D3										
- 4.00-4.50 4.00-5.50	U100 D5					- (4.80) 					
- 5.50-7.00 - -	D6			22.6	4		Stiff dark gre [LONDON CL	ey silty CLAY. AY FORMATION]			
7.00-7.50 7.00-8.50 7.00-8.50	U100 D8					+ + + + + + + + + + + + + + + + + + +					
Boring Pro	ogress	and Wa	ater	Obse	rvation	s	General R	Remarks			
	Date Comment Strike Casing Stand Depth Depth Dia. mm Dep							ng rotary open hole. nmental Sample, U100= U100 dwater encountered during dri n details; 0.0-1.8mbgl: plain pi gl: slotted pipe with gravel bacl	Sample, D= Di lling. pe with bentor (fill. Gas tap, b	sturbed Sample. nite backfill, oung and flush co	/er
Hethod/		Coma	acch	nio		I	Field Crew	TOR drilling	Logged By JJM	Checked E DW	By M



Project									E	BOREHOLE	No
Cam	den Lo	ock Villa	ige,	Londo	n					рцо	
Job No		Dat	te og	9-12-1	4	Ground Le	evel (m)	Co-Ordinates (m)		рпо	
CG/18	067A		1:	1-12-1	4	2	8.64				
Client									She	eet	
Wals	sh Asso	ociates								2 of 4	
SAMPLE	S & TI	ESTS	<u> </u>					STRATA			lent
Depth	Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESCRIPTION	1		Instrum /Backfil
8.50-10.00	D9						Stiff dark gre [LONDON CI	ey silty CLAY. AY FORMATION] <i>(continued)</i>			
- - - 10.00-10.50 - 10.00-11.50 - -	U100 D11										
- 11.50-13.00	-13.00 D12										
13.00-13.50	U100 D14										
Boring Pro	gress	and W	ater	Obse	rvation	s	General F	Remarks			
Date Cor	nment	Strike Depth	D	Casii epth	ng Dia. mm	Standing Depth	<ol> <li>Drilled usi</li> <li>ES=Enviro</li> <li>No ground</li> <li>Installatio</li> <li>1.8-24.5mbg</li> <li>installed.</li> </ol>	ng rotary open hole. nmental Sample, U100= U100 dwater encountered during dri n details; 0.0-1.8mbgl: plain pi gl: slotted pipe with gravel bacl	Sample, D= Distur Iling. pe with bentonite ¢fill. Gas tap, bung	bed Sample. backfill, and flush cov	er
Method/ Plant Used		Com	acch	io			Field Crew	TOR drilling	Logged By JJM	Checked B DWN	у Л



Project						B	OREHOLE No	
Camden Lock	Village,	London					RUQ	
Job No	Date 0	9-12-14	Ground Le	evel (m)	Co-Ordinates (m)		БПО	
CG/18067A	1	1-12-14	2	8.64				
Client						She	et	
Walsh Associa	ites						3 of 4	
SAMPLES & TEST	S 5				STRATA			
Depth Type T No Re	est esult	Reduced Level Legend	Depth (Thick- ness)		DESCRIPTION	I	Instrun /Backfi	
- 16.00-16.50 U100 16.00-19.00 D16			(19.50)	Stiff dark gre [LONDON CL	y silty CLAY. AY FORMATION] <i>(continued)</i>			
19.00-19.50 U100 19.00-22.00 D18			┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶┶					
22.00-22.50 U100 22.00-25.00 D20								
Boring Progress and	d Water	r Observation	S	General R	emarks			
Date Comment St	epth D	epth Dia. mm	Depth	1. Drilled usi	ng rotary open hole.			
5				2. ES=Environmental Sample, U100= U100 Sample, D= Disturbed Sample.				
				3. No groundwater encountered during drilling.				
				4. Installation 1.8-24.5mbg installed.	n details; 0.0-1.8mbgl: plain pi I: slotted pipe with gravel bacl	pe with bentonite k ‹fill. Gas tap, bung a	backfill, and flush cover	
3								
Method/ Plant Used	Comacch	nio		Field Crew	TOR drilling	Logged By JJM	Checked By DWM	



Project										BOREHOLE	No
Cam	den Lo	ock Villa	age,	Londo	n					0110	
Job No		Da	nte no	9-12-1	Δ	Ground Le	evel (m)	Co-Ordinates (m)		вно	
CG/18	067A		12	1-12-1	4	23	8.64				
Client									S	neet	
Wals	sh Asso	ociates								4 of 4	
SAMPLI	ES & TI	ESTS						STRATA	· · ·		ent
Depth	Type No	Test Result	Watei	Reduce Level	ed Legenc	Depth (Thick-		DESCRIPTION	I		nstrume Backfill
24.00 25.00-25.50	ES308			3.1		ness)	Stiff dark gre [LONDON CL	ey silty CLAY. AY FORMATION] (continued) erminated at 25.5m)			
ម្ល <mark>ិ Boring Pro</mark>	ogress	and W	/ater	Obse	rvation	S	General R	lemarks			
ਯੂ Date Co	mment	Depth	D	epth	ng Dia. mm	Depth	1. Drilled usi	ng rotary open hole.			
FOR							2. ES=Enviro	nmental Sample, U100= U100	Sample, D= Dist	urbed Sample.	
BHI							3. No ground	dwater encountered during dri	lling.		
CG18067A ALL							<ul> <li>4. Installation details; 0.0-1.8mbgl: plain pipe with bentonite backfill,</li> <li>1.8-24.5mbgl: slotted pipe with gravel backfill. Gas tap, bung and flush cover installed.</li> </ul>				er
පු ස් Method/	lethod/								Logged By	Checked By	/
ក្ល Plant Used		Com	nacch	io				TOR drilling	MI	DWM	1



Project										BOREHOLE	No		
Cam	den Loo	ck Villa	age,	London	1					DUIO			
Job No		Da	te 1	1-12-14		Ground Le	evel (m)	Co-Ordinates (m)		БПЭ			
CG/18	067A		1	7-12-14	-	28	8.12						
Client								•	SI	neet			
Wals	sh Asso	ciates								1 of 4			
SAMPLE	ES & TE	STS						STRATA			ent		
Depth	Type No	Test Result	Wate	Reduced Level	Legend	Depth (Thick- ness)		DESCRIPTION	l		Instrum /Backfill		
- - - - -				27.92 27.82		0.20	Tarmac. [MADE GRO Concrete. 60 [MADE GRO	JND] :40 aggregate to cement. No r JND]	rebar noted.	/	/		
-				26.92		(0.90) - 1.20	to subangula cobbles of bi [MADE GRO	ir gravel of flint and brick. San ick and concrete. JND]	d is fine to coarse	e. Frequent			
1.20	ES309			26.22		(0.60)	Soft to firm of to medium s [MADE GRO	lark grey black to grey brown ubangular to subrounded of b JND]	gravelly silty clay rick. Organic odo	. Gravel is fine ur noted.			
- - - -				20.32		- - - -	Firm to stiff [WEATHERE	dark grey brown silty CLAY. D LONDON CLAY FORMATION	]				
- 2.30 - 2.50-3.00	ES310 U100					- - - - - - -							
- - - - -													
- - - - -													
- - - - - - - -													
- - 5.50-6.00	U100					- - (7.20) 							
- - - - - -						- - - - - - - - - - - -							
7.00	ES311												
Boring Pro	ogress a	and W	ater	Obser	vation	s	General R	emarks					
Date Co	mment	Strike Depth	D	Casin epth D	g Na. mm	Standing Depth	<ol> <li>Drilled usi</li> <li>ES=Enviro</li> <li>No ground</li> <li>Installatio</li> <li>0.8-30.0mbg</li> </ol>	ng rotary open hole. nmental Sample, U100= U100 lwater encountered during dri n details; 0.0-0.8mbgl: plain pi l: slotted pipe with gravel bac	Sample, D= Distu illing. pe with bentonit kfill. Gas tap, bun	urbed Sample. e backfill, g and flush cov	er		
Method/ Plant Used		Com	hacch	iio			Field Crew Logged By Checked By TOR drilling JJM DWN				у Л		



Project										BO	REHOLE	No
Cam	den Lo	ck Villa	age,	Londo	n						вио	
Job No		Da	te 1	1_17_1	Λ	Ground Le	evel (m)	Co-Ordinates (m)			RH3	
CG/18	067A		17	7-12-1	4	2	8.12					
Client								1		Sheet		
Wals	h Asso	ciates									2 of 4	
SAMPLE	S & TE	STS						STRATA				ent
Depth	Type No	Test Result	Watei	Reduce Level	d Legenc	Depth (Thick- ness)		DESCRIPTION	N			Instrum /Backfill
- 8.50-9.00 8.50-11.00 - 9.00 - 11.50-12.00 11.50-14.50	U100 D4 ES312			19.1		9.00	Firm to stiff [WEATHERE]	dark grey brown silty CLAY. D LONDON CLAY FORMATION ry silty CLAY. AY FORMATION]	] (continued)			
14.50-15.00 1 14.50-16.00	D100 D8											
Boring Pro	gress a	and W	ater	Obse	rvation	S	General R	emarks				
Date Comment Depth Depth Dia. mm Dept							1. Drilled usi 2. ES=Enviro 3. No ground 4. Installatio 0.8-30.0mbg installed.	ng rotary open hole. nmental Sample, U100= U100 Iwater encountered during dr n details; 0.0-0.8mbgl: plain p I: slotted pipe with gravel bac	) Sample, D= D illing. ipe with bento kfill. Gas tap, I	isturbeo onite bao oung an	d Sample. ckfill, d flush cove	er
Method/ Plant Used	hod/ It Used Comacchio							TOR drilling	Logged By JJM	(	Checked By DWN	/ 1



Project						B	OREHOLE N	lo
Camden Loo	k Village,	London					впо	
Job No	Date 1	1-12-14	Ground L	evel (m)	Co-Ordinates (m)		БПЭ	
CG/18067A	1	7-12-14	2	8.12				
Client						Shee	et	
Walsh Assoc	ciates						3 of 4	
SAMPLES & TE	STS 1				STRATA			nent II
Depth Type No	Test Result	Reduced Level	Depth d (Thick- ness)		DESCRIPTION	1		Instrum /Backfi
- 16.00-17.50 D9				Stiff dark gre [LONDON CL	ey silty CLAY. AY FORMATION] <i>(continued)</i>			
- 17.50-18.00 U100 17.50-19.00 D11								
- 19.00-20.50 D12			(21.00)					
20.50-22.00 D13								
22.00-23.50 D14								
Boring Progress a	nd Wate	r Observatior	- <u>-</u> 1S	General R	lemarks		I	`
Date Comment	Strike Depth C	Casing Depth Dia. mm	Standing Depth	1. Drilled usi 2. ES=Enviro 3. No ground 4. Installatio 0.8-30.0mbg installed.	ng rotary open hole. nmental Sample, U100= U100 dwater encountered during dri n details; 0.0-0.8mbgl: plain pi fl: slotted pipe with gravel bacl	Sample, D= Disturb Iling. pe with bentonite b ƙfill. Gas tap, bung a	ed Sample. Packfill, and flush cover	r
ے لیے لیے لیے لیے لیے لیے لیے لیے لیے لی	Comacch	nio		Field Crew	TOR drilling	Logged By JJM	Checked By DWM	



Project										BOREHOLE No	
Cam	den Lo	ck Villa	ge, I	London						DUIO	
Job No		Dat	e 11	1-12-14		Ground Le	evel (m)	Co-Ordinates (m)		впу	
CG/18	067A		17	7-12-14		28	8.12				
Client									Shee	et	
Wals	sh Asso	ciates								4 of 4	
SAMPLE	ES & TE	STS	L					STRATA			ent
Depth	Type No	Test Result	Wate	Reduced Level	egend	Depth (Thick- ness)		DESCRIPTION	l		Instrum /Backfil
23.50-25.30	D15			-1.88		Thess)	Stiff dark gre [LONDON CL	y silty CLAY. AY FORMATION] <i>(continued)</i>			
Boring Pro	ogress a	and Wa	ater	Observa	ation	S Standing	General R	emarks			
Date Co	mment	Depth	De	epth   Dia	a. mm	Depth	1. Drilled usi	ng rotary open hole.			
							2. ES=Enviro	nmental Sample, U100= U100	Sample, D= Disturb	ed Sample.	
							3. No ground	lwater encountered during dri	lling.		
							4. Installation 0.8-30.0mbg installed.	n details; 0.0-0.8mbgl: plain pi I: slotted pipe with gravel bacl	pe with bentonite b fill. Gas tap, bung a	ackfill, nd flush cove	er
									1		



Project						BOREH				IOLE No	
Cam	iden Loo	ck Villa	ige,	London							14.0
Job No		Dat	te na	2_12_1/		Ground Le	evel (m)	Co-Ordinates (m)		RF	110
CG/18	067A		08	8-12-14		2	7.07				
Client								1		Sheet	
Wal	sh Asso	ciates								1 0	of 4
SAMPL	ES & TE	STS						STRATA			ent
Depth	Type No	Test Result	Water	Reduced Level	_egend	Depth (Thick- ness)		DESCRIPTION	I		Instrume /Rackfill
-				26.87		0.20	Tarmac.	נטאון			
				26.64		0.43	Concrete. 40 noted at 0.4	1:60 aggregate to cement. 8mr mbgl. Day joint at 0.3mbgl. UND1	n and 5mm dia	ameter reba	r
						(0.97)	Soft to firm of coarse subro [MADE GRO	dark orange brown slightly gra bunded to subangular of brick a UND]	velly clay. Grav and tarmac.	el is fine to	
4.00-4.50	U1001 U1002					< 1.40 	Firm dark or. [WEATHERE	ange brown slightly silty CLAY. D LONDON CLAY FORMATION	]		
5.50-6.00	U1003			21.07		- - - - - - - - - - - - - - - - - - -	Stiff dark gre [LONDON CL	ey silty CLAY. AY FORMATION]			
- - - - - - - - -	U1004										
Boring Pro	ogress a	and W	ater	Observ	ation	s	General R	emarks			
Date Co	mment	Strike Depth	D	Casing epth Dia	a. mm	Standing Depth	1. Drilled usi 2. ES=Enviro 3. No ground 4. Installatio 0.8-24.0mbg	ng rotary open hole. nmental Sample, U100= U100 Iwater encountered during dri n details; 0.0-0.8mbgl: plain pi I: slotted pipe with gravel back	Sample, D= Di Iling. pe with bento ¢fill, 24.0-25.0	sturbed San nite backfill, mbgl: arising	nple. gs backfill.
Method/ Plant Used		Com	acch	iio			Field Crew	TOR drilling	Logged By JJM	Chec	ked By DWM



Project									BOREHOLE No	
Camden	Lock Vi	illage,	Londor	า						
Job No	[	Date 03	3-12-14	1	Ground Le	evel (m)	Co-Ordinates (m)		DUIO	
CG/180674	4	08	8-12-14	1	2	7.07				
Client								Shee	et	
Walsh As	sociate	es							2 of 4	
SAMPLES &	TESTS	e –			1		STRATA			
Depth Type No	e Tes Resu	t Š	Reduced Level	Legend	Depth (Thick- ness)		DESCRIPTION	I		IIIsuu /Backf
8.50-9.00 U100 8.50-10.00 D6	05				, , , , , , , , , , , , , , , , , , ,	Stiff dark gre [LONDON CL	y silty CLAY. AY FORMATION] <i>(continued)</i>			
- 10.00-11.50 D7					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
11.50-12.00 U100 11.50-13.00 D9	)8				, , , , , , , , , , , , , , , , , , ,					
- 13.00-14.50 D10	)				+ + + + + + + + + + + + + + + + + + +					
- 14.50-15.00 U100 14.50-16.00 D12	11									
Boring Progres	s and	Water	Obser	vation	s · · ·	General R	emarks		I.	
Date Commer	nt Strik Dept	th D	Casir epth	Je Dia. mm	Standing Depth	1. Drilled usin 2. ES=Environ 3. No ground 4. Installation 0.8-24.0mbg Gas tap, bun	ng rotary open hole. nmental Sample, U100= U100 lwater encountered during dri n details; 0.0-0.8mbgl: plain pi l: slotted pipe with gravel bacl g and flush cover installed.	Sample, D= Disturb Iling. pe with bentonite b cfill, 24.0-25.0mbgl:	ed Sample. Dackfill, arisings backfill	I.
Method/ Plant Used	Со	macch	io		1	Field Crew	TOR drilling	Logged By JJM	Checked By DWM	



Project						BC	DREHOLE No
Camden Lock	Village,	London					
Job No	Date 0	3-12-14	Ground L	evel (m)	Co-Ordinates (m)		DUIO
CG/18067A	0	8-12-14	2	7.07			
Client						Shee	t .
Walsh Associa	ates	1					3 of 4
SAMPLES & TEST	S P			1	STRATA		nent
Depth Type T No Re	est sult	Reduced Level	Depth d (Thick- ness)		DESCRIPTION	1	Instrur /Backf
16.00-17.50 D13				Stiff dark gre [LONDON CL	y silty CLAY. AY FORMATION] <i>(continued)</i>		
- 17.50-18.00 U10014 17.50-19.00 D15			· · · · · · · · · · · · · · · · · · ·				
19.00-20.50 D16							
20.50-21.00 U10017							
22.00-23.50 D19							
			• [  •   -   				
Boring Progress and	d Water	r Observatior	 1S	General R	emarks		I. [_].
Date Comment De	rike epth D	Casing Depth Dia. mm	Standing Depth	1. Drilled usir 2. ES=Enviror 3. No ground 4. Installatior 0.8-24.0mbg Gas tap, bung	ng rotary open hole. nmental Sample, U100= U100 water encountered during dri details; 0.0-0.8mbgl: plain pi slotted pipe with gravel bacl g and flush cover installed.	Sample, D= Disturbo Iling. pe with bentonite b ƙfill, 24.0-25.0mbgl:	ed Sample. ackfill, arisings backfill.
Method/	Comacch	nio		Field Crew	TOR drilling	Logged By JJM	Checked By DWM



Project					BC	DREHOLE No
Camden Lock Villa	age, London					
Job No Dat	<sup>te</sup> 03-12-14	Ground Le	evel (m)	Co-Ordinates (m)		DHIO
CG/18067A	08-12-14	2	7.07			
Client					Shee	et
Walsh Associates						4 of 4
SAMPLES & TESTS	<u> </u>			STRATA		ent
Depth Type Test No Result	Reduced	Depth egend (Thick- ness)		DESCRIPTION	I	Instrum /Backfill
	2.07		Stiff dark gre [LONDON CL	y silty CLAY. AY FORMATION] <i>(continued)</i> rminated at 25m)		
Date Comment Strike Depth	ater Observa Casing Depth Dia	ations a. mm Standing Depth	General R 1. Drilled usin 2. ES=Environ 3. No ground 4. Installation 0.8-24.0mbg Gas tap, hum	emarks ng rotary open hole. nmental Sample, U100= U100 water encountered during dri n details; 0.0-0.8mbgl: plain pi l: slotted pipe with gravel bacl g and flueb cover installed	Sample, D= Disturb Iling. pe with bentonite b tfill, 24.0-25.0mbgl:	ed Sample. ackfill, arisings backfill.
Method/ Plant Used Com	hacchio		Field Crew	TOR drilling	Logged By JJM	Checked By DWM



Project										HC	DLE No
Cam	iden Lo	ock Villa	ige,	Londor	า						
Job No		Da	te			Ground Le	evel (m)	Co-Ordinates (m)		- V	1034
CG/18	067A		2	2-10-14	1	20	6.29	E 528,852.3	N 184,236.6		
Client										Sheet	
Wal	sh Asso	ociates								1	of 1
SAMPL	ES & T	ESTS						STRATA			ent
Depth	Type No	Test Result	Wate	Reduced Level	Legend	Depth (Thick- ness)		DESCR	IPTION		Instrum
-				26.14		- 0.15	Paving slab	over fine to medium ora נסאווכ	ange sand.		
0.30	ES109					(0.95)	Soft dark b noted. [MADE GR0	ack brown slightly sandy DUND]	v clay. Moderate hy	drocarbon c	odour
F				25.19		1.10		<u>, , , , , , , , , , , , , , , , , , , </u>	<u></u>		
- - - - - - - - - - - - - - - - - - -	ES112			23.09		(2.10)	Firm to stif [WEATHER 2.50 Becom	f dark orange brown silty ED LONDON CLAY FORM ning stiff mottled grey.	(CLAY. ATION]		
	ogress	and W	ate	r Obser	vation		(Window s	ample terminated at 3.2	m)		
≝ Date	Strike	Casing	Co	mment	Time	Standing Denth	1. No grour	ndwater encountered in	borehole.		
-065 CG18067A ALL BH FOR GG	depth	<u>depth</u>		n	<u>neasured</u>	Depth	2. ES= envii value, U100 3. Installati 0.2-1.2mbg tap, bung a	ronmental samples, D= d D= U100 sample. on details: 0.0-0.2mbgl:   l: slotted pipe with grave nd flush cover installed.	listurbed sample, B plain pipe with bent el backfill; 1.2-3.2m	= bulk samp conite backf bgl: arisings	ile, N= SPT 'N' ïll; backfill. Gas
Method/				I			Field Crew Logged By Checked By				
ਲੂ Plant Used	Hand	l held w	indo	w samp	ler			RP Drilling	, JIŅ		DWM



Project						HOLE No	
Camden Lock Vi	illage, London						
Job No C	Date	Ground Le	evel (m)	Co-Ordinates (m)		WS5	
CG/18067A	21-10-14	26	5.14	E 528,824.0 N 184	,288.4		
Client				I		Sheet	
Walsh Associate	es					1 of 1	
SAMPLES & TESTS				STRATA			ent
Depth Type Resu (N/kPa/pi	Level Legenc	Depth (Thick- ness)		DESCRIPTION			Instrum /Backfill
0.20 ES105	25.64	(0.50) 0.50	Paving slab o Sand is fine t of brick, cera [MADE GROU Firm dark ora	ver soft dark brown slightly sa o coarse. Gravel is fine to coar mic and occasional flint. JND] ange brown slightly silty CLAY.	ndy slightly gr se subrounde	avelly silty clay. d to subangular	
1.20 ES106		(2.20)	1.50 Becomin	ng stiff.			
	23.44	2.70	(Window sa	mple terminated at 2.7m)			
Boring Progress and V	Water Observation	S	General R	emarks			
Date Strike Casin depth dept	ng Comment Time th Comment measured	Standing Depth	1. No ground 2. ES= enviro value, U100= 3. Installation 1.0-2.5mbgl: tap, bung an	lwater encountered in boreho nmental samples, D= disturbe : U100 sample. n details: 0.0-1.0mbgl: plain pi slotted pipe with gravel backf d flush cover installed.	le. d sample, B= b pe with bento ill; 2.5-2.7mbg	oulk sample, N= SPT nite backfill; l: arisings backfill. G	Gas
Method/ Plant Used Hand held	window sampler		Field Crew	RP Drilling	Logged By JJM	Checked By DWM	



ſ	Project										HOLE No		
	Car	nden Lo	ock Villa	ge,	Londo	n							
	Job No		Dat	e			Ground Le	evel (m)	Co-Ordinates (m)			W20	
	CG/1	8067A		1	0-11-14	4	2	7.06	E 528,815.0 N 184	,232.7			
Ī	Client										Sheet		
	Wa	alsh Asso	ociates									1 of 1	
ſ	SAMP	LES & T	ESTS						STRATA				ent
ł		Type	Test	ater	Reduce	d	Depth		-				um6
	Depth	No	Result (N/kPa/ppm)	3	Level	Legend	(Thick- ness)		DESCRIPTION	l			lnstr /Bac
ļ					26.00			Concrete. N	o rebar noted.				
ł					26.86		0.20	Loose dark b	טאטין prown silty gravelly sand. Sand	is fine to coar	se. Grav	el is fine	
+	0.40	FS1						to coarse an ceramic.	ngular to subrounded of brick, o	concrete, glass	s, slate a	nd	
ļ	0.40						(0.70)	[MADE GRO	UND]				
┢	0.70	ES2											
F					26.16	5	0.90	Eirm dark gr	coop grow cilty CLAX with frogue	ont organic m	attor		
t	-							[REWORKED	WEATHERED LONDON CLAY	ORMATION]	aller.		
ł	1.20		N4										
ļ	1.40	562					(0.90)						
	1.40	E53											
					25.26	-	1 80						
ļ					25.20		> 1.00	Firm to stiff	light orange brown mottled gr	ey silty CLAY v	with freq	luent	目
ł	2.00		N8					WEATHERE	stais. D LONDON CLAY FORMATION				2000
F							*						
t	-						<u>↓</u>						
+							*						
ļ						× *							
┢							- 						
F	2 00		NZ			× *							<b>RSA</b>
t	5.00						<u>≯</u>						E SE
┝													
ļ							(3.20)						
ł						<u> </u>	<u>}</u>						
F						× ×	7						
t						×	- - 						
2	4.00		N11				<del>,</del>						
2/1/1							×						<b>R</b> SSA
5							× 						<b>BOOM</b>
0. 0.							7						E S S
AGS							+ +						
<u>j</u>					22.06	5 × ×	5.00						
INT N	5.00		N10				-	(Window so	ample terminated at 5m)				
Ë[	Boring P	rogress	and Wa	ate	r Ohser	vation	c	General F	Remarks				
ËR.	Doring I	Strike	Casing		mment	Time	Standing	1 No ground	dwater encountered in horeho	le			
R GG		depth	depth			measured	Depth	2 ES- onvi-					
E F F								2. ES= enviro	ommental sample, N= SPT_N <sup>®</sup> V	aiue.			
								3. Installatio	on details; 0.0-1.0mbgl: plain pi : slotted pipe with gravel back!	pe with bento ill; 2.0-5.0mb	onite bac gl: arisin	kfill; gs backfill.	Gas
67A A								tap, bung ar	nd flush cover installed.		<b>.</b>		
G180													
SL SL	Method/						1	Field Crew Logged By Checked By				/	
CGL	Plant Used	ethod/ ant Used Tracked window sample rig						RP Drilling TOP DWM					1



Project										HOLE No	)
Ca	mden Lo	ock Villa	age,	Londo	n						
Job No		Da	ite			Ground Le	evel (m)	Co-Ordinates (m)		WS/	
CG/	18067A		1	0-11-1	4	27	7.06				
Client					I					Sheet	
W	alsh Ass	ociates								1 of 1	
SAMF	LES & T	ESTS						STRATA			ent
Depth	Type No	Test Result (N/kPa/ppm	Wate	Reduce Level	ed Legend	Depth (Thick- ness)		DESCRIPTION	I		Instrum /Backfill
-				27.0		0.05	Concrete. No	ebar noted. וסאו		,	
0.20	215			26.5	6	(0.45) 0.50	Loose to mee to coarse. Gr [MADE GROU	dium dense dark brown gravel avel is fine to coarse subround JND]	lly very sandy c ded to subangu	lay. Sand is fine Ilar of brick.	
0.60	216					(0.50)	Soft to firm g [MADE GROU	rey clay. Occasional fine to co JND]	arse gravel of I	brick.	
-				26.0	6	1.00					
- 1.20 1.20 -	217	N6					Firm dark ora crystals note [WEATHEREI	ange brown mottled grey silty d. D LONDON CLAY FORMATION	CLAY. Occasion	nal fine selenite	
- - - 2.00 -	2.00 N9						1.80 - 1.90 O	ccasional fine to medium grav	el of mudstone	2.	
- - - - - - - - - - - -		N12				- - - - - - - - - - - - - - - - - - -					
4.00		N16									
5.00		N17		22.0	6 <u>* *</u> -	5.00	(Window sa	mple terminated at 5m)			<u>699</u>
			/ <u>.</u>				Constal				
BOLIDATE	Strike	and W Casing	ater		Time	S Standing	General R	emarks			
Date Determine the FOK GGt HENDER CG18061A ALL BH FOK GGt	depth	depth	Со	mment	measured	Depth	1. No ground 2. ES= enviro 3. Installation 0.5-2.0mbgl: tap, bung an	water encountered in boreho nmental sample, N= SPT 'N' v n details; 0.0-0.5mbgl: plain pi slotted pipe with gravel backf d flush cover installed.	ıe. alue. pe with bentor ill; 2.0-5.0mbg	nite backfill; I: arisings backfill.	Gas
S Method/	d Tracl	ked win	dow	sample	e rig	·	Field Crew Checked By Drilling JJM Checked By DWM				



Project										HOLE No	
Ca	mden Lo	ock Villa	ge, Lon	don						\\/CQ	
Job No		Date	е		Ground I	evel (m)	Co-Ordinates (m)			VV 30	
CG/1	8067A		10-11	-14	2	26.99	E 528,807.0	N 184,206.8			
Client									Shee	t	
Wa	alsh Asso	ociates								1 of 1	
SAMP	LES & T	ESTS	L.				STRATA				lent I
Depth	Type No	Test Result (N/kPa/ppm)	A Redu	vel Leg	Depth end (Thick- ness)		DESCR	RIPTION			Instrum /Backfil
-			2	6.84	0.1	Concrete. 5	mm rebar noted at 0.1r ומאוע	nbgl			
0.20	210		2	6.59	(0.25) 0.40	Loose to me to coarse. C	edium dense dark brown Gravel is fine to coarse s	n sandy very gravell ubrounded to subar	y silt. Sa ngular of	nd is fine f brick and	
0.60	211				(0.60)	\[MADE GRC Soft dark gr subrounded [MADE GRC	DUND] ey slightly gravelly silty I to subangular of brick. DUND]	clay. Gravel is fine t	o mediu	/ m	
-		N5	2	5.99 ×		) Firm dark o crystals not [WEATHER]	range brown mottled gr ed. ED LONDON CLAY FORM	rey silty CLAY. Occas	ional fir	ne selenite	
_ 1.20 _ _ _ _ _		N5			× -+ - +  +  +  +  +  +  +  +  +  +  +  +  +			IATIONJ			
2.00		N11									
2.50	214										
3.00 - - - - -		N16									
4.00		N18									
5.00		N18	2	1.99		(Window s	ample terminated at 5n	n)			
Boring P	rogress	and Wa	ter Ob	servati	ons	General	Remarks				
Date	Strike depth	Casing depth	Comme	nt Tim measu	e Standing red Depth	1. No groun 2. ES= envir 3. Installatio 0.5-2.0mbg tap, bung a	dwater encountered in onmental sample, N= Si on details; 0.0-0.5mbgl: I: slotted pipe with grav nd flush cover installed.	borehole. PT 'N' value. plain pipe with ben el backfill; 2.0-5.0m	tonite ba bgl: aris	ackfill; ings backfill.	Gas
Method/ Plant Used	l Track	ked wind	ow sam	ple rig		Field Crew RP Drilling JJM DWM					



Project									HOLE No		
Cam	nden Lo	ock Vill	age,	Londo	n						
Job No		Da	ate			Ground Le	evel (m)	Co-Ordinates (m)		VV 39	
CG/18	8067A		1	0-11-14	4	2	5.79				
Client										Sheet	
Wal	sh Asso	ociates	5							1 of 1	
SAMPL	ES & T	ESTS	<u> </u>					STRATA			ent
Depth	Type No	Test Result	Wate	Reduce Level	d Legend	Depth (Thick- ness)		DESCRIPTION	I		lnstrum /Backfil
-				25.59	- <b>I</b>	0.20	Paving slab c	over light orange brown fine to UND1	medium sand	1.	
0.30 - -	201					- (0.80)	Loose to me is fine to coa brick. Occasi [MADE GRO	dium dense dark brown slightl rse. Gravel is fine to coarse su onal cobbles of brick noted. UND]	y gravelly very brounded to s	sandy silt. Sand ubangular of	
-			1	24.79	9 🗱 🎆	1.00					
_ _ 1.20 _		NO	÷				Soft to firm of subrounded [REWORKED 1.20 - 3.00 V	dark brown gravelly clayey silt. to subangular of mudstone. WEATHERED LONDON CLAY f ery wet	Gravel is fine	to coarse	
2.00 2.00	202	N1				- (2.00) 					
- - - - -		N7		22.79	9 × × × × × × × × × × × × ×	3.00	Firm dark or. [WEATHEREI	ange brown silty CLAY. D LONDON CLAY FORMATION	1		
4.00		N11									
				20.79	9 <del>~ × ~</del>	5.00					285
5.00		N12				-	(Window sa	mple terminated at 5m)			
Boring Pro	ogress	and W	/atei	r Obsei	rvation	s	General R	emarks			
Date	Strike depth 1	Casing depth	Co	mment	Time measured	Standing Depth	<ol> <li>Groundwa</li> <li>ES= enviro</li> <li>Installatio slotted pipe flush cover in</li> </ol>	iter encountered at 1.0mbgl to onmental sample, N= SPT 'N' v n details: 0.0-1.0m: plain pipe with gravel backfill; 3.0-5.0mb nstalled.	o 3.0mbgl. alue. with bentonite ggl: arisings bac	e backfill; 1.0-3.0r ckfill. Gas tap, bur	nbgl: ng and
Method/	Track	ked win	dow	sample	rig		Field Crew	RP Drilling	Logged By JJM	Checked B DWN	y M
				pic	0			<u>ح</u>	55141		

#### **APPENDIX C**

Ground gas and groundwater monitoring records
IOB DETAIL	s								
Sito	Camden Lo		ndon			Job No:	CG/18067A		
Data:	05/11/201/	t village, LO	nuon			Engineer:			
Time:	am	t .				Client	Walch Acco	riates	
nine.	ann					Client	waisii Asso	ciates	
METEOROI		TE INFORMA	TION						
METEOROE	OUICAL & JI								
State of grou	ind:	Dry	х	Moist		Wet		)	
-									
Wind:		Calm		Light	Х	Moderate		Strong	
Cloud cover:		None		Slight		Cloudy		Overcast	х
						-			
Precipitation	:	None	Х	Slight		Moderate		Heavy	
				Lo	cal			. (0.0)	_
Barometric p	pressure (mb):	999 to 1004		pressure	system*:	Rising	Air tempei	rature (°C):	
<b></b>	1			0.	<u>.</u>	CH.			
Well No.	Time (s)	Flow (I/hr)	dA (PA)	(% vol. in	(% vol. in	(% vol. in	PID	Depth to	Comments
				air)	air)	air)	(ppm)	GW (mbgl)	
	0	NR	NR	NR	NR	NR	NR	NR	Borehole covered by
	15								parked cars - unable to
	30								monitor
	45								
0.110	60								
BH2	90								
1	120				<u> </u>				
	180								
	240								
	300								
	0	2.2	8.0	13.7	1.6	<0.1	NR	4.10	Base of borehole at
	15	0.4	1.0	13.6	1.6	<0.1			5.10mbgl
	30	0.2	1.0	13.5	1.7	<0.1			Audible flow on
	45	0.3	1.0	13.7	1.6	<0.1			opening gas tap (niss of
BH3	90	0.2	0.0	13.9	1.0	<0.1			gasj
DIIS	120	0.1	0.0	14.5	1.4	<0.1			
	150			16.3	0.8	<0.1			
	180			16.7	0.7	<0.1			
	240			17.2	0.6	<0.1			
	300			18.2	0.2	<0.1			
	1						1		
	0	NR	NR	NR	NR	NR	NR	NR	Borenole not
	15								completed at time of
	45								VISIL
	60								
BH4	90								
	120								
	150								
	180								
	240								
	500	1			1	1		I	1
t -	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
1	15								completed at time of
1	30								visit
1	45								
	60								
BH2	90				<u> </u>		-		
1	120			L					
1	180								
1	240				1				1
	300								
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
1	15								completed at time of
1	30				<u> </u>				visit
1	45	-			<u> </u>	-			
BH6	90	<u> </u>				<u> </u>			
	120				l				1
1	150								
1	180								
1	240				ļ				
	300								
I									

Notes:

IOB DETAIL	c								
Site	Camden Lo	rk Village Tor	ndon			Job No:	CG/18067A		
Date:	05/11/2014	l	laon			Engineer:	TOP		
Time:	am					Client	Walsh Asso	iates	
	-								
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	nd:	Drv	x	Moist	ĺ	Wet	[		
Wind <sup>.</sup>		Calm		Light	x	Moderate		Strong	
		Nana		Cliebt	~			Ourseast	
Cloud cover:		None		Slight		Cloudy		Overcast	×
Precipitation	:	None	Х	Slight Lo	cal	Moderate		Heavy	
Barometric p	ressure (mb):	999 to 1004		pressure	system*:	Rising	Air temper	ature (°C):	7
				0	<u> </u>	CH			
Well No.	Time (s)	Flow (l/hr)	dA (PA)	02 (% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15					ļ			completed at time of
	30								visit
	45					ļ			
D.1.7	60					<del> </del>			
BH7	90								
	120								
	190								
	2/0					<u> </u>			
	300								
	300								
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								
	60								
BH8	90								
	120								
	150								
	180								
	240								
	300								
					1	1			
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								
DUO	60								
DH3	90								
	120								
1	180					1			
	240					İ			
1	300								
I	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
1	30								visit
1	45			ļ		ļ	ļ		
	60					ļ			
BH10	90					ļ			
	120					<u> </u>			
1	150	├───							
1	240					<u> </u>			
	300					<u> </u>			
<u> </u>	500	1			1				
<u> </u>	0	<0.1	0.0	16.0	2.3	<0.1	NR	0.92	Base of borehole at
1	15	<0.1	0.0	15.6	2.4	<0.1			1.30mbgl
	30	<0.1	0.0	15.5	2.4	<0.1			
	45	<0.1	0.0	15.4	2.5	<0.1			
1	60	<0.1	0.0	15.3	2.5	<0.1			
WS4	90	<0.1	0.0	15.3	2.6	<0.1			
	120	<0.1	0.0	15.3	2.6	<0.1			
1	150			15.3	2.6	<0.1			
1	180			15.3	2.6	<0.1			
1	240			15.4	2.5	<0.1			
I	300			15.5	2.4	<0.1	l		
1									

Notes:

IOB DETAIL	s								
Site.	.J Camden Lo	rk Village Tor	ndon			Job No:	CG/18067A		
Date:	05/11/2014	l	laon			Engineer:	TOP		
Time:	am					Client	Walsh Asso	ciates	
METEOROL	OGICAL & SI	TE INFORMA	TION						
						_		_	
State of grou	ind:	Dry	Х	Moist		Wet			
		-				_		_	
Wind:		Calm		Light	х	Moderate		Strong	
						-		_	
Cloud cover:		None		Slight		Cloudy		Overcast	Х
		r		1	-	-		-	
Precipitation	:	None	Х	Slight		Moderate		Heavy	
				Lo	cal				
Barometric p	ressure (mb):	999 to 1004		pressure	system*:	Rising	Air tempe	rature (°C):	7
r	1			0.	<u>.</u>	CH.			
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in	(% vol. in	(% vol. in	PID	Depth to	Comments
		,		air)	air)	air)	(ppm)	GW (mbgl)	
	0	<0.1	0.0	18.7	2.0	<0.1	NR	2.15	Base of borehole at
	15	<0.1	0.0	18.5	2.0	<0.1			2.67mbgl
1	30	<0.1	0.0	18.4	2.1	<0.1			
1	45	<0.1	0.0	18.3	2.2	<0.1			
14/05	60	<0.1	0.0	18.3	2.2	<0.1			
W\$5	90	<0.1	0.0	18.1	2.3	<0.1			
1	120	<0.1	0.0	18.0	2.0	<0.1		<u> </u>	
1	180			18.0	2.0	<0.1			
	240			18.1	2.4	<0.1			
	300			18.5	2.0	<0.1			
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								
NUCC.	60								
W36	90								
	120								
	130								
	240								
	300								
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								
W/\$7	90								
	120								
	150								
1	180								
	240								
L	300								
	^	ND	ND	NC			NO	ND	Poroholo not
1	10	NK	NK	NK	NK	NK	NK	NK	completed at time of
1	30								vicit
1	45					t			•.510
1	60					1			
WS8	90								
1	120								
1	150	]				ļ			
1	180					<u> </u>			
1	240								
<u> </u>	500	1			1	1		1	
<u> </u>	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
1	15								completed at time of
1	30								visit
1	45								
1	60								
WS9	90								
1	120					<u> </u>			
1	150					<u> </u>	-		
1	240					<u> </u>			
1	300					<u> </u>			
F	200	1		C			C		
L									

Notes:

IOB DETAIL	OB DETAILS									
JOB DETAIL	3 Comdon Lou		adan			Job No.	CC/19067A			
Sile.	10/11/2014	i village, LUI	luon			JOD NO. CG/18067A				
Date. Timo:	19/11/2014					Client	Walch Accor	intor		
nme.	08.30					Client	Waish Assoc	lates		
METEOROL			TION							
WEIEOROL	UGICAL & SI									
Charles	- 41	Dest		Maist	v	Wat				
State of grou	na:	Dry		WOISt	X	wet				
						1				
Wind:		Calm	Х	Light		Moderate		Strong		
				I.		1		1		
Cloud cover:		None		Slight		Cloudy	Х	Overcast		
Precipitation	:	None	Х	Slight		Moderate		Heavy		
				Lo	cal					
Barometric p	ressure (mb):	1016-1019		pressure	system*:	Rising	Air temper	ature (°C):	8	
I				02	CO <sub>2</sub>	CH <sub>4</sub>	PID	Depth to		
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in	(% vol. in	(% vol. in	(ppm)	GW (mbgl)	Comments	
				air)	air)	air)	(PP)	···· (····8·)		
	0	NR	NR	NR	NR	NR	NR	NR	Unable to access	
1	15								borehole	
1	30									
1	45									
D.112	60									
BH2	90									
1	120									
1	150									
1	180									
1	240									
<b>├</b> ──	300					l	I			
F	٥	12	20	12.9	1 0	<0 1	ND	2 21	Base of horehole at	
	15	201	0.0	13.5	1.0	<0.1	NIX.	3.31	5 06mbal	
	30	<0.1	0.0	13.3	1.9	<0.1			3.00mbgi	
	45	<0.1	0.0	13.5	1.5	<0.1				
	60	<0.1	0.0	14.6	1.0	<0.1				
BH3	90	<0.1	0.0	14.4	1.5	<0.1			-	
	120	<0.1	0.0	15.6	1.5	<0.1			-	
	150			16.6	0.9	<0.1				
	180			16.8	0.9	<0.1				
	240			17.5	0.7	<0.1				
	300			17.9	0.7	< 0.1				
	0	NR	NR	NR	NR	NR	NR	NR	Unable to access	
	15								borehole	
	30									
	45									
	60									
BH4	90									
	120									
1	150									
1	180									
1	240									
L	300									
L	0	ND	ND	NP	NID	ND	ND	ND	Linable to access	
1	15	INK	INK	INK	NK	INK	INK	INK	horeholo	
1	30								DOLGHOIG	
1	45									
1	60									
BH5	90									
	120									
1	150									
1	180									
1	240									
1	300				l					
ſ	0	NR	NR	NR	NR	NR	NR	NR	Unable to access	
1	15								borehole	
1	30									
1	45									
1	60									
BH6	90									
1	120									
1	150									
1	180					ļ				
1	240									
L	300									
I										

Notes:

IOB DETAIL	s								
Site:	Camden Lo	ck Village, Lor	ndon			Job No:	CG/18067A		
Date:	19/11/2014					Engineer:	TOP		
Time:	08:30					Client	Walsh Asso	ciates	
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	nd:	Dry		Moist	х	Wet		]	
Wind:		Calm	Х	Light		Moderate		Strong	
Cloud cover:		None		Slight		Cloudy	Х	Overcast	
Precipitation	:	None	Х	Slight	cal	Moderate		Heavy	
Barometric p	ressure (mb):	1016-1019		pressure	system*:	Rising	Air temper	rature (°C):	8
				0		CH			
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	17.0	1.0	<0.1	NR	7.45	Base of borehole at
1	15	<0.1	0.0	16.8	1.3	<0.1			7.5mbgl
1	30	<0.1	0.0	16.0	1.6	<0.1			
1	45	<0.1	0.0	15.6	1.7	<0.1			
0.117	60	<0.1	0.0	15.4	1.7	<0.1			
BH7	90	<0.1	0.0	15.2	1.8	<0.1			
1	120	<0.1	0.0	15.1	1.8	<0.1			
1	120			15.1	1.ð 1.2	<0.1			
	240			15.0	1.0	<0.1			
	240			15.0	1.0	<0.1			
	300			13.0	1.0	NU.1			
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45	1							VISIC
	60								
BH8	90								
5110	120								
	150								
	180								
	240	1							
	300								
		1 1							
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								Viole
	60	1							
BH9	90								
5115	120								
1	150				1	1	1		
1	180				1	1	1		
1	240				1	1	1		
1	300					1	1		
<u> </u>		1			1			1 1	
1	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
1	15								completed at time of
1	30				1	İ	İ		visit
1	45				1	İ	İ		
1	60				1	İ	İ		
BH10	90				İ	1	1		
1	120				İ	1	1		
1	150				İ	1	1		
1	180				İ	1	1		
1	240								
	300								
	0	<0.1	0.0	15.9	2.3	<0.1	NR	0.65	Base of borehole at
1	15	<0.1	0.0	15.7	2.3	<0.1			1.30mbgl
1	30	<0.1	0.0	15.6	2.3	<0.1			
1	45	<0.1	0.0	15.5	2.3	<0.1			
1	60	<0.1	0.0	15.5	2.3	<0.1			
WS4	90	<0.1	0.0	15.5	2.3	<0.1			
1	120	<0.1	0.0	15.5	2.3	<0.1			
1	150			15.5	2.3	<0.1			
1	180			15.6	2.3	<0.1			
1	240			15.8	2.3	<0.1			
L	300	Ι		15.9	2.3	<0.1			

Notes:

JOB DETAIL	.s								
Site:	Camden Lo	ck Village, Lo	ndon			Job No:	CG/18067A		
Date:	19/11/2014	ļ				Engineer:	ТОР		
Time:	08:30					Client	Walsh Asso	ciates	
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	ınd:	Dry		Moist	Х	Wet		]	
Wind:		Calm	Х	Light		Moderate		Strong	
Cloud cover:		None		Slight		Cloudy	х	Overcast	
Precipitation	1:	None	х	Slight		Moderate		Heavy	
Barometric p	oressure (mb):	1016-1019		Lo	system*:	Rising	Air tempe	rature (°C):	8
Well No.	Time (s)	Flow (l/hr)	dA (PA)	O₂ (% vol. in air)	CO <sub>2</sub> (% vol. in air)	CH <sub>4</sub> (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
-	0	<0.1	0.0	18.0	0.2	<0.1	NR	2.26	Base of borehole at
	15	<0.1	0.0	17.9	0.2	<0.1	NIX	2.20	2.59mbgl
	30	<0.1	0.0	17.8	0.2	<0.1			
1	45	<0.1	0.0	17.8	0.2	<0.1			
1	60	<0.1	0.0	17.8	0.2	<0.1			
WS5	90	<0.1	0.0	7.7	0.3	<0.1			
	120	<0.1	0.0	17.7	0.4	<0.1			
	150	-0.1	0.0	17.7	0.4	<0.1			
1	180			17.8	0.4	<0.1			
	240			18.0	0.4	<0.1			
	240			10.0	0.4	<0.1			
	500			16.4	0.4	٥.1			
	0	-0.1	0.0	10.7	2.1	-0.1	ND	0.62	Pass of borobolo at
	15	<0.1	0.0	10.2	3.1	<0.1	INK	0.62	Dase of Dorehole at
	15	<0.1	0.0	17.9	3.6	<0.1			2.06mbgi
	30	<0.1	0.0	17.7	4.0	<0.1			
	45	<0.1	0.0	17.7	4.2	<0.1		-	
	60	<0.1	0.0	17.4	4.4	<0.1			
WS6	90	<0.1	0.0	17.3	4.4	<0.1			
	120	<0.1	0.0	17.4	4.2	<0.1			
	150			17.5	4.1	<0.1			
	180			17.4	4.3	<0.1			
	240	-		18.1	2.1	<0.1		-	
	300			19.3	0.0	<0.1			
	0	NR	NR	NR	NR	NR	NR	NR	Unable to access
	15								borenole
	30								
	45								
	60								
WS7	90								
	120								
	150								
	180								
	240								
L	300				1				
L	-	-				-			Deve of the third
1	0	<0.1	0.0	19.2	0.1	<0.1	NR	0.46	Base of borehole at
	15	<0.1	0.0	19.5	<0.1	<0.1			2.06mbgl
1	30	<0.1	0.0	19.6	<0.1	<0.1			
	45	<0.1	0.0	19.6	<0.1	<0.1			
	60	<0.1	0.0	19.8	<0.1	<0.1			
WS8	90	<0.1	0.0	19.7	<0.1	<0.1			
1	120	<0.1	0.0	19.7	<0.1	<0.1			
	150			19.7	<0.1	<0.1			
1	180			19.7	<0.1	<0.1			
	240			19.7	<0.1	<0.1			
L	300			19.7	<0.1	<0.1			
L	1		1		1		1		
1	0	<0.1	0.0	19.9	<0.1	<0.1	NR	1.20	Base of borehole at
	15	<0.1	0.0	19.9	<0.1	<0.1			2.93mbgl
1	30	<0.1	0.0	19.9	< 0.1	<0.1			
1	45	<0.1	0.0	19.9	< 0.1	<0.1			
1	60	<0.1	0.0	19.9	< 0.1	<0.1			
WS9	90	<0.1	0.0	19.9	<0.1	< 0.1			
1	120	<0.1	0.0	19.9	<0.1	<0.1			
1	150			19.9	<0.1	<0.1			
1	180			19.7	0.1	<0.1			
1	240			19.5	0.5	<0.1			
1	300			19.7	0.3	<0.1			
r		•	•	•	•	•		•	

Notes:

	<u>,</u>										
JOB DETAIL	S.	-l-Millerer Lev				Lab Mar	CC /100C74				
Site:	Camden Lo	ck village, Loi	ndon			JOD NO:	CG/18067A	1			
Date:	01/12/2014	ł				Eligineer. TOP					
Time:	06:30					Client	waish Asso	ciates			
METEOROL	UGICAL & SI	TE INFORMA	TION								
State of grou	und:	Drv	x	Moist		Wet		ר			
State of grou	inu.	Diy	~	WORSt		wet		_			
Wind:		Calm		Light		Moderate	х	Strong			
·····		cum		2.9.10		moderate	~	strong			
Cloud cover:		None		Slight		Cloudy		Overcast	х		
								-			
Precipitation	:	None	Х	Slight		Moderate		Heavy			
				Lo	cal	-					
Barometric p	pressure (mb):	1014		pressure	system*:	Rising	Air tempe	rature (°C):	8		
	1	1		0	60	CH CH					
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol in	(% vol in	(% vol in	PID	Depth to	Comments		
			u. ( , , , ,	air)	air)	air)	(ppm)	GW (mbgl)			
	0	<0.1	0.0	12.3	2.2	<0.1	NR	7.60	Base of borehole at		
	15	<0.1	0.0	12.6	2.1	<0.1			9.93mbgl		
	30	<0.1	0.0	13.1	1.6	< 0.1			-		
	45	<0.1	0.0	16.3	0.9	<0.1					
	60	<0.1	0.0	16.4	0.8	<0.1					
BH2	90	<0.1	0.0	17.2	0.4	<0.1					
	120	<0.1	0.0	17.6	0.7	<0.1					
	150			17.9	0.6	<0.1					
	180			18.0	0.6	< 0.1					
	240			18.8	0.4	<0.1					
	300			18.8	0.4	<0.1					
	0	<0.1	0.0	16.6	17	<0.1	NR	2.80	Base of horehole at		
	15	<0.1	0.0	16.3	1.7	<0.1	ININ	2.00	5 05mbgl		
	30	<0.1	0.0	16.3	1.7	<0.1			5105111061		
	45	<0.1	0.0	16.4	1.7	<0.1					
	60	<0.1	0.0	16.3	1.7	<0.1					
BH3	90	<0.1	0.0	16.3	1.8	< 0.1					
	120	<0.1	0.0	16.2	1.8	<0.1					
	150			16.2	1.9	< 0.1					
	180			16.2	1.9	<0.1					
	240			16.1	2.0	<0.1					
	300			16.0	2.1	<0.1					
	0	-0.1	0.0	10.0	0.2	-0.1	ND	1 10	Dasa of borobala at		
	15	<0.1	0.0	18.9	0.3	<0.1	NK	1.18	Pase of Dorenoie at		
	30	<0.1	0.0	18.0	0.2	<0.1			0.50110gi		
	45	<0.1	0.0	19.0	0.2	<0.1					
	60	<0.1	0.0	19.0	0.2	<0.1					
BH4	90	<0.1	0.0	19.1	0.2	<0.1					
	120	<0.1	0.0	19.2	0.2	<0.1					
	150			19.2	0.1	<0.1					
	180			19.3	0.1	<0.1					
	240			19.3	0.1	<0.1					
	300			19.3	0.1	<0.1					
	0	-0.1	0.0	10.5	0.0	-0.1	ND	4.70	Pace of borobolo at		
	15	<0.1	0.0	18.5	0.9	<0.1	NK	4.79	7 E6mbal		
	30	<0.1	0.0	16.1	1.5	<0.1			7.50Hugi		
	45	<0.1	0.0	15.0	23	<0.1					
	60	<0.1	0.0	14.2	2.7	<0.1					
BH5	90	<0.1	0.0	13.7	2.9	<0.1					
	120	<0.1	0.0	13.5	3.0	<0.1					
	150			13.4	3.0	<0.1					
	180			13.4	3.1	<0.1					
	240			13.4	3.1	<0.1					
	300			13.4	3.1	<0.1					
	_								11		
	0	NK	NR	NK	NK	NR	NR	NR	Unable to access		
	20								DOLEHOIE		
	30										
1	60										
BH6	90										
	120							1			
	150			1	1						
	180										
	240										
L	300										
1											

Notes:

IOB DETAIL	s								
Site:	Camden Lo	ck Village, Loi	ndon			Job No:	CG/18067A		
Date:	01/12/2014					Engineer:	TOP		
Time:	06:30					Client	Walsh Asso	ciates	
-									
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	und:	Dry	Х	Moist		Wet		l	
Wind:		Calm		Light		Moderate	Х	Strong	
Cloud cover:		None		Slight		Cloudy		Overcast	Х
Precipitation	1:	None	Х	Slight	cal	Moderate		Heavy	
Barometric p	pressure (mb):	1014		pressure	system*:	Rising	Air temper	ature (°C):	8
		1		0.	<u>(0</u> ,	CH.			
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	14.9	2.3	<0.1	NR	7.24	Base of borehole at
1	15	<0.1	0.0	14.6	2.4	<0.1			7.52mbgl
1	30	<0.1	0.0	14.6	2.4	<0.1			
	45	<0.1	0.0	14.5	2.4	<0.1			
<b>DU7</b>	60	<0.1	0.0	14.5	2.4	<0.1			
DH/	90	<0.1	0.0	14.5 17 E	2.4	<0.1			
1	120	<u>\</u> 0.1	0.0	14.5	2.4 2.4	<0.1			
1	180			14.5	2.4	<0.1			
	240			14.5	2.4	<0.1			
	300			14.4	2.4	<0.1			
	500			14.4	2.4	40.1			
	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
	15								completed at time of
	30								visit
	45								
	60								
BH8	90								
	120								
	150								
	180								
	240								
	300								
									Derehale not
	15	NK	NK	NK	NK	NK	NK	NK	completed at time of
	20								vicit
	45								VISIL
	60								
BH9	90								
-	120								
	150								
1	180								
1	240								
I	300								
I									
1	0	NR	NR	NR	NR	NR	NR	NR	Borehole not
1	15							-	completed at time of
1	30								visit
1	45								
BH10	00								
0110	120								
1	150								
1	180								
1	240				1	1			
	300								
1	0	<0.1	0.0	15.5	2.3	<0.1	NR	0.67	Base of borehole at
1	15	<0.1	0.0	15.4	2.3	<0.1			1.3mbgl
1	30	<0.1	0.0	15.4	2.3	<0.1			
1	45	<0.1	0.0	15.4	2.3	<0.1			
14/5 4	60	<0.1	0.0	15.3	2.3	<0.1			
WS4	90	<0.1	0.0	15.3	2.3	<0.1			
1	120	<0.1	0.0	15.3	2.3	<0.1			
1	150			15.4	2.2	<0.1			
1	180			15.4	2.2	<0.1			
1	300			15.8	2.1	<0.1			
<u> </u>	500			10.0	£.±	·0.1	1		

Notes:

JOB DETAIL	.s					_			
Site:	Camden Lo	ck Village, Lor	ndon			Job No:	CG/180674	1	
Date: Timo:	01/12/2014	1				Engineer:	TOP Walch Acco	ciator	
nine.	00.30					Client	Walsh Asso	Judies	
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	ınd:	Dry	х	Moist	[	Wet		ו	
Wind		Calm		Light		Moderate	x	Strong	
er i		cuini [					X		
Cloud cover:		None		Slight		Cloudy		Overcast	
Precipitation	::	None	Х	Slight Lo	cal	Moderate		Heavy	
Barometric p	oressure (mb):	1014		pressure	system*:	Rising	Air tempe	erature (°C):	8
				0,	CO.	CH.	1		
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	18.8	2.3	<0.1	NR	2.03	Base of borehole at
	15	<0.1	0.0	18.9	2.4	<0.1			2.67mbgl
	30	<0.1	0.0	18.4	2.4	<0.1			
	45	<0.1	0.0	17.9	2.5	<0.1			
14/CF	60	<0.1	0.0	17.9	2.5	<0.1			
VV 55	90	<0.1	0.0	17.9	2.5	<0.1			
	150	<b>NO.1</b>	0.0	17.9	2.5	<0.1			
	180			18.0	2.3	<0.1			
	240			18.5	1.9	<0.1			
	300			18.9	1.5	<0.1			
	0	-0.1	0.0	16.6	F 4	-0.1	ND	0.65	Pace of borobolo at
	15	<0.1	0.0	16.5	5.4	<0.1	INK	0.05	2 00mbal
	30	<0.1	0.0	16.8	4.7	<0.1			2.05110g1
	45	<0.1	0.0	17.2	4.2	<0.1			
	60	<0.1	0.0	17.4	3.9	<0.1			
WS6	90	<0.1	0.0	18.0	3.1	<0.1			
	120	<0.1	0.0	18.4	2.2	<0.1			
	150			18.7	1.8	<0.1			
	240			18.9	1.5	<0.1			
	300			19.5	0.6	<0.1			
	0	<0.1	0.0	16.9	2.6	<0.1	NR	1.27	Base of borehole at
	15	<0.1	0.0	17.9	1.0	<0.1			2.08mbgl
	30	<0.1	0.0	18.5	1.0	<0.1			
	60	<0.1	0.0	18.5	1.0	<0.1			
WS7	90	<0.1	0.0	18.5	1.0	<0.1			
	120	<0.1	0.0	18.5	1.0	<0.1			
	150								
	180								
	240								
	500	1		1	I	1		1	
	0	<0.1	0.0	19.0	< 0.1	<0.1	NR	0.51	Base of borehole at
	15	<0.1	0.0	19.0	<0.1	<0.1			2.06mbgl
	30	<0.1	0.0	19.0	< 0.1	< 0.1			
	45	<0.1	0.0	18.9	<0.1	<0.1			-
	60	<0.1	0.0	18.9	<0.1	<0.1		<u>                                     </u>	
WS8	90	<0.1	0.0	18.9	<0.1	<0.1			
	120	<0.1	0.0	18.9	<0.1	<0.1			
	180			18.9	<0.1	<0.1			
	240			18.9	<0.1	<0.1			
	300			18.9	<0.1	<0.1			
	1			r					
	0	<0.1	0.0	19.4	0.1	<0.1	NR	1.25	Base of borehole at
	20	<0.1	0.0	19.7	0.1	<0.1			2.78mbgl
l	5U 45	<0.1	0.0	19.7	0.1	<0.1			
	60	<0.1	0.0	19.8	0.1	<0.1			
WS9	90	<0.1	0.0	19.8	<0.1	<0.1		1	
	120	<0.1	0.0	19.8	< 0.1	< 0.1			
	150			19.8	<0.1	<0.1			
	180			19.8	<0.1	<0.1			
	240	<b>├</b> ───┤		19.8	<0.1	<0.1		+	
	300	1		19.8	<0.1	<0.1		1	

### Notes:

Size         Landen Lock Vilges London         Lob No:         CG(JB07A           Time:         07:00         Client         Wath Associates           METCOROUGCIAL & STE INFORMATION         Client         Wath Associates           METCOROUGCIAL & STE INFORMATION         X         Wet         Strong           State of ground:         Ory         Moist         X         Wet           Word:         Calm         Light         X         Moderate         Strong           Could cover:         None         X         Slight         Cloudy         Overcast         X           Precipitatic:         None         X         Slight         Gloudy         Overcast         X           Bationet/c presure inhit         0.01         40 (PA)         (Paulin	IOB DETAIL	s								
Date:         15/12/2014         Engineer.         10 <sup>n</sup> 07:00         Clast         Wolkh Associates           METCROLOGICAL & SITE INFORMATION           State of ground:         Dry         Moist         X         Wet	Site:	Camden Lo	ck Village, Loi	ndon			Job No:	CG/180674	4	
Time         07:00         Client         Webh Associates           METEOCIGICAL & SITE INFORMATION           State of ground:         Dry         Moist         X         Wet	Date:	18/12/2014	1				Engineer:	TOP		
Meteronological & Sire INFORMATION           State of ground:         Dy         Moist         X         Wet         Strong           Word:         Caln         Light         X         Moderate         Strong	Time:	07:00					Client	Walsh Asso	ociates	
MITTERCOLOGICAL & SITE INFORMATION           State of ground:         Dry         Moist         X         Wet         Strong           Wind:         Caln         Light         X         Moderate         Strong										
State of ground:         Dr         Moist         X         Wet           Wind:         Cala         Light         X         Moderate         Strong           Coul cover:         None         Slight         Couly         Overcast         X           Procipitation:         None         X         Slight         Couly         Overcast         X           Baronetric pressure (mb)         1003 - 1004         pressure writem*         Rising         Al temperature (°C):         13           Well No.         Tme (n)         Nov (/nn)         AL (Prov         Nov (/nn)         Nov (/nn)         Nov (/nn)           0         0.01         1.78         2.00         -0.1         NN         6.72         Base of Soreholes at           10         0.01         1.77         2.11         -0.1         -0         1.0mbgl           10.0         0.01         1.75         2.22         -0.1         -0         1.0mbgl           10.0         0.01         1.75         2.22         -0.1         NN         2.23         Base of Soreholes at           10.0         0.01         1.75         2.22         -0.1         NN         2.23         Base of Soreholes at           10.0<	METEOROL	OGICAL & SI	TE INFORMA	TION						
Wind:         Cala         Light         X         Moderate         Strong            Coul cover:         None         X         Sight         Couldy         Overcast         X           Precipitation:         None         X         Sight         Moderate         Heavy            Barenetric pressure (mb):         1003 · 1004         Precipitation:         Keine         At temperature (C):         13           Well No.         Tme (a)         Prow (//m)         64 (PA)         (p)         (p)         contents            0         0         0.01         1.78         2.0         -0.1         NR         6.72         Base of borehole at 120           30         0.01         0.00         1.77         2.1         -0.1         NR         6.72         Base of borehole at 120         100         1.75         2.2         -0.1         NR         120         -0.1         0.00         1.75         2.2         -0.1         NR         2.03         NR         120         NR         120         -0.1         1.00         1.75         2.2         -0.1         NR         1.00         1.00         1.75         2.2         -0.1         NR         2.03 <td>State of grou</td> <td>ınd:</td> <td>Dry</td> <td></td> <td>Moist</td> <td>Х</td> <td>Wet</td> <td></td> <td>]</td> <td></td>	State of grou	ınd:	Dry		Moist	Х	Wet		]	
Cloud cover:         None         Slight         Cloudy         Overcist         X           Precipitation:         None         X         Slight         Moderate         Heavy	Wind:		Calm		Light	х	Moderate		Strong	
Precipitation:         None         X         Slight         Moderate         Heavy         Image: state           Barometric pressure (mb):         1003 - 1004         pressure system*:         Rain         Afr temperature ("G):         13           Wel No.         Time (a)         flow (I/M)         dA (PA)         (Vec. in art)         Vec. in art)         Afr temperature ("G):         13           10         -0.1         0.0         17.8         2.0         -0.1         NR         6.72         Base of borehole at 100mbgl           115         -0.1         0.0         17.6         2.21         -0.1         NR         6.72         Base of borehole at 100mbgl           120         -0.1         0.0         17.5         2.22         -0.11         NR         2.23         -0.11         NR         100mbgl         100mbgl           130         0.0         17.5         2.22         -0.11         NR         2.23         Base of borehole at 5.09mbgl           130         0.0         17.5         2.22         -0.11         NR         2.23         Base of borehole at 5.09mbgl           140         0.20         1.6.1         1.4         -0.1         NR         2.23         Base of borehole at 5.09mbgl </td <td>Cloud cover:</td> <td></td> <td>None</td> <td></td> <td>Slight</td> <td></td> <td>Cloudy</td> <td></td> <td>Overcast</td> <td>Х</td>	Cloud cover:		None		Slight		Cloudy		Overcast	Х
Barometric pressure (mb):         1003 - 1004         pressure system*:         Keing         Air temperature (*C):         13           Well No.         Tme (s)         Row (//h)         dA (h)         (Kyc.)n	Precipitation	::	None	Х	Slight		Moderate		Heavy	
Well No.         Time (d)         Row (l/hr)         dA (PA)         (K vol. in air)         CO, air)         CAL (r)         PID (ppm)         Depth to (r)         Comments           0         <0.1	Barometric p	oressure (mb):	1003 - 1004		pressure	system*:	Rising	Air tempe	erature (°C):	13
Well No.         Time (b)         Prov (l/m)         Ad (PA)         (PA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA) (rA)         CO, (rA)         r>(rA)         CO, (rA)         CO, (r</thco, 										
0         0.1         0.0         17.8         2.0         6.01         NR         6.72         Base of borehole at 10mbgl           30         -0.1         0.0         17.7         2.1         -0.1         -         -         10mbgl           45         -0.1         0.0         17.7         2.1         -0.1         -         -         -           60         -0.1         0.0         17.6         2.1         -0.1         -         <	Well No.	Time (s)	Flow (l/hr)	dA (PA)	O <sub>2</sub> (% vol. in air)	CO <sub>2</sub> (% vol. in air)	CH₄ (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH2         15         0.01         10.77         2.1         0.01         10.1         10.1           45         0.01         0.00         17.7         2.1         0.01         -         -           90         0.01         0.00         17.6         2.1         0.01         -         -           120         0.01         0.00         17.5         2.2         0.01         -         -           130         -         17.5         2.2         0.01         -         -         -           240         -         17.5         2.2         0.1         -         -         -           300         -         17.5         2.2         0.1         -         -         -           300         -         17.5         2.2         0.1         -		0	<0.1	0.0	17.8	2.0	<0.1	NR	6.72	Base of borehole at
30         <0.1         0.0         17.7         2.1         <0.1         Image: constraint of the symbol o		15	<0.1	0.0	17.8	2.0	<0.1			10mbgl
A45         -0.1         0.0         17.7         2.1         -0.1         -           90         -0.1         0.0         17.6         2.2         -0.1         -         -           120         -0.1         0.0         17.5         2.2         -0.1         -         -           130         -         17.5         2.2         -0.1         -         -           240         -         17.5         2.2         -0.1         -         -           300         -         17.5         2.2         -0.1         -         -           300         -         17.5         2.2         -0.1         NR         2.23         Base of borehole at 5.09mbgl           301         -0.7         -4.0         14.2         2.1         -0.1         -		30	<0.1	0.0	17.7	2.1	<0.1			
BH2         60         <0.1         0.0         17.6         2.1         <0.1            120         <0.1		45	<0.1	0.0	17.7	2.1	<0.1			
bnc         30         40.1         0.00         17.5         2.2         <0.1            150         17.5         2.2         <0.1	DUD	60	<0.1	0.0	17.6	2.1	<0.1		+	
100         20.0         117.5         2.2         30.1         1           180         17.5         2.2         40.1         1         1           180         17.5         2.2         40.1         1         1           300         17.5         2.2         40.1         1         1           300         17.5         2.2         40.1         1         1           300         -0.4         2.0         14.0         2.2         40.1         1           15         -0.3         1.0         14.2         2.1         60.1         1         5.09mbgl           45         -0.8         4.0         15.6         1.6         60.1         1	BHZ	90	<0.1	0.0	17.6	2.2	<0.1			
180         175         22         40.1         Image: constraint of the second sec		120	<b>NO.1</b>	0.0	17.5	2.2	<0.1			
240         17.5         2.2         -0.1         NR         2.23           300         -0.4         -2.0         14.0         2.2         <0.1		180			17.5	2.2	<0.1			
300         17.5         2.2         <0.1         Image: constraint of the second s		240			17.5	2.2	<0.1			
0         0.4         -2.0         14.0         2.2         -0.1         NR         2.23         Base of borehole at 5.09mbgl           30         0.7         -4.0         14.2         2.1         <0.1		300			17.5	2.2	<0.1			
0         -0.4         -2.0         14.0         2.2         -0.1         NR         2.23         Base of borehole at 5.09mbgl           30         -0.7         -4.0         14.9         1.8         -0.1         -         5.09mbgl           45         -0.8         -4.0         156         1.6         -0.1         -         -           60         -0.4         -2.0         16.1         1.4         -0.1         -         -           120         -0.1        0         18.2         0.7         -0.1         -         -           130         -0.4         -2.0         18.2         0.7         -0.1         -         -           240         -0.7         -4.0         18.8         0.6         -0.1         -         -           300         0.0         0.0         18.9         0.5         -<0.1				-						
BH3         15         -0.3         -1.0         14.2         2.1         -0.1         -0.1         S.09mbgl           45         -0.8         -4.0         15.6         1.6         -0.1         -         -           90         -0.6         -3.0         17.4         0.9         -0.1         -         -           120         -0.1         -1.0         18.2         0.7         -         -         -           120         -0.1         -1.0         18.2         0.7         -         -         -           120         -0.1         -0.0         18.2         0.7         -         -         -           300         0.0         0.0         18.2         0.7         -         -         -           300         0.0         0.0         18.2         0.7         -         -         -           300         0.0         18.2         0.3         -         0.1         -		0	-0.4	-2.0	14.0	2.2	<0.1	NR	2.23	Base of borehole at
BH3         -0.7         -4.0         14.9         1.8         -0.1         -           BH3         -00         -0.6         -3.0         15.6         1.6         1.6         -         -           120         -0.1         -1.0         18.2         0.7         <0.1		15	-0.3	-1.0	14.2	2.1	<0.1			5.09mbgl
H3         -0.6         -4.0         13.0         1.0         -0.0           90         -0.6         -3.0         17.4         0.9         -0.1         -           120         -0.1         -1.0         18.2         0.7         -0.1         -         -           150         -0.3         -2.0         17.8         0.8         -0.1         -         -           180         -0.4         -2.0         18.2         0.7         -0.1         -         -           300         -0.7         -4.0         18.8         0.6         -0.1         -         -           300         0.0         10.0         18.9         0.5         -0.1         -         -           301         -0.1         0.0         19.3         0.2         -0.1         -         8.25mbgl           301         -0.1         0.0         19.3         0.2         -0.1         -         8.25mbgl           301         -0.1         0.0         19.7         0.1         -0.1         -         8.25mbgl           150         -         19.7         0.1         -0.1         -         -         8.25mbgl           300 <td></td> <td>30</td> <td>-0.7</td> <td>-4.0</td> <td>14.9</td> <td>1.8</td> <td>&lt;0.1</td> <td></td> <td>-</td> <td></td>		30	-0.7	-4.0	14.9	1.8	<0.1		-	
BH3         30         -0.6         -3.0         17.4         0.9         -0.1         Image: constraint of the state of the st		45 60	-0.8	-4.0	15.0	1.0	<0.1			
120         -0.1         -1.0         18.2         0.7         <0.1            150         -0.3         -2.0         17.8         0.8         <0.1	BH3	90	-0.6	-3.0	17.4	0.9	<0.1			
150         -0.3         -2.0         17.8         0.8         <0.1         Image: constraint of the state of	-	120	-0.1	-1.0	18.2	0.7	<0.1			
180         -0.4         -2.0         18.2         0.7         <0.1		150	-0.3	-2.0	17.8	0.8	<0.1			
240         -0.7         -4.0         18.8         0.6         <0.1		180	-0.4	-2.0	18.2	0.7	<0.1			
BH4         0         0.0         18.9         0.5         <0.1         NR         1.36         Base of borehole at 8.25mbgl           BH4         15         <0.1		240	-0.7	-4.0	18.8	0.6	<0.1			
0         <0.1         0.0         17.9         0.4         <0.1         NR         1.36         Base of borehole at 8.25mbgl           30         <0.1		300	0.0	0.0	18.9	0.5	<0.1			
International and the second		0	<0.1	0.0	17.9	0.4	<0.1	NR	1.36	Base of borehole at
BH4         30         <0.1         0.0         19.0         0.2         <0.1            60         <0.1		15	<0.1	0.0	18.5	0.3	<0.1			8.25mbgl
H4         45         <0.1         0.0         19.3         0.2         <0.1            BH4         90         <0.1		30	<0.1	0.0	19.0	0.2	<0.1			
BH4         60         <0.1         0.0         19.5         0.1         <0.1         <0.1           120         <0.1		45	<0.1	0.0	19.3	0.2	<0.1			
Br4         90         <0.1         0.0         19.6         0.1         <0.1         <0.1             120         <0.1	DUIA	60	<0.1	0.0	19.5	0.1	<0.1			
Interface         Interface <thinterface< th="">         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         <thinterface< th="">         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         Interface         <thinterface< th=""> <thinterface< th=""> <thint< td=""><td>BH4</td><td>90</td><td>&lt;0.1</td><td>0.0</td><td>19.6</td><td>0.1</td><td>&lt;0.1</td><td></td><td></td><td></td></thint<></thinterface<></thinterface<></thinterface<></thinterface<>	BH4	90	<0.1	0.0	19.6	0.1	<0.1			
130         197         0.1         <0.1         <0.1         <0.1           240         19.8         0.1         <0.1		150	NU.1	0.0	19.7	0.1	<0.1			
240         19.8         0.1         <0.1         <0.1         <0.1           300         19.8         0.1         <0.1		180			19.7	0.1	<0.1			
300         19.8         0.1         <0.1         <0.1         <0.1           Image: strain of the strai		240			19.8	0.1	<0.1			
0         -0.7         -2.0         14.3         1.9         <0.1         NR         3.58         Base of borehole at 7.05mbgl           30         -0.4         -2.0         11.6         2.4         <0.1		300			19.8	0.1	<0.1			
0         -0.7         -2.0         14.3         1.9         <0.1         NR         3.58         base of borenole at 7.05mbgl           15         -1.0         -4.0         12.7         2.2         <0.1										<b>D</b> (1 1 1 1
BH5         -1.0         -4.0         12.7         2.2         -0.1         -7.05mbg           30         -0.4         -2.0         11.6         2.4         <0.1		0	-0.7	-2.0	14.3	1.9	<0.1	NR	3.58	Base of borenole at
BH5         0           11.0         2.1         0.1           60         -0.4         -2.0         11.4         2.4         <0.1		30	-1.0	-4.0	11.7	2.2	<0.1			7.05ITIbgi
60         -0.4         -2.0         11.2         2.5         <0.1            90         -0.4         -2.0         10.9         2.5         <0.1		45	-0.4	-2.0	11.0	2.4	<0.1			
BH5         90         -0.4         -2.0         10.9         2.5         <0.1         Image: constraint of the state of the st		60	-0.4	-2.0	11.2	2.5	<0.1			
120         -0.7         -3.0         10.8         2.5         <0.1         Image: constraint of the state of	BH5	90	-0.4	-2.0	10.9	2.5	<0.1			
150         -0.4         -2.0         10.7         2.6         <0.1           180         -1.2         -4.0         10.6         2.6         <0.1		120	-0.7	-3.0	10.8	2.5	<0.1			
180         -1.2         -4.0         10.6         2.6         <0.1         Image: constraint of the state of		150	-0.4	-2.0	10.7	2.6	<0.1			
240         -0.4         -2.0         10.5         2.6         <0.1         Image: constraint of the state of		180	-1.2	-4.0	10.6	2.6	<0.1		-	
0         <0.1         0.0         15.8         3.9         <0.1         NR         8.1         Base of borehole at 8.54mbgl           30         <0.1		240	-0.4	-2.0	10.5	2.6	<0.1			
0         <0.1         0.0         15.8         3.9         <0.1         NR         8.1         Base of borehole at 8.54mbgl           30         <0.1		500	-0.4	-2.0	10.4	2.0	NU.1			
15         <0.1         0.0         16.0         3.9         <0.1         8.54mbgl           30         <0.1		0	<0.1	0.0	15.8	3.9	<0.1	NR	8.1	Base of borehole at
30         <0.1         0.0         16.0         3.9         <0.1            45         <0.1		15	<0.1	0.0	16.0	3.9	<0.1			8.54mbgl
45         <0.1         0.0         16.0         4.0         <0.1           60         <0.1		30	<0.1	0.0	16.0	3.9	<0.1			
60         <0.1         0.0         16.0         4.0         <0.1           90         <0.1		45	<0.1	0.0	16.0	4.0	<0.1		$\square$	
Site         Site         COL         OU         16.0         4.0         COL         COL         Col </td <td>DUC</td> <td>60</td> <td>&lt;0.1</td> <td>0.0</td> <td>16.0</td> <td>4.0</td> <td>&lt;0.1</td> <td></td> <td>+</td> <td></td>	DUC	60	<0.1	0.0	16.0	4.0	<0.1		+	
120         50.1         0.0         10.0         5.9         50.1           150         16.0         3.9         <0.1	вно	90	<0.1	0.0	16.0	4.0	<0.1			
180         16.0         3.9         <0.1           240         16.0         3.9         <0.1		120	<u.1< td=""><td>0.0</td><td>16.0</td><td>3.9</td><td>&lt;0.1</td><td></td><td>+</td><td></td></u.1<>	0.0	16.0	3.9	<0.1		+	
240         16.0         3.9         <0.1           300         16.0         4.0         <0.1		180			16.0	3.9	<0.1			
300 16.0 4.0 <0.1		240			16.0	3.9	<0.1			
		300			16.0	4.0	<0.1			

Notes:

Site:         Camber Lock Vilage, London         Upb No:         CG/1907A           Trace:         07:00         Engineer:         TOP           Trace:         07:00         Client         Walsh Associates           METCONCOGCL & STE INFORMATION         Ellent         Walsh Associates           MettonOSCLA & STE INFORMATION         X         Wet         Strong           MettonOSCLA & STE INFORMATION         X         Wet         Strong         Strong           More:         Colin         Light         X         Moderate         Strong           Could cover:         None         X         Slight         Could note:         Heavy           Recipitation:         None         X         Slight         Could note:         Heavy           Recipitation:         None         X         Slight         Could note:         Heavy           Recipitation:         None         X         Slight         Could Note:         Heavy           Recipitation:         None         X         Slight         Could Note:         Heavy           Recipitation:         None         X         Slight         Could Note:         Heavy           Recipitation:         None         X         Slight <th>JOB DETAIL</th> <th>s</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	JOB DETAIL	s								
Date:         Ingine:         Topic         Noise         Noise         Noise           MUTCONUCCICLI & SITE INFORMATION         Image: Site information informatinformatinformation information information information informatio	Site:	Camden Lo	ck Village, Loi	ndon			Job No:	CG/18067A	١	
Time         [07:00         Client         Walch Associates           METEOROGICAL & SITE INFORMATION           State of ground:         Dry         Moist         X         Wet	Date:	18/12/2014	1				Engineer:	ТОР		
METROROLOGICAL & SITT INFORMATION           State of ground:         Dry         Moist         X         Wet           Wind:         Caln         Light         X         Moderate         Strong           Cloud cover:         None         Slight         Cloudy         Overcast         X           Procipitation:         None         X         Slight         Cloudy         Overcast         X           Rarometric pressure (mb)         1003 - 1004         pressure system*1         Rising         Air temperature (*C):         13           Well No.         Tmc (n)         Rew (Mrr)         AA (PA)         (% vol. in all all all all all all all all all al	Time:	07:00					Client	Walsh Asso	ociates	
Intervence         Image: Strong of the strong of the	METEOROI			TION						
State of ground:         Dry         Moist         X         Wet           Wind:         Calm         Light         X         Moderate         Strong           Clud cover:         None         Sight         Cloudy         Overcast         X           Precipitation:         None         X         Sight         Cloudy         Overcast         X           Precipitation:         None         X         Sight         Cloudy         Overcast         X           Rememetric pressure (mb):         1033 - 1004         pressure system":         Rising         All temperature ("C):         13           0         <0.0	WIETEOROL	UGICAL & JI								
Mnd:         Calm         Ught         X         Moderate         Strong           Cour cover:         None         Sight         Coudy         Overcast         X           Procipitation:         None         X         Sight         Coudy         Overcast         X           Ramentrik pressure (mb):         1003 - 1004         pressure system*:         Rising         Air temperature (°C):         13           Well No.         Tme (a)         foor (//m)         Ad. (PA)         (% vai, in sign)         for (% vai, in sign)         Comments           0         0.01         0.00         7.7         1.9         -0.1         NN         7.01           30         0.01         0.00         17.6         2.0         -0.1         NN         7.01           60         -0.01         0.0         17.3         2.1         -0.1	State of grou	ınd:	Dry		Moist	Х	Wet		]	
Cloud cover:         None         Slight         Cloudy         Overal         X           Precipitation:         None         X         Slight         Moderate         Heavy	Wind:		Calm		Light	Х	Moderate		Strong	
Procipitation:         None         X         Slight         Moderate         Heavy         Heavy           Barometric pressure (mb):         1003-1004         pressure system*:         Rsing         Alt temperature (°C):         13           Well No.         Time (a)         Flow (h/h)         dA (PA)         (% oci, in a)         (% soi, in a)         (% soi, in a)         (% soi, in a)         (% soi, in a)         (% soi, in a)         (% soi, in a)         (% soi, in a)         NR         7.01         Base of borehole at 7.55mbgl           BH7         0         0.01         0.00         17.5         2.01         -0.01         NR         7.01         Base of borehole at 7.55mbgl           BH7         0.01         0.01         17.3         2.11         -0.01         NR         7.01         Pase of borehole at 7.55mbgl           BH7         0.01         0.01         17.3         2.11         -0.01         NR         16.52         Base of borehole at 2.60mbgl           130         -0.4         2.0         12.4         2.1         -0.01         NR         16.52         Base of borehole at 2.60mbgl           130         -0.6         3.0         11.0         12.2         -0.1         NR         16.52         Base of borehole at 2	Cloud cover:		None		Slight		Cloudy		Overcast	Х
Barometric pressure (m):         1003         pressure system*:         Raing         Air temperature (°C):         13           Well No.         Time (a)         Row (h/m)         de (h/m)         (de (s. a))         (fe soci in bit)	Precipitation	::	None	Х	Slight		Moderate		Heavy	
Well No.         Time (s)         Flow (l/hr)         dA (PA)         Oscience         CO. (N work, mark)         PD (mode)         Depth to (mode)         Comments           8         0         -0.1         0.0         17.5         2.0         -0.1         NR         7.01         Base of borehole at 2.55mitgl           8         -0.1         0.0         17.5         2.0         -0.1         NR         7.01         Base of borehole at 2.55mitgl           8         -0.1         0.0         17.4         2.1         -0.1         NR         7.01         2.55mitgl           90         -0.1         0.0         17.3         2.1         -0.1         NR         -0.1         NR         -0.1           100         -0.1         17.7         2.1         -0.1         NR         -0.1         -0.1         -0.1         -0.1         NR         -0.1         NR         -0.1         -0.1         -0.1         -0.1         NR         -0.1         NR         -0.1         -0.1         NR         -0.1         NR         -0.1         NR         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         -0.1         <	Barometric p	oressure (mb):	1003 - 1004		pressure	system*:	Rising	Air tempe	erature (°C):	13
Well No.         Time (d)         Flow (l/m)         dA (PA)         (PA) airl         (PA) (FX ocl. in airl         PD (in the output of airl         Depth is airl         Comments           0         -0.1         0.0         1.7         1.9         -0.1         NR         7.01         Base of borehole at 2.55mbgl           115         -0.01         0.00         17.75         2.0         -0.11         NR         7.01           20         -0.01         0.00         17.74         2.11         -0.01         NR         7.01           20         -0.01         0.00         17.74         2.11         -0.01         NR         -0.01           100         -0.01         0.00         17.73         2.11         -0.01         NR         -0.01           100         -0.01         10.0         17.72         2.11         -0.01         NR         16.52         Base of borehole at 26.0mbgl           200         -0.03         -1.0         12.0         2.22         -0.01         NR         16.52         Base of borehole at 26.0mbgl           115         -0.3         -1.0         11.8         2.22         -0.1         NR         16.52           120         -0.4         -2					-					
0         0.1         0.1         NR         7.01         Base of borehole at 7.55mbgl           BH7         0.0         0.0         17.5         2.0         0.01         NR         7.01         Base of borehole at 7.55mbgl           BH7         0.0         0.01         0.0         17.4         2.1         0.01         NR         7.55mbgl           200         c.0.1         0.0         17.4         2.1         40.1         NR         7.55mbgl           120         c.0.1         0.0         17.3         2.1         40.1         NR         16.52           120         c.0.1         0.0         17.7         2.2         40.1         NR         16.52           300         0.1         17.1         2.2         40.1         NR         16.52           30         0.6         -2.0         12.0         2.2         40.1         NR         16.52           45         0.6         -3.0         12.0         2.2         40.1         NR         16.52           15         0.3         -1.0         11.8         2.2         40.1         1.0         2.0           100         0.3         -1.0         11.7         2.	Well No.	Time (s)	Flow (I/hr)	dA (PA)	O <sub>2</sub> (% vol. in air)	CO <sub>2</sub> (% vol. in air)	CH₄ (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
Instrument         Instrument <thinstrument< th="">         Instrument         Instrume</thinstrument<>		0	<0.1	0.0	7.7	1.9	<0.1	NR	7.01	Base of borehole at
30         <0.1         0.0         17.4         2.0         <0.1            60         0.1         0.0         17.4         2.1         <0.1		15	<0.1	0.0	17.6	2.0	<0.1			7.55mbgl
H7         43         40.1         0.0         17.4         2.1         40.1         0.1           90         -0.1         0.0         17.3         2.1         40.1         0.1         0.1           100         -0.0         17.3         2.1         40.1         0.1 </td <td></td> <td>30</td> <td>&lt;0.1</td> <td>0.0</td> <td>17.5</td> <td>2.0</td> <td>&lt;0.1</td> <td></td> <td></td> <td></td>		30	<0.1	0.0	17.5	2.0	<0.1			
BH7         90         -0.1         0.0         17.3         2.1         -0.1         Image: constraint of the second s		45 60	<0.1	0.0	17.4	21	<0.1			
120         -0.1         0.0         17.2         2.1         -0.1         -           180         -         17.2         2.1         -0.1         -         -           240         -         17.2         2.1         -0.1         -         -           240         -         17.1         2.2         -0.1         -         -           300         -         17.1         2.2         -0.1         -         -         -           15         -0.3         -1.0         12.0         2.2         -0.1         -         -         26.0mbgl           30         -0.6         -3.0         12.0         2.2         -0.1         -         -         -         -         -         -         26.0mbgl         - <td>BH7</td> <td>90</td> <td>&lt;0.1</td> <td>0.0</td> <td>17.3</td> <td>2.1</td> <td>&lt;0.1</td> <td></td> <td></td> <td></td>	BH7	90	<0.1	0.0	17.3	2.1	<0.1			
150         17.2         2.1 <ul> <li>0.1</li> <li>240</li> <li>17.2</li> <li>2.1</li> <li>0.1</li> <li>17.2</li> <li>2.1</li> <li>0.1</li> <li>17.1</li> <li>2.2</li> <li>0.1</li> <li>17.1</li> <li>2.2</li> <li>0.1</li> <li>17.1</li> <li>2.2</li> <li>0.1</li> <li>17.1</li> <li>2.2</li> <li>0.1</li> <li>NR</li> <li>165.2</li> <li>Base of borehole at 26.0mbgl</li> <li>30</li> <li>-0.6</li> <li>2.0</li> <li>12.0</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li>0.1</li> <li>2.2</li> <li0.1< li=""> <li>2.2</li> <li0.1< li<="" td=""><td></td><td>120</td><td>&lt;0.1</td><td>0.0</td><td>17.3</td><td>2.1</td><td>&lt;0.1</td><td></td><td></td><td></td></li0.1<></li0.1<></ul>		120	<0.1	0.0	17.3	2.1	<0.1			
180         17.2         2.1         <0.1            300         17.1         2.2         <0.1		150			17.2	2.1	<0.1			
240         17.1         2.2         4.1         40.1         10.1           0         0.4         -2.0         12.4         2.1         -0.1         NR         16.52         Base of borehole at 26.0mbgl           15         0.3         -1.0         12.0         2.2         -0.1         NR         16.52         Base of borehole at 26.0mbgl           30         0.6         -2.0         11.20         2.2         -0.1          26.0mbgl           60         0.3         -1.0         11.9         2.2         -0.1             120         0.6         -3.0         11.8         2.2         -0.1             120         0.6         -3.0         11.8         2.2         -0.1             130         0.3         -1.0         11.7         2.2         -0.1             300         0.3         -1.0         11.7         2.2         -0.1           3.1.7           300         0.1         0.0         18.6         0.2         -0.1          3.1.7         3.1.7           150         0.1         0.0		180			17.2	2.1	<0.1			
0         -0.4         -2.0         12.4         2.1         -0.1         NR         16.52         Base of borehole at 26.0mbgl           30         -0.6         -2.0         12.0         2.2         -0.1         2.0         2.0         0.01         2.0         2.0         0.01         2.0         2.0         0.01         2.0         2.0         0.01         2.0         2.0         0.01         2.0         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         2.0         0.01         1.0 <td></td> <td>300</td> <td></td> <td></td> <td>17.2</td> <td>2.1</td> <td>&lt;0.1</td> <td></td> <td></td> <td></td>		300			17.2	2.1	<0.1			
0         0.4         -2.0         12.4         2.1         -0.1         NR         16.52         Base of borehole at 26.0mbgl           30         0.6         -2.0         12.0         2.2         <0.1		500			17.1	2.2	40.1			
15         -0.3         -1.0         12.0         2.2         <0.1         26.0mbgl           45         -0.6         -3.0         12.0         2.2         <0.1		0	-0.4	-2.0	12.4	2.1	<0.1	NR	16.52	Base of borehole at
BH8         30         -0.6         -2.0         12.0         2.2         -0.1		15	-0.3	-1.0	12.0	2.2	<0.1			26.0mbgl
H8         45         -0.6         -3.0         12.0         2.2         -0.1         -           90         -0.4         -2.0         11.8         2.2         -0.1         -         -           120         -0.6         -3.0         11.8         2.2         -0.1         -         -           150         -0.3         -1.0         11.7         2.2         -0.1         -         -           180         -0.3         -1.0         11.7         2.2         -0.1         -         -           300         -0.3         -1.0         11.7         2.2         -0.1         -         -           300         -0.3         -1.0         11.7         2.2         -0.1         -         -           300         -0.1         0.0         18.6         0.2         -0.1         -         31.37mbgl           30         -0.1         0.0         18.7         0.2         -0.1         -         -           15         -0.1         0.0         18.1         0.3         -0.1         -         -           15         -0.1         0.0         18.1         0.3         -0.1         -         - <td></td> <td>30</td> <td>-0.6</td> <td>-2.0</td> <td>12.0</td> <td>2.2</td> <td>&lt;0.1</td> <td></td> <td></td> <td></td>		30	-0.6	-2.0	12.0	2.2	<0.1			
BH8         00         -0.4         -2.0         11.8         2.2         -0.1         -           120         -0.6         -3.0         11.8         2.2         <0.1		45	-0.6	-3.0	12.0	2.2	<0.1			
120         -0.6         -3.0         11.8         2.2         <0.1            150         -0.3         -1.0         11.8         2.2         <0.1	BH8	90	-0.4	-2.0	11.5	2.2	<0.1			
150         -0.3         -1.0         11.8         2.2         <0.1		120	-0.6	-3.0	11.8	2.2	<0.1			
180         -0.3         -1.0         11.7         2.2         <0.1            300         -0.3         -1.0         11.7         2.2         <0.1		150	-0.3	-1.0	11.8	2.2	<0.1			
240         -0.4         -2.0         11.7         2.2         <0.1           300         -0.3         -1.0         11.7         2.2         <0.1		180	-0.3	-1.0	11.7	2.2	<0.1			
BH10         CO.1         O.0         11.7         12.2         CO.1         NR         27.10         Base of borehole at 31.37mbgl           30         <0.1		240	-0.4	-2.0	11.7	2.2	<0.1			
0         <0.1         0.0         18.6         0.2         <0.1         NR         27.10         Base of borehole at 31.37mbgl           30         <0.1		500	-0.5	-1.0	11.7	2.2	<b>\U.1</b>			
Instrument         15         <0.1         0.0         18.7         0.2         <0.1         31.37mbgl           30         <0.1		0	<0.1	0.0	18.6	0.2	<0.1	NR	27.10	Base of borehole at
30         <0.1         0.0         18.6         0.2         <0.1            45         <0.1		15	<0.1	0.0	18.7	0.2	<0.1			31.37mbgl
H9         45         <0.1         0.0         18.5         0.2         <0.1            90         <0.1		30	<0.1	0.0	18.6	0.2	<0.1			
BH9         90         <0.1         0.0         18.2         0.3         <0.1            120         <0.1		45	<0.1	0.0	18.5	0.2	<0.1			
BH10         COL         COL         COL         COL         COL           120         <0.1	BH9	90	<0.1	0.0	18.2	0.3	<0.1			
150         18.1         0.3         <0.1            180         18.7         0.3         <0.1		120	<0.1	0.0	18.1	0.3	<0.1			
180         18.7         0.3         <0.1            240         18.1         0.3         <0.1		150			18.1	0.3	<0.1			
240         18.1         0.3         <0.1            300         18.1         0.3         <0.1		180			18.7	0.3	<0.1			
BH10         CO         CO         R.1         CO.3         CO.1         NR         CO           BH10         0         CO         R.3         1.6         CO.1         NR         2.0         Base of borehole at 24mbgl           30         CO.1         O.0         R.2         1.6         CO.1         24mbgl           30         CO.1         O.0         R.2         1.6         CO.1         24mbgl           45         CO.1         O.0         R.1         1.7         CO.1         Control           90         CO.1         O.0         R.0         1.7         CO.1         Control         Control           120         CO.1         O.0         R.0         1.7         CO.1         Control         Control         Control           180         R.80         1.8         CO.1         Control		240			18.1	0.3	<0.1			
0         <0.1         0.0         8.3         1.6         <0.1         NR         2.0         Base of borehole at 24mbgl           30         <0.1		300			18.1	0.3	<0.1			
15         <0.1         0.0         8.2         1.6         <0.1         24mbgl           30         <0.1		0	<0.1	0.0	8.3	1.6	< 0.1	NR	2.0	Base of borehole at
30         <0.1         0.0         8.2         1.6         <0.1         Image: style		15	<0.1	0.0	8.2	1.6	<0.1			24mbgl
45         <0.1         0.0         8.1         1.7         <0.1            60         <0.1		30	<0.1	0.0	8.2	1.6	<0.1			
BH10         60         <0.1         0.0         8.0         1.7         <0.1            90         <0.1		45	<0.1	0.0	8.1	1.7	<0.1			
Billo         90         C0.1         0.0         8.0         1.7         C0.1         Image: Constraint of the state of the st	<b>PU10</b>	60	<0.1	0.0	8.0	1.7	<0.1			
0         0.0         0.0         1.0         0.0         1.0         0.0           150         0.0         8.0         1.8         <0.1	BUID	90	<0.1	0.0	8.0	1.7	<0.1			
180         8.0         1.8         <0.1            240         8.0         1.8         <0.1		150	-012	0.0	8.0	1.8	<0.1			
240         8.0         1.8         <0.1            300         8.0         1.8         <0.1		180			8.0	1.8	<0.1			
300         8.0         1.8         <0.1         NR         0.68         Base of borehole at 1.29mbgl           30         <0.1		240			8.0	1.8	<0.1			
0         <0.1         0.0         16.3         2.1         <0.1         NR         0.68         Base of borehole at 1.29mbgl           30         <0.1		300			8.0	1.8	<0.1			
WS4         Solar         Color         10.3         2.1         Color         NR         0.00         base of obletitie at 1.29mbgl           30         <0.1	I	Ο	<i>c</i> ∩ 1	0.0	16.2	21	<i>c</i> ∩ 1	NP	0.68	Base of horehole at
30         <0.1         0.0         16.2         2.1         <0.1            45         <0.1		15	<0.1	0.0	16.2	2.1	<0.1	NIX.	0.00	1.29mbgl
45         <0.1         0.0         16.1         2.1         <0.1            60         <0.1		30	<0.1	0.0	16.2	2.1	<0.1			5
60         <0.1         0.0         16.2         2.1         <0.1           90         <0.1		45	<0.1	0.0	16.1	2.1	<0.1			
WS4         90         <0.1         0.0         16.2         2.1         <0.1           120         <0.1		60	<0.1	0.0	16.2	2.1	<0.1			
120         <0.1         0.0         16.2         2.1         <0.1           150         16.3         2.1         <0.1	WS4	90	<0.1	0.0	16.2	2.1	<0.1			
150         10.5         2.1         50.1           180         16.4         2.0         <0.1		120	<0.1	0.0	16.2	2.1	<0.1			
240         16.5         2.0         <0.1           300         16.6         1.9         <0.1		180			16.4	2.0	<0.1			
300 16.6 1.9 <0.1		240			16.5	2.0	<0.1			
		300			16.6	1.9	<0.1			

Notes:

JOB DETAIL	.s								
Site:	Camden Lo	ck Village, Lo	ndon			Job No:	CG/18067/	4	
Date:	18/12/2014	1				Engineer:	ТОР		
Time:	07:00					Client	Walsh Asso	ociates	
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	ınd:	Dry		Moist	х	Wet		]	
Wind:		Calm		Light	Х	Moderate		Strong	
Cloud cover:		None		Slight		Cloudy		Overcast	Х
Precipitation	.:	None	Х	Slight		Moderate		Heavy	
Barometric p	oressure (mb):	1003 - 1004		pressure	system*:	Rising	Air tempe	erature (°C):	13
		1		0		CH			
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	18.4	2.1	<0.1	NR	2.07	Base of borehole at
	15	<0.1	0.0	18.4	2.1	< 0.1			2.67mbgl.
	30	<0.1	0.0	8.4	2.1	<0.1			
	45	<0.1	0.0	18.4	2.1	<0.1			
	60	<0.1	0.0	18.4	2.1	<0.1			
WS5	90	<0.1	0.0	18.5	2.1	<0.1			
1	120	<0.1	0.0	18.5	2.1	<0.1			
	150			18.5	2.0	<0.1			
1	180			18.6	2.0	<0.1			
1	240			18.6	1.9	<0.1			
	300			18.7	1.9	<0.1			
	r			1					
	0	<0.1	0.0	19.5	0.8	<0.1		0.55	Base of borehole at
	15	<0.1	0.0	19.6	0.8	<0.1			1.09mbgl.
	30	<0.1	0.0	19.7	0.7	<0.1			
	45	<0.1	0.0	19.7	0.6	<0.1			
14/66	60	<0.1	0.0	19.8	0.5	<0.1			
WS6	90	<0.1	0.0	19.8	0.5	<0.1			
	120	<0.1	0.0	19.8	0.5	<0.1			
	150			19.8	0.5	<0.1			
	180			19.9	0.5	<0.1			
	240			19.9	0.5	<0.1			
	500			19.9	0.5	۷.1			
	0	<0.1	0.0	19.0	0.9	<0.1	NR	1.05	Base of borehole at
	15	<0.1	0.0	19.0	1.0	<0.1		1.05	2 03mbøl
	30	<0.1	0.0	18.9	1.0	<0.1			
	45	<0.1	0.0	19.0	0.9	<0.1			
	60	<0.1	0.0	19.0	0.9	<0.1			
WS7	90	<0.1	0.0	19.0	0.9	<0.1			
	120	<0.1	0.0	18.9	0.9	<0.1			
	150			18.9	0.9	<0.1			
	180			19.0	0.9	<0.1			
	240			19.0	0.9	<0.1			
	300			18.9	0.9	<0.1			
1	0	NR	NR	NR	NR	NR	NR	NR	Unable to access
	15	L			<u> </u>	L			borehole
1	30				<u> </u>	L			
	45				ļ				
14/60	60								
W58	90				<u> </u>			<u> </u>	
	120								
1	150				<u> </u>				
	180								
	240							-	
	500			1	1			1	
	0	NR	NR	NR	NR	NR	NR	NR	Unable to access
	15								borehole
1	30				İ	<u> </u>			
	45			1	1	1			
	60			1					
WS9	90								
	120								
1	150								
	180			1					
1	240								
	300								
-									

Notes

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary. 0

Site         Conditional Code Village         Do Not:         Col/Loop 7A           Date         (BA)(7)015         Engineer:         Top           Time         (Lent         Walsh Associates           METCOROGICAL & SITE INFORMATION         State of ground:         Dry         Molist         Wet         X           Wind:         Client         Walsh Associates         Strong	JOB DETAIL	s									
Date:         DB/DEC         Engineer.         TOP           Eddm         Client         Wakh Associates           METCROLOGICAL & SITE INFORMATION         State of ground:         Dy         Moist         Wet         X           State of ground:         Dy         Moist         Wet         X         Moderate         Stoong	Site:	Camden Lo	ck Village				Job No:	CG/18067A	1		
Ime:         6.80am         Client         Wabb Associates           METEOROGICAL & SITE INFORMATION           State of ground:         Dry         Moist         Wet         X           Wind:         Dry         Moist         Wet         X           Wind:         Calm         Light         X         Moderate         Strong         X           Pecipitation:         None         Slight         Cloud         Overcast         X           Barometric pressure (mb):         102 - 1015         pressure system*:         Failing         Air temperature (*C):         g           Barometric pressure (mb):         102 - 1015         pressure system*:         Failing         Air temperature (*C):         g           Brit         0         0.3         1.0         1.71         1.4         -0.01 <td< th=""><th>Date:</th><th>08/01/2015</th><th>5</th><th></th><th></th><th></th><th colspan="5">Engineer: TOP</th></td<>	Date:	08/01/2015	5				Engineer: TOP				
METERONLOGICAL & SITE INFORMATION           Sue of ground:         Dy         Moist         Wet         X           Word:         Caln         Light         X         Moderate         Strong	Time:	6.40am					Client	Walsh Asso	ociates		
MILETRODUCICAL & STIL INFORMATION           State of ground:         Dry         Moist         Wet         X           Wind:         Caim         Light         X         Moderate         Strong											
Base of ground:         Dry         Moist         Wet         X           Wind:         Cain         Light         X         Moderate         Strong	METEOROL	.OGICAL & SI	TE INFORMA	TION							
Mind:         Calin         Light         X         Moderate         Strong            Cod cover:         None         Slight         Cloudy         Overcast         X           Precipitation:         None         Slight         Cloudy         Overcast         X           Breeners/result         1012 - 1015         Precipitation:         At temperature (*C):         g           Breeners/result         1012 - 1015         Precipitation:         At temperature (*C):         g           Breeners/result         101         100         173         155         4301         4001         614         9.97mbgl           Breeners/result         102         0.0         174         166         4001         601         9.97mbgl           Breeners/result         102         0.0         175         18         4001         9.97mbgl           Breeners/result         176         2.0         4001         1001         1001         1001           102         0.1         100         163         157         19         4001         4001         1001           103         0.1         0.0         163         144         4001         4001         1001 <td< td=""><td>State of grou</td><td>und:</td><td>Dry</td><td></td><td>Moist</td><td></td><td>Wet</td><td>Х</td><td>]</td><td></td></td<>	State of grou	und:	Dry		Moist		Wet	Х	]		
Could cover:         None         Slight         Cloudy         Overcast         X           Procipitation:         None         Slight         Moderate         X         Heavy	Wind:		Calm		Light	Х	Moderate		Strong		
Precipitation:         None         Slight         Moderate         X         Heavy           Barometric presure (mb):         1012-1015         pressure system*:         Falling         Air temperature (°C):         9           Well No.         Time (a)         flow (/hr)         dA (A)         (% vol. in ar)         (% vol. in ar)         Air temperature (°C):         9           Well No.         Time (a)         flow (/hr)         dA (A)         (% vol. in ar)	Cloud cover:		None		Slight		Cloudy		Overcast	Х	
Barometric pressure (mb):         1012 - 1015         Local pressure system':         falling         Air temperature (°C):         9           Well No.         Tme (a)         flow (/hr)         dx, (hr)         (hr, hr)         (hr, kr, hr)         (hr, hr)	Precipitation	1:	None		Slight		Moderate	Х	Heavy		
Well No.         Time (n)         Flow (l/m)         dA (PA)         (P, soc. In arr)         CO, arr)         CO, arr         PD (ppm)         Degate (ppm)         Degate Cover (mbg)         Comments           BH2         0         0.3         1.0         1.6         1.3         -0.01         -0.01         6.1.4         Base of borehole at 9.97mbgl           BH2         0         0.2         0.0         17.4         1.6         -0.01         -0.01         -           20         0.1         0.0         17.7         1.7         -0.01         -         -         -           100         0.2         0.0         17.5         1.8         -<	Barometric p	pressure (mb):	1012 - 1015		Lo pressure	system*:	Falling	Air tempe	erature (°C):	9	
Well No.         Free (I)         For (I/h)         Ad (PA)         (Pa) (Yau)         CO. (Yau)         P(Pa) (Yau)         Degate to (Yau)         Comments           1         0         0.3         1.0         0.0         1.1         4.00         -0.01         6.14         Base of borehole at 9.97mtgl           60         0.3         1.0         1.74         1.6         <0.01											
0         0.3         1.0         1.5         0.1         0.01         6.14         Base of borehole at 9.97mbgl           BH2         0.1         0.0         17.1         1.4         <0.01	Well No.	Time (s)	Flow (l/hr)	dA (PA)	O₂ (% vol. in air)	CO₂ (% vol. in air)	CH <sub>4</sub> (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments	
IS         0.1         0.0         17.3         1.4         40.01         40.01         9.97mkgl           45         0.2         0.0         17.4         1.6         40.01         40.01         40.01           60         0.3         1.0         17.4         1.6         40.01         40.01         40.01           120         0.1         0.0         17.5         1.7         40.01         40.01         40.01           130         0.1         17.7         2.0         40.01         40.01         40.01           140         17.7         2.0         40.01         40.01         40.01         40.01           300         1.0         15.7         1.9         40.01         40.01         5.0mbgl           30         0.1         0.0         16.3         1.7         40.01         40.01         5.0mbgl           30         0.1         0.0         16.4         1.4         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01         40.01		0	0.3	1.0	16.9	1.3	<0.01	< 0.01	6.14	Base of borehole at	
30         0.1         0.0         17.3         1.5         <0.01         <0.01           45         0.2         0.0         17.4         1.6         <0.01         <0.01           100         0.0         0.0         17.5         1.8         <0.01         <0.01           100         0.0         17.5         1.8         <0.01             100         17.7         2.0         <0.01              100         17.7         2.1         <0.01              300         0.1         0.0         16.1         1.7         <0.01         <0.01            300         0.1         0.0         16.1         1.7         <0.01         <0.01         <0.01         <0.01           45         0.2         0.0         16.4         1.4         <0.01         <0.01          Sombjl           30         0.2         0.0         16.4         1.4         <0.01         <0.01            120         0.1         0.0         16.4         1.4         <0.01             300         0.2         <		15	0.1	0.0	17.1	1.4	< 0.01	<0.01		9.97mbgl	
45         0.2         0.0         17.4         1.6         <0.01		30	0.1	0.0	17.3	1.5	<0.01	<0.01			
BH2         B0         0.2         0.0         17.5         1.7         <0.01         <0.01           120         0.1         0.0         17.5         1.8         <0.01		45	0.2	0.0	17.4	1.6	< 0.01	< 0.01			
0.12         0.2         0.0         17.5         1.8              150         17.5         1.9         40.01         1	BH2	90	0.3	1.0	17.4	1.6	<0.01	<0.01			
150         17.5         1.9         -0.01         Image: constraint of the state of the	5.12	120	0.1	0.0	17.5	1.8	<0.01				
180         17.6         2.0         <0.01            300         17.7         2.0         <0.01		150			17.5	1.9	<0.01				
240         17.7         2.0         <0.01            0         0.3         10.77         2.1         <0.01		180			17.6	2.0	< 0.01				
0         0.3         1.0         15.7         1.9         <0.01         <0.01         1.9           BH3         0         0.3         1.0         15.7         1.9         <0.01		240			17.7	2.0	< 0.01				
0         0.3         1.0         15.7         1.9         <0.01         <0.01         1.92         Base of borehole at 50mgl           BH3         0.0         1.0         0.0         16.1         1.7         <0.01		300			17.7	2.1	<0.01				
BH3         15         0.1         0.0         16.1         1.7         <0.01         <0.01         S.0mbgl           30         0.1         0.0         16.3         1.5         <0.01		0	0.3	1.0	15.7	1.9	< 0.01	< 0.01	1.92	Base of borehole at	
BH3         30         0.1         0.0         16.3         1.5         <0.01         <0.01           60         0.3         1.0         16.4         1.4         <0.01		15	0.1	0.0	16.1	1.7	<0.01	< 0.01		5.0mbgl	
BH3         45         0.2         0.0         16.4         1.4         <0.01         <0.01           90         0.2         0.0         16.3         1.4         <0.01		30	0.1	0.0	16.3	1.5	< 0.01	< 0.01			
BH3         BH3         BH3         1.0         1.6.4         1.4         4.0.01         4.0.11           120         0.1         0.0         16.4         1.4         <0.01		45	0.2	0.0	16.4	1.4	< 0.01	< 0.01			
BH3         30         0.2         0.0         16.3         1.4         <0.01         1           120         0.1         0.0         16.6         1.3         <0.01	BH3	60	0.3	1.0	16.4	1.4	<0.01	<0.01			
Image: Image:	BHS	120	0.2	0.0	16.4	1.4	<0.01				
180         16.9         0.9         <0.01         Image: constraint of the second		150			16.6	1.3	< 0.01				
240         17.2         0.6         <0.01         Image: constraint of the state of the		180			16.9	0.9	< 0.01				
BH4         0         0.3         1.0         18.1         0.5         <0.01         <0.01         1.43         Base of borehole at 7.42mbgl           BH4         15         0.1         0.0         18.5         0.2         <0.01		240			17.2	0.6	< 0.01				
0         0.3         1.0         18.1         0.5         <0.01         <0.01         1.43         Base of borehole at 7.42mbgl           30         0.1         0.0         18.3         0.3         <0.01		300			17.5	0.4	<0.01				
Image: Here is a straight of the image is a straight		0	0.3	1.0	18.1	0.5	< 0.01	< 0.01	1.43	Base of borehole at	
BH4         30         0.1         0.0         18.5         0.2         <0.01         <0.01           60         0.3         1.0         18.8         0.1         <0.01		15	0.1	0.0	18.3	0.3	< 0.01	< 0.01		7.42mbgl	
BH4         45         0.2         0.0         18.7         0.1         <0.01         <0.01           BH4         90         0.2         0.0         19.0         0.1         <0.01		30	0.1	0.0	18.5	0.2	<0.01	<0.01			
BH4         60         0.3         1.0         18.8         0.1         <0.01         <0.01           90         0.2         0.0         19.0         0.1         <0.01		45	0.2	0.0	18.7	0.1	< 0.01	< 0.01			
BH4         90         0.2         0.0         19.0         0.1         20.0         c0.01           120         0.1         0.0         19.3         0.0         <0.01	DUA	60	0.3	1.0	18.8	0.1	< 0.01	<0.01			
Ind         Ind <thind< th=""> <thind< th=""> <thind< th=""></thind<></thind<></thind<>	ВП4	90	0.2	0.0	19.0	0.1	<0.01				
180         19.4         0.0         <0.01		150	0.1	0.0	19.3	0.0	<0.01				
240         19.6         0.0         <0.01            300         19.8         0.0         <0.01		180			19.4	0.0	< 0.01				
300         19.8         0.0         <0.01            0         0.3         1.0         13.0         1.6         <0.01		240			19.6	0.0	< 0.01				
0         0.3         1.0         13.0         1.6         <0.01         <0.01         1.58         Base of borehole at 7.05mbgl           30         0.1         0.0         12.5         1.6         <0.01		300			19.8	0.0	<0.01				
BH5         0         0.0         12.0         1.0         1.00<		0	03	1.0	13.0	16	<0.01	<0.01	1 58	Base of borehole at	
30         0.1         0.0         12.0         1.6         <0.01         <0.01         Rainwater collected above pipe and drained into well once burg           BH5         90         0.2         0.0         11.5         1.7         <0.01		15	0.1	0.0	12.5	1.6	<0.01	< 0.01	1.50	7.05mbgl	
45         0.2         0.0         11.5         1.7         <0.01         <0.01         above pipe and drained into well once bung           90         0.2         0.0         10.9         1.8         <0.01		30	0.1	0.0	12.0	1.6	< 0.01	< 0.01		Rainwater collected	
60         0.3         1.0         11.2         1.7         <0.01         <0.01         into well once bung was removed.           90         0.2         0.0         10.9         1.8         <0.01		45	0.2	0.0	11.5	1.7	< 0.01	< 0.01		above pipe and drained	
BHS         90         0.2         0.0         10.9         1.8         <0.01         Was removed.           120         0.1         0.0         10.7         1.8         <0.01	DUE	60	0.3	1.0	11.2	1.7	< 0.01	<0.01		into well once bung	
0         0.1         0.0         10.6         1.8         <0.01           150         10.6         1.8         <0.01	BH5	90	0.2	0.0	10.9	1.8	<0.01			was removed.	
180         10.6         1.8         <0.01            240         10.5         1.7         <0.01		150	0.1	0.0	10.6	1.8	<0.01				
240         10.5         1.7         <0.01            300         10.5         1.7         <0.01		180			10.6	1.8	< 0.01				
300         10.5         1.7         <0.01            Image: Second Se		240			10.5	1.7	< 0.01				
0         0.3         1.0         15.6         4.1         <0.01         <0.01         7.9         Base of borehole at           15         0.1         0.0         15.8         4.1         <0.01		300			10.5	1.7	< 0.01				
BH6         0         0.3         1.0         15.8         4.1         <0.01         <0.01         7.9         base of obtende at 0.01           30         0.1         0.0         15.8         4.1         <0.01		0	0.2	1.0	15.6	4.1	<0.01	<0.01	7.0	Pass of horoholo at	
BH6         Dial <thdial< th="">         Dial         Dial         D</thdial<>		15	0.3	0.0	15.0	4.1	<0.01	<0.01	7.5	8.4mbgl	
45         0.2         0.0         15.9         4.1         <0.01         <0.01           60         0.3         1.0         15.9         4.0         <0.01		30	0.1	0.0	15.9	4.1	<0.01	< 0.01		e	
60         0.3         1.0         15.9         4.0         <0.01         <0.01           90         0.2         0.0         15.9         4.0         <0.01		45	0.2	0.0	15.9	4.1	< 0.01	< 0.01			
BH6         90         0.2         0.0         15.9         4.0         <0.01           120         0.1         0.0         15.9         4.0         <0.01		60	0.3	1.0	15.9	4.0	<0.01	<0.01			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	BH6	90	0.2	0.0	15.9	4.0	<0.01				
150         16.0         4.0         <0.01           180         16.0         4.0         <0.01		120	0.1	0.0	15.9	4.0	< 0.01				
240         16.0         4.0         <0.01           300         16.0         3.9         <0.01		150			16.0	4.0	<0.01				
300 16.0 3.9 <0.01		240			16.0	4.0	<0.01		1	1	
		300			16.0	3.9	<0.01		1		

Notes:

JOB DETAIL	s									
Site:	Camden Lo	ck Village				Job No:	CG/180674	4		
Date:	08/01/2015	5				Engineer: TOP				
Time:	6.40am					Client	Walsh Asso	ociates		
METEOROI		TE INFORMA	TION							
WILTEOROL	UCICAL & SI									
State of grou	ınd:	Dry		Moist		Wet	Х	]		
Wind:		Calm		Light	Х	Moderate		Strong		
Cloud cover:		None		Slight		Cloudy		Overcast	Х	
Precipitation	:	None		Slight		Moderate	х	Heavy		
De se se stalie a	· · · · · · · · · · · · · · · · · · ·	1012 1015		Lo	cal	Colling	Airtomn	vraturo (°C):	0	
Barometric p	ressure (mb):	1012 - 1015		- pressure	system".	Failing	Air tempe	rature ( C).	9	
L										
Well No.	Time (s)	Flow (l/hr)	dA (PA)	O <sub>2</sub> (% vol. in	CO <sub>2</sub> (% vol. in	CH <sub>4</sub> (% vol. in	PID (ppm)	Depth to GW (mbgl)	Comments	
	0	ND	ND	air)	air)	air)	ND	ND	Linable to access	
	15	INIK	INIK	INK	INK	INK	INK	INK	borehole	
	30									
	45									
BH7	60							-		
ВП7	120									
	150									
	180									
	240									
	300									
	0	0.3	1.0	11.2	2.1	< 0.01	< 0.01	10.35	Base of borehole at	
	15	0.1	0.0	11.4	2.0	<0.01	<0.01		26.13mbgl	
	30	0.1	0.0	12.5	1.8	<0.01	<0.01			
	45	0.2	0.0	13.1	1.6	< 0.01	<0.01			
BH8	90	0.3	0.0	13.9	1.4	< 0.01	<0.01			
	120	0.1	0.0	15.9	0.9	< 0.01				
	150			16.6	0.7	<0.01				
	180			16.8	0.7	< 0.01				
	240			17.1	0.6	<0.01		+		
	500			17.5	0.0	40.01				
	0	0.3	1.0	10.5	1.0	< 0.01	<0.01	8.29	Base of borehole at	
	15	0.1	0.0	9.7	1.1	< 0.01	< 0.01		>30.0mbgl	
	30 45	0.1	0.0	9.8	1.1	<0.01	<0.01			
	60	0.2	1.0	13.8	0.8	<0.01	<0.01			
BH9	90	0.2	0.0	14.8	0.4	<0.01				
	120	0.1	0.0	13.2	0.3	< 0.01				
	150			14.7 14.4	0.2	<0.01		+		
	240			13.9	0.3	<0.01				
	300			14.2	0.2	<0.01				
			1.0	5.0		0.01		1.00	Dasa of horoholo at	
	15	0.3	1.0	5.9	0.7	<0.01	<0.01	1.60	24 22mbgl	
	30	0.1	0.0	5.3	0.7	<0.01	<0.01		24.2211081	
	45	0.2	0.0	5.2	0.7	<0.01	<0.01			
	60	0.3	1.0	5.2	0.7	<0.01	<0.01			
BH10	90	0.2	0.0	5.2	0.7	< 0.01				
	150	0.1	0.0	5.1	0.7	<0.01				
	180			5.1	0.7	< 0.01				
	240			5.1	0.7	<0.01				
	300			5.2	0.7	<0.01				
	0	03	1.0	15.6	2.0	<0.01	<0.01	0.69	1.29mbgl to base of	
	15	0.1	0.0	15.7	1.9	<0.01	<0.01	0.05	borehole	
	30	0.1	0.0	15.8	1.9	<0.01	< 0.01			
	45	0.2	0.0	15.9	1.9	<0.01	<0.01			
14/54	60	0.3	1.0	15.9	1.8	< 0.01	<0.01	+		
vv 54	120	0.2	0.0	16.1	1.8	<0.01		+		
	150	0.1	0.0	16.2	1.8	<0.01				
	180			16.2	1.8	<0.01				
	240			16.3	1.8	<0.01				
I	300			16.4	1.8	<0.01		1		

Notes:

Site         Date         Dialo         D	JOB DETAIL	s								
Date:         Big Part = 10P         Implement         TOP           Inter:         6.44m         Cleat         Walth Associates           METEROLOGICAL & SITE INFORMATION         State of gound:         Dry         Moist         Wet         X           Word:         Cain         Light         X         Moderate         Strong	Site:	Camden Lo	ck Village				Job No:	CG/18067A	L.	
Time:         [s.40am         Client         Walch Associates           METEOLOGICAL & SITE INFORMATION         Dry         Moist         Wet         X           State of ground:         Dry         Moist         Wet         X           Wind:         Clain         Light         X         Moderate         Strong         X           Precipitation:         None         Slight         Cloudy         Overcast         X           Barometric pressure [nb]: 1012 - 1015         pressure system":         Falling         Air temperature (°C):         9           Well No.         Time (a)         flow (l/m)         ds (PA)         (Kyek, in failing         Air temperature (°C):         9           Well No.         Time (a)         flow (l/m)         ds (PA)         (Kyek, in failing         Air temperature (°C):         9           Well No.         Time (a)         flow (l/m)         ds (PA)         (Kyek, in failing         Air temperature (°C):         9           Wall No.         Time (a)         flow (l/m)         ds (PA)         (PA)         140         1001         4001         2.6megl           Wall No.         193         1.5         4001         4001         2.2megl         2.6megl         2.6megl         2	Date:	08/01/2015	j				Engineer:	ТОР		
METEOROLOGICAL & SITE INFORMATION           State of ground:         Dry         Moist         Wet         X           Wind:         Calm         Light         X         Moderate         Strong	Time:	6.40am					Client	Walsh Asso	ciates	
Non-construction         Dy         Moist         Wet         X           State of ground:         Dy         Moist         X         Moderate         Strong           State of ground:         None         Sight         Cloudy         Overcast         X           Precipitation:         None         Sight         Cloudy         Overcast         X           Precipitation:         None         Sight         Columbra         Air temperature (°C):         9           Wel No.         Time (r)         Pow (r/m)         AA (PA)         Yes voltable         Yes voltable         Air temperature (°C):         9           Wel No.         Time (r)         Pow (r/m)         AA (PA)         Yes voltable         Yes voltable         Air temperature (°C):         9           W15         G. 0.3         1.0         19.8         1.2         40.01         40.01         2.68mbgl           W25         G. 0.3         1.0         19.8         1.4         40.01         40.1         4.268mbgl           W25         G. 0.3         1.0         19.5         1.5         40.01         4.268mbgl           W26         G. 0.3         1.0         19.8         1.4         40.01         4.2.68mbgl	METEOROI		TE INFORMA	TION						
State of ground:         Dry         Moix         Wet         X           Wind:         Calm         Light         X         Moderate         Strong	METEOROE	O GICAL G SI								
Wind:         Calm         Light         X         Moderate         Strong           Oud cover:         None         Sight         Cloudy         Overtast         X           Precipitation:         None         Sight         Cloudy         Overtast         X           Baroneetric pressure (mb):         1012 - 1015         pressure system*:         Falling         Air temperature (*C):         9           Well No.         Tme (h)         Flow (h/m)         dA (P)         76, or         76,	State of grou	ind:	Dry		Moist		Wet	Х	]	
Ocud cover:         None         Slight         Cloudy         Overcast         X           Precipitation:         None         Slight         Moderate         X         Heavy	Wind:		Calm		Light	Х	Moderate		Strong	
Precipitation:         None         Slight         Moderate         X         Heavy           Barometric pressure (mb):         1012 - 1015         pressure system**:         Falling         At remperature ("C):         9           Well No.         Time (a)         Flow (h/m)         dA (PA)         (% seet, in)         (% seet, in)         (% rest, in) </td <td>Cloud cover:</td> <td></td> <td>None</td> <td></td> <td>Slight</td> <td></td> <td>Cloudy</td> <td></td> <td>Overcast</td> <td>Х</td>	Cloud cover:		None		Slight		Cloudy		Overcast	Х
Barnetric pressure (m): 1012 - 1015         pressure system*: pressure system*:         Falling         Art temperature (*C): 9           Well No.         Time (a)         Flow (h/m)         dA (PA)         (% oc, in ab of a	Precipitation	:	None		Slight		Moderate	Х	Heavy	
Well No.         Time (s)         Flow (l/he)         dA (PA)         System (main)         Other (structure)         Other (structure)         PID (ppm)         Depth to OW (mbg)         Comments OW (mbg)           Well No.         0         0.3         1.0         1.99         1.2         <0.01	Barometric p	oressure (mb):	1012 - 1015		pressure	system*:	Falling	Air tempe	rature (°C):	9
Weil Ro.         Time (i)         Flow (l/hr)         dA (PA)         O <sub>1</sub> (K vol. in atr)         CO <sub>2</sub> (K vol. in atr)         O <sub>1</sub> (K vol. in atr)         PD (K vol. in atr)         Depth to (K vol. in atr)         Depth to (K vol. in atr)         Comments (K vol. in atr)           0         0.3         1.0         19.9         1.2         <0.01					-				. , .	
Well No.         Time (a)         Flow (l/hr)         dA (PA)         (W, a), (M, a), (W, a), (M, a			1 1		-				-	
0         0.3         1.0         1.0         1.2         <0.01         1.94         Base of borehole at 2.68mbgl           30         0.1         0.0         19.9         1.2         <0.01	Well No.	Time (s)	Flow (l/hr)	dA (PA)	O₂ (% vol. in air)	(% vol. in air)	CH <sub>4</sub> (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
15         0.1         0.0         19.8         1.2         <0.01         <0.01         2.68mbgl           45         0.2         0.0         19.6         1.4         <0.01		0	0.3	1.0	19.9	1.2	<0.01	<0.01	1.94	Base of borehole at
30         0.1         0.0         197         1.3         <0.01         <0.01           45         0.2         0.0         1.0         1.96         1.4         <0.01         <0.01           60         0.3         1.0         196         1.4         <0.01         <0.01           120         0.1         0.0         195         1.5         <0.01         <1.1           130         1.0         195         1.5         <0.01         <1.1         <0.01         <1.1           130         1.0         195         1.5         <0.01         <1.1         <1.1         <0.01         <1.1           150         0.1         0.0         17.1         3.0         <0.01         0.02         2.06mbgl           30         0.1         0.0         17.5         2.7         <0.01         <0.1         2.06mbgl           450         0.2         0.0         17.5         2.7         <0.01         <0.1         2.06mbgl           30         0.1         0.0         17.5         2.7         <0.01         <0.01         2.05           450         0.2         0.0         18.4         1.0         2.0         0.01		15	0.1	0.0	19.8	1.2	<0.01	<0.01		2.68mbgl
Home         Home <th< td=""><td></td><td>30</td><td>0.1</td><td>0.0</td><td>19.7</td><td>1.3</td><td>&lt; 0.01</td><td>&lt; 0.01</td><td></td><td></td></th<>		30	0.1	0.0	19.7	1.3	< 0.01	< 0.01		
WS5         90         0.2         0.0         196         1.4         <0.01         Image: constraint of the second se		60	0.2	1.0	19.6	1.4	<0.01	<0.01		
120         0.1         0.0         195         1.5         <             180         1955         1.4 <t< td=""><td>WS5</td><td>90</td><td>0.2</td><td>0.0</td><td>19.6</td><td>1.4</td><td>&lt;0.01</td><td></td><td></td><td></td></t<>	WS5	90	0.2	0.0	19.6	1.4	<0.01			
150         153         153         4001         153           240         195         1.5         4.001         1           240         195         1.5         4.001         1           300         195         1.5         4.001         0.01         0.62         Base of borehole at 2.06mbgl           30         0.1         0.0         17.7         2.2         4.001         4.001         2.06mbgl           45         0.2         0.0         17.9         2.4         4.001         4.001         2.06mbgl           60         0.3         1.0         18.2         2.0         4.001         4.001         1.0         2.06mbgl           150         0.1         18.4         1.6         4.001         1.0		120	0.1	0.0	19.5	1.5	< 0.01			
240         19.5         1.5              300         19.5         1.5         <		150			19.5	1.5	<0.01			
300         19.5         1.5         -0.01         Image: constraint of the second		240			19.5	1.5	<0.01			
0         0.3         1.0         16.8         3.2         <0.01         <0.01         0.62         Base of borehole at 2.06mbgl           30         0.1         0.0         17.1         3.0         <0.01		300			19.5	1.5	<0.01			
0         0.3         1.0         1.0         1.7.1         3.0         4.0.1         4.0.1         2.06mbgl           30         0.1         0.0         17.7         2.7         4.0.1         4.0.1         2.06mbgl           45         0.2         0.0         17.9         2.7         4.0.1         4.0.1         4.0.1           60         0.3         1.0         18.2         2.0         4.0.1         4.0.1         4.0.1           90         0.2         0.0         18.4         1.6         4.0.1         4.0.1         4.0.1           120         0.1         0.0         18.7         1.2         4.0.1		0	03	1.0	16.8	3.2	<0.01	<0.01	0.62	Base of borehole at
30         0.1         0.0         17.5         2.7         <0.01            45         0.2         0.0         17.9         2.4         <0.01		15	0.1	0.0	17.1	3.0	<0.01	<0.01	0.02	2.06mbgl
45         0.2         0.0         17.9         2.4         <0.01            90         0.2         0.0         18.4         1.6         <0.01		30	0.1	0.0	17.5	2.7	<0.01	<0.01		
W56         B0         0.3         1.0         18.2         2.0         <0.01         <0.01           120         0.1         0.0         18.7         1.2         <0.01		45	0.2	0.0	17.9	2.4	< 0.01	< 0.01		
120         0.1         0.0         18.7         1.2         <0.01         0           150         18.9         0.7         <0.01	WS6	90	0.3	0.0	18.2	2.0	<0.01	<0.01		
150         18.9         0.7         <0.01         Image: constraint of the second		120	0.1	0.0	18.7	1.2	<0.01			
180         19.2         0.4              300         19.4         0.3         <0.01		150			18.9	0.7	<0.01			
100         101         000         101         000         101           0         0.3         1.0         20.4         0.4         <0.01		180 240			19.2	0.4	<0.01			
Under control of the second of the		300			19.6	0.2	<0.01			
0         0.3         1.0         20.4         0.4         <0.01         <0.01         0.86         Base of borehole at 2.07mbgl           30         0.1         0.0         19.9         0.4         <0.01		T	1 1		1	I	r		1	
10         0.1         0.0         19.9         0.4         <0.01         <0.01         <0.01           45         0.2         0.0         19.9         0.4         <0.01		0	0.3	1.0	20.4	0.4	<0.01	<0.01	0.86	2 07mbgl
45         0.2         0.0         19.9         0.4         <0.01         <0.01           90         0.2         0.0         19.9         0.4         <0.01		30	0.1	0.0	19.9	0.4	<0.01	<0.01		2.0711551
60         0.3         1.0         19.9         0.4         <0.01            90         0.2         0.0         19.9         0.4         <0.01		45	0.2	0.0	19.9	0.4	<0.01	<0.01		
W37         90         0.2         0.0         19.9         0.4         <0.01           120         0.1         0.0         19.8         0.4         <0.01	14/57	60	0.3	1.0	19.9	0.4	< 0.01	<0.01		
150         19.8         0.4         <0.01	VV37	120	0.2	0.0	19.9	0.4	< 0.01			
180         19.8         0.4         <0.01         Image: constraint of the sector		150			19.8	0.4	<0.01			
240         19.7         0.4         <0.01           300         19.7         0.4         <0.01		180			19.8	0.4	< 0.01			
0         NR </td <td></td> <td>300</td> <td></td> <td></td> <td>19.7</td> <td>0.4</td> <td>&lt;0.01</td> <td></td> <td></td> <td></td>		300			19.7	0.4	<0.01			
0         NR         Description           30         15         1										
15         0		0	NR	NR	NR	NR	NR	NR	NR	Unable to access
0         0		30								borenole
60         60<		45								
WS8         90         Image: constraint of the system of t		60								
110         1         1         1         1         1           150         1         1         1         1         1         1           180         1         1         1         1         1         1         1           240         1         1         1         1         1         1         1         1           300         1         0         20.5         <0.01	WS8	90								
180         20.5         <0.01         <0.01         <0.01         1.16         2.72mbgl to base of borehole           30         0.1         0.0         20.6         <0.01		120								
240		180								
0         0.3         1.0         20.5         <0.01         <0.01         1.16         2.72mbgl to base of borehole           30         0.1         0.0         20.6         <0.01		240								
0         0.3         1.0         20.5         <0.01         <0.01         <0.01         1.16         2.72mbgl to base of borehole           30         0.1         0.0         20.6         <0.01		300								
15         0.1         0.0         20.6         <0.01         <0.01         <0.01         borehole           30         0.1         0.0         20.6         <0.01		0	0.3	1.0	20.5	< 0.01	< 0.01	< 0.01	1.16	2.72mbgl to base of
30         0.1         0.0         20.6         <0.01         <0.01         <0.01           45         0.2         0.0         20.5         <0.01		15	0.1	0.0	20.6	<0.01	<0.01	<0.01		borehole
W59         0.2         0.0         20.5         50.01         50.01         50.01           120         0.1         0.0         20.6         <0.01		30	0.1	0.0	20.6	<0.01	< 0.01	<0.01		
WS9         90         0.2         0.0         20.6         <0.01         <0.01           120         0.1         0.0         20.6         <0.01		60	0.2	1.0	20.5	<0.01	<0.01	<0.01		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	WS9	90	0.2	0.0	20.6	<0.01	<0.01			
150         20.6         <0.01         <0.01           180         20.6         <0.01		120	0.1	0.0	20.6	<0.01	< 0.01			
240         20.6         <0.01         <0.01           300         20.6         <0.01		150			20.6	<0.01	<0.01			
300 20.6 <0.01 <0.01		240			20.6	<0.01	<0.01			
		300			20.6	<0.01	<0.01			

Notes:

JOB DETAIL	.s								
Site:	Camden Lo	ck Village				Job No:	CG/18067/	4	
Date:	13/01/2015	j				Engineer:	JJM		
Time:	07:45					Client	Walsh Asso	ociates	
METEOROI		TE INFORMA	TION						
								-	
State of grou	ind:	Dry		Moist		Wet	Х	]	
Wind:		Calm		Light	Х	Moderate		Strong	
Cloud cover:		None		Slight		Cloudy	Х	Overcast	Х
Precipitation	::	None		Slight	Х	Moderate		Heavy	
Barometric p	oressure (mb):	999-1001		cal pressure	system*:	Steady	Air tempe	rature (°C):	7.1
r	ſ					CI I	1	1	
Well No.	Time (s)	Flow (l/hr)	dA (PA)	(% vol. in air)	(% vol. in air)	(% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	16.9	1.5	<0.1	NR	4.77	Base of borehole at
	15	<0.1	0.0	18.4	1.0	<0.1			9.97mbgl
	30	<0.1	0.0	18.8	1.2	<0.1			
	60	<0.1	0.0	18.6	1.4	<0.1			
BH2	90	<0.1	0.0	18.6	1.5	<0.1			
	120	<0.1	0.0	18.6	1.5	<0.1			
	130			18.0	1.5	<0.1		1	
	240								
	300								
	0	<0.1	0.0	18 3	13	<0.1	NR	1 93	Base of borehole at
	15	<0.1	0.0	15.5	1.7	<0.1		1.55	5.06mbgl
	30	<0.1	0.0	14.4	1.7	<0.1			
	45	<0.1	0.0	16.4	0.9	<0.1			
внз	60	<0.1	0.0	17.3	1.0	<0.1			
DIIS	120	<0.1	0.0	17.8	0.7	<0.1			
	150			18.5	0.5	<0.1			
	180			18.7	0.4	<0.1			
	240			18.9 18.9	0.7	<0.1		+	
	500			10.5	0.7	40.1			
	0	<0.1	0.0	19.0	0.6	<0.1	NR	4.06	Base of borehole at
	15	<0.1	0.0	19.2	0.7	<0.1			8.22mbgl
	30 45	<0.1	0.0	18.8	0.7	<0.1			
	60	<0.1	0.0	18.8	0.6	<0.1			
BH4	90	<0.1	0.0	18.9	0.6	<0.1			
	120	<0.1	0.0	18.9	0.6	<0.1			
	150			18.9	0.6	<0.1			
	240								
	300								
	0	<0.1	0.0	19.1	0.4	<0.1	NR	2.65	Base of borehole at
	15	<0.1	0.0	19.6	0.4	<0.1	INIX	2.05	7.05mbgl
	30	<0.1	0.0	19.5	0.3	<0.1			
	45	<0.1	0.0	19.4	0.3	<0.1			
BH5	60	<0.1	0.0	19.4	0.3	<0.1		+	
DIIS	120	<0.1	0.0	19.4	0.3	<0.1			
	150								
	180								
	240								
	500								
[	0	<0.1	0.0	17.3	0.9	<0.1	NR	7.70	Base of borehole at
	15	<0.1	0.0	18.8	0.6	<0.1		┥	8.53mbgl
	30 45	<0.1	0.0	19.4	0.6	<0.1		+	
	60	<0.1	0.0	19.5	0.6	<0.1			
BH6	90	<0.1	0.0	19.5	0.6	<0.1			
	120	<0.1	0.0	19.5	0.6	<0.1			
	150							+	
	240								
	300								
1									

Notes:

JOB DETAIL	.s								
Site:	Camden Lo	ck Village				Job No:	CG/18067/	Ą	
Date:	13/01/2015	5				Engineer:	JJM	· .	
Time:	07:45					Client	Walsh Asso	ociates	
METEOROL	OGICAL & SI	TE INFORMA	TION						
State of grou	ind:	Dry		Moist	ſ	Wet	X		
Wind:		Calm		Light	x	Moderate		Strong	
Cloud cover:		None		Slight		Cloudy	х	Overcast	Х
Precipitation	:	None		Slight	х	Moderate		Heavy	
Barometric p	ressure (mb):	999-1001		cal pressure	system*:	Steady	Air temper	rature (°C):	7.1
				•				1	
Well No.	Time (s)	Flow (l/hr)	dA (PA)	02 (% vol. in air)	(% vol. in air)	CH₄ (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	15.2	1.8	<0.1	NR	7.10	Base of borehole at
	15	<0.1	0.0	15.4	1.8	<0.1			7.53mbgl
	30	<0.1	0.0	15.6	1.7	<0.1	-	+	
	60	<0.1	0.0	16.2	1.7	<0.1			
BH7	90	<0.1	0.0	16.2	1.8	<0.1			
	120	<0.1	0.0	16.2	1.8	<0.1			
	150								
	240								
	300								
	0	<0.1	0.0	13.5	0.7	<0.1	NR	10.25	Base of borehole at
	30	<0.1	0.0	9.1	2.1	<0.1	-	+	25.26mbgi
	45	<0.1	0.0	7.9	2.6	<0.1			
	60	<0.1	0.0	8.3	2.4	<0.1			
BH8	90	<0.1	0.0	10.3	2.0	<0.1			
	120	<0.1	0.0	12.3	1.8	<0.1			
	180			15.2	1.0	<0.1			
	240			14.1	1.2	<0.1			
	300			14.5	1.2	<0.1			
	0	<0.1	0.0	11.2	0.8	<0.1	NR	8 2 2	Base of borehole at
	15	<0.1	0.0	0.9	0.8	<0.1		0.22	30.6mbgl
	30	<0.1	0.0	10.7	1.0	<0.1			
	45	<0.1	0.0	10.9	1.2	<0.1			
BH9	90	<0.1	0.0	11.1	1.0	<0.1	-	+	
5115	120	<0.1	0.0	11.8	0.9	<0.1			
	150			12.2	0.9	<0.1			
	180			12.6	0.9	<0.1			
	240			13.0	0.8	<0.1			
	300			15.4	0.8	<b>NO.1</b>		1	
	0	<0.1	0.0	13.5	0.6	<0.1	NR	1.52	Base of borehole at
	15	<0.1	0.0	13.4	0.6	<0.1			24.2mbgl
	30	<0.1	0.0	12.7	0.6	<0.1			
	45	<0.1	0.0	12.3	0.6	<0.1			
BH10	90	<0.1	0.0	12.5	0.6	<0.1			
	120	<0.1	0.0	12.0	0.6	<0.1			
	150			11.8	0.6	<0.1			
	180			11.5	0.7	<0.1			
	300			11.2	0.7	<0.1			
					•				
	0	<0.1	0.0	18.9	1.0	<0.1	NR	0.53	Base of borehole at
	15	<0.1	0.0	17.3	1.3	<0.1			1.29mbgl
	30	<0.1	0.0	16.0	1.5	<0.1		-	
	60	<0.1	0.0	15.8	1.5	<0.1		1	
WS4	90	<0.1	0.0	15.8	1.5	<0.1			
	120	<0.1	0.0						
	150								
	240							+	
	300								
-				•	•	•	•		

Notes:

JOB DETAIL	s								
Site:	Camden Lo	ck Village				Job No:	CG/180674	4	
Date:	13/01/2015	5				Engineer: JJM			
Time:	07:45					Client	Walsh Asso	ociates	
METEOROL		TE INFORMA	TION						
State of grou	nd:	Dry		Moist		Wet	Х	]	
Wind:		Calm		Light	Х	Moderate		Strong	
Cloud cover:		None		Slight		Cloudy	Х	Overcast	Х
Precipitation	:	None		Slight	Х	Moderate		Heavy	
Barometric p	ressure (mb):	999-1001		cal pressure	system*:	Steady	Air temper	rature (°C):	7.1
	1	1		-					
Well No.	Time (s)	Flow (l/hr)	dA (PA)	O <sub>2</sub> (% vol. in air)	CO <sub>2</sub> (% vol. in air)	CH <sub>4</sub> (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
	0	<0.1	0.0	19.2	0.6	<0.1	NR	1.17	Base of borehole at
	15	<0.1	0.0	19.4	1.1	<0.1			2.68mbgl
	30	<0.1	0.0	19.1	1.1	<0.1			
	45 60	<0.1	0.0	19.1	1.1	<0.1			
WS5	90	<0.1	0.0	19.1	1.1	<0.1			
	120	<0.1	0.0	19.1	1.1	<0.1			
	150								
	180								
	300								
	0	<0.1	0.0	18.4	0.6	<0.1	NR	7.70	Base of borehole at
	15	<0.1	0.0	19.1	0.8	<0.1			2.1mbgl
	30	<0.1	0.0	19.0	0.8	<0.1			
	60	<0.1	0.0	19.0	0.7	<0.1			
WS6	90	<0.1	0.0	19.1	0.7	<0.1			
	120	<0.1	0.0	19.1	0.7	<0.1			
	150			19.1	0.7				
	180								
	300								
	500								
	0	<0.1	0.0	19.1	0.4	<0.1	NR	0.78	Base of borehole at
	15	<0.1	0.0	19.5	0.4	<0.1			2.1mbgl
	30	<0.1	0.0	19.5	0.5	<0.1			
	45	<0.1	0.0	19.5	0.5	<0.1			
WS7	90	<0.1	0.0	19.4	0.5	<0.1			
	120	<0.1	0.0	19.4	0.5	<0.1			
	150								
	180								
	240								
	300				l				
	0	0.5	2.0	18.7	0.4	<0.1	NR	0.23	Base of borehole at
	15	0.4	2.0	18.8	<0.1	<0.1			2.03mbgl
	30	0.1	1.0	17.8	<0.1	0.3			
	45	0.1	1.0	17.6	<0.1	0.4			
W/58	60	<0.1	0.0	17.3	<0.1	0.4			
VV 30	120	<0.1	0.0	17.4	<0.1	0.4			
	150	<0.1	0.0	17.4	<0.1	0.4			
	180								
	240								
	300								
	0	<0.1	0.0	19.8	<0.1	<0.1	NR	1.08	Base of borehole at
	15	<0.1	0.0	19.8	<0.1	<0.1			2.8mbgl
	30	<0.1	0.0	19.7	<0.1	<0.1			-
	45	<0.1	0.0	19.7	<0.1	<0.1			
	60	<0.1	0.0	19.7	<0.1	<0.1		┥───┤	
WS9	90	<0.1	0.0	19.7	<0.1	<0.1		┥	
	120	<0.1	0.0	19.7	<0.1	<0.1		+	
	180							+	
	240								
	300								
		-					-		

Notes:

# **APPENDIX D**

Results of chemical analysis



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-61909

Project / Site name:	CLV P1 - Building B	Samples received on:	23/10/2014
Your job number:	CG-18067	Samples instructed on:	23/10/2014
Your order number:	1431	Analysis completed by:	03/11/2014
Report Issue Number:	1	Report issued on:	03/11/2014
Samples Analysed:	2 soil samples		

State Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Analytical Report Number: 14-61909 Project / Site name: CLV P1 - Building B Your Order No: 1431

Lab Canada Nomban				204775	204776		
Lab Sample Number				384775	384776		
Sample Reference				WS5	WS4		
		105	109				
Depth (m)				0.20	0.30		
Date Sampled				21/10/2014 Nana Gungliad	22/10/2014		
Time Taken			-	None Supplied	None Supplied	 	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	11	27		
Total mass of sample received	ka	0.001	NONE	0.92	1.1		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected		
	.//						
General Inorganics							
pH	pH Units	N/A	MCERTS	7.3	7.6		
Total Cyanide	mg/kq	1	MCERTS	< 1	< 1		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	2300	820		
Organic Matter	%	0.1	MCERTS	3.2	2.3		
				-		-	
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0		
	<i>J. J</i>						
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	0.34	< 0.10		
Acenaphthene	ma/ka	0.1	MCERTS	< 0.10	< 0.10		
Fluorene	ma/ka	0.1	MCERTS	< 0.10	< 0.10		
Phenanthrene	ma/ka	0.1	MCERTS	2.5	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	0.73	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	11	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	9.4	< 0.10		
Benzo(a)anthracene	ma/ka	0.1	MCERTS	6.0	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	5.1	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	6.8	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	3.2	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	5.8	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	2.8	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.41	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.1	< 0.05		
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05		
Total PAH							
Total WAC-17 PAHs	mg/kg	1.6	NONE	57	< 1.6		
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	12		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	340	110		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.3		
Boron (water soluble)	mg/kg	0.2	MCERTS	3.3	3.3		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	30		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	130	82		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1100	190		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.2	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	18		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	51	64		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	370	72		1





Analytical Report Number: 14-61909 Project / Site name: CLV P1 - Building B Your Order No: 1431

Lab Sample Number					384776		
Sample Reference	WS5	WS4					
Sample Number				105	109		
Depth (m)				0.20	0.30		
Date Sampled				21/10/2014	22/10/2014		
Time Taken				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics						-	
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0		

### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	0.4		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	0.3		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	20		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	64		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	14		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	34	22		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	34	120		
_							
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.9		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	2.6	14		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	36	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	83	17		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	120	34		





### Analytical Report Number : 14-61909

### Project / Site name: CLV P1 - Building B

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
384775	WS5	105	0.20	Brown sandy topsoil with gravel.
384776	WS4	109	0.30	Brown clay and topsoil with brick.





Analytical Report Number : 14-61909

Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62846

Project / Site name:	CLV P2	Samples received on:	11/11/2014
Your job number:	CG-18067A	Samples instructed on:	12/11/2014
Your order number:	1499	Analysis completed by:	20/11/2014
Report Issue Number:	1	Report issued on:	20/11/2014
Samples Analysed:	6 soil samples		

Ct Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Refiner .

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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## Analytical Report Number: 14-62846

Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number	390748	390749	390750	390751	390752	390753			
Sample Reference				WS9	WS6	WS8	WS8	WS7	WS7
Sample Number				201	204	210	211	215	217
Depth (m)				0.30	0.70	0.20	0.60	0.20	1.20
Date Sampled				10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	occreditation Status						
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	5.7	7.5	24	27	22
Total mass of sample received	kg	0.001	NONE	1.4	2.0	1.3	1.3	1.4	1.1
					-				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected	-
General Inorganics	-	-	-						
pH	pH Units	N/A	MCERTS	5.7	11.7	8.0	7.8	7.9	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	1600	4000	1400	550	490	220
Organic Matter	%	0.1	MCERTS	< 0.1	0.2	< 0.1	0.1	< 0.1	0.1
Total Phenois	-	-							
Total Phenols (monohydric)	mq/kq	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs	-	-							
Naphthalene	mg/kg	0.05	MCERTS	1.6	< 0.05	0.30	< 0.05	< 0.05	0.45
Acenaphthylene	mq/kq	0.1	MCERTS	6.7	0.36	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	2.7	0.31	0.20	< 0.10	< 0.10	0.18
Fluorene	mg/kg	0.1	MCERTS	7.6	0.29	0.22	0.23	< 0.10	0.20
Phenanthrene	mg/kg	0.1	MCERTS	57	4.9	2.8	0.82	< 0.10	0.30
Anthracene	mg/kg	0.1	MCERTS	16	1.3	0.34	0.14	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	74	9.0	3.0	0.60	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	60	8.4	2.5	0.61	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	29	4.7	1.6	0.29	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	26	3.3	1.6	0.28	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	28	4.6	1.8	0.27	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	14	1.6	0.78	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	26	3./	1.3	0.24	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	15	2.1	0.65	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	3.4	0.50	0.20	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	15	2.3	0.72	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	5.2	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Total DAL									
	mc//	1.6	NONE	200	10	10	2 5	21C	2.1.C
TUTAL WAC-17 PARS	mg/кg	0.1	NONE	390	48	18	3.5	< 1.0	< 1.0
Heavy Metals / Metalloids									
Arcenic (agua regia extractable)	mc/ka	1	MCEDIC	10	17	9.2	12	7 4	14
Arsenic (aqua regia extractable)	mg/kg	1	MCEDIC	19	120	52	1Z	/. <del>1</del> 60	79
Bandlium (aqua regia extractable)	mg/kg	0.06	MCEDIC	1.2	0.2	55	1.0	09	17
Beron (water coluble)	mg/kg	0.00	MCEDIC	2.1	1.2	- 0.7	1.0	0.8	0.5
Cadmium (agua ragia autrastable)	mg/kg	0.2	MCEDIC	- 0.2	1.5	< 0.2	0.9	0.3	0.5
Caumium (aqua regia extractable) Chromium (beyayalent)	mg/kg	1.2	MCEDIC	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.0
Chromium (III)	mg/kg	1.2	NONE	-	-	_	× 1.2	-	× 1.2 47
Chromium (agua regia extractable)	mg/kg	1	MCEDTS	- 20	- 15	- 13	44	21	<del>۲</del> / 47
Connor (aqua regia extractable)	mg/kg	1	MCEDIC	2U 62	10	13	20	21	7/
Logi (aqua regia extractable)	mg/kg		MCERTS	140	30	34	30	35	17
Leau (aqua regia extractable)	mg/kg	0.2	MCEDIC	140	200	100	29	< 0.2	1/
Nickel (aqua regia extractable)	mg/kg	0.5	MCEDIC	< U.3 2E	< U.3 11	< U.3 17	< U.3 32	< U.3 14	< 0.5 44
Selenium (aqua regia extractable)	mg/kg	1	MCEDIC	2J 2 1 0	~ 10		23	10	- 1 0
Vanadium (aqua regia extractable)	mg/kg	1	MCEDTS	57	33	~ 1.0	77	× 1.0 41	× 1.0 87
Zinc (aqua regia extractable)	ma/ka	1	MCERTS	110	150	43	69	50	65
Ene (aqua regia extractable)	iiig/ikg	-	- ICENIO	110	100	15			05





Analytical Report Number: 14-62846 Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number				390748	390749	390750	390751	390752	390753
Sample Reference				WS9	WS6	WS8	WS8	WS7	WS7
Sample Number				201	204	210	211	215	217
Depth (m)				0.30	0.70	0.20	0.60	0.20	1.20
Date Sampled				10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status						
Monoaromatics									
Benzene	µq/kq	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µq/kq	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mq/kg	2	MCERTS	27	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	210	24	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mq/kg	10	MCERTS	190	36	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	430	60	< 10	< 10	< 10	< 10





Analytical Report Number: 14-62846 Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number					1
Sample Reference					
Sample Number					
Depth (m)					
Date Sampled					
Time Taken					
			A		
	_	de Li	ω <sup>β</sup>		
Analytical Parameter	Uni	tec mit	tat edi		
(Soil Analysis)	ស	li of	us		
		-	9		
Stone Content	%	0.1	NONE		
Moisture Content	%	N/A	NONE		
Total mass of sample received	ka	0.001	NONE		
Asbestos in Soil	Type	N/A	ISO 17025		
General Inorganics					
pH	pH Units	N/A	MCERTS		
Total Cyanide	mg/kg	1	MCERTS		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025		
Organic Matter	%	0.1	MCERTS		
Total Phenois					
Total Phenols (monohydric)	mg/kg	1	MCERTS		
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS		
Acenaphthylene	mg/kg	0.1	MCERTS		
Acenaphthene	mg/kg	0.1	MCERTS		
Fluorene	mg/kg	0.1	MCERTS		
Phenanthrene	mg/kg	0.1	MCERTS		
Anthracene	mg/kg	0.1	MCERTS		
Fluoranthene	mg/kg	0.1	MCERTS		
Pyrene	mg/kg	0.1	MCERTS		
Benzo(a)anthracene	mg/kg	0.1	MCERTS		
Chrysene	mg/kg	0.05	MCERTS		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS		
Benzo(a)pyrene	mg/kg	0.1	MCERTS		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS		
Coronene	mg/kg	0.05	NONE		
		1.0	NONE	 	 
Total WAC-17 PAHs	mg/kg	1.6	NONE		
Henry Metale / Metalleide					
neavy metals / Metallolds		1	MCEDIC		1
Aiseilic (aqua regia extractable)	mq/kq		MCERTS		
Ponullium (aqua regia extractable)	mg/kg	0.06	MCEDIC		
Boron (water soluble)	mq/kg	0.00	MCERTS		 
Cadmium (agua regia extractable)	mg/kg	0.2	MCERTS		
Chromium (beyavalent)	mg/kg	1.2	MCEDIC		
Chromium (III)	mg/kg	1.2	NONE		
Chromium (agua regia extractable)	mg/kg	1	MCERTS		 
Conner (agua regia extractable)	mg/kg	1	MCERTS		
Lead (aqua regia extractable)	ma/ka	1	MCERTS		
Mercury (aqua regia extractable)	ma/ka	03	MCERTS		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS		
Selenium (aqua regia extractable)	ma/ka	1	MCERTS		
Vanadium (aqua regia extractable)	ma/ka	1	MCERTS		
Zinc (agua regia extractable)	ma/ka	1	MCERTS		

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Analytical Report Number: 14-62846 Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number					
Sample Reference					
Sample Number					
Depth (m)					
Date Sampled					
Time Taken					
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Monoaromatics					
Benzene	µq/kq	1	MCERTS		
Toluene	µg/kg	1	MCERTS		
Ethylbenzene	µq/kq	1	MCERTS		
p & m-xylene	µg/kg	1	MCERTS		
o-xylene	µg/kg	1	MCERTS		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS		

### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS		





### Analytical Report Number : 14-62846

### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390748	WS9	201	0.30	Light brown clay and sand.
390749	WS6	204	0.70	Non Soil **
390750	WS8	210	0.20	Non Soil **
390751	WS8	211	0.60	Non Soil **
390752	WS7	215	0.20	Non Soil **
390753	WS7	217	1.20	Non Soil **

\*\* Non MCerts Matrix





### Analytical Report Number : 14-62846

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name Analytical Method Description		Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62807

Project / Site name:	CLV P1 Building W	Samples received on:	07/11/2014
Your job number:	CG-18067	Samples instructed on:	07/11/2014
Your order number:	1432	Analysis completed by:	18/11/2014
Report Issue Number:	1	Report issued on:	18/11/2014
Samples Analysed:	1 soil sample		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Analytical Report Number: 14-62807 Project / Site name: CLV P1 Building W Your Order No: 1432

Lab Sample Number	390517					
Sample Reference	BH2					
Sample Number	None Supplied					
Depth (m)	0.20-0.60					
Date Sampled	05/11/2014					
Time Taken		None Supplied				
			Þ			
Analytical Parameter	c	det Lin	St occe			
(Soil Analysis)	nit	ecti	atu			
(Son Analysis)	6	g, d	s			
			3			
Stone Content	%	0.1	NONE	< 0.1		
Moisture Content	%	N/A	NONE	9.8		
Total mass of sample received	kg	0.001	NONE	0.52		
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected		
-	-	-	-	-		
General Inorganics						
pH	pH Units	N/A	MCERTS	8.0		
Total Cyanide	mg/kg	1	MCERTS	< 1		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	1600		
Organic Matter	%	0.1	MCERTS	2.0		
Total Phenois						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0		
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	1.1		
Anthracene	mg/kg	0.1	MCERTS	0.22		
Fluoranthene	ma/ka	0.1	MCERTS	2.2		
Pyrene	ma/ka	0.1	MCERTS	2.0		
Benzo(a)anthracene	ma/ka	0.1	MCERTS	1.0		
Chrysene	ma/ka	0.05	MCERTS	1.2		
Benzo(b)fluoranthene	ma/ka	0.1	MCERTS	1.6		
Benzo(k)fluoranthene	ma/ka	0.1	MCERTS	0.76		
Benzo(a)pyrene	ma/ka	0.1	MCERTS	1.1		
Indeno(1,2,3-cd)pyrene	ma/ka	0.1	MCERTS	0.67		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.18		
Benzo(ghi)pervlene	ma/ka	0.05	MCERTS	0.77		
Coronene	ma/ka	0.05	NONE	< 0.05		
	J. J					
Total PAH						
Total WAC-17 PAHs	mg/kg	1.6	NONE	13		
	J. J					
Heavy Metals / Metalloids						
Arsenic (agua regia extractable)	ma/ka	1	MCERTS	23		
Barium (aqua regia extractable)	ma/ka	1	MCERTS	240		
Bervllium (aqua regia extractable)	ma/ka	0.06	MCERTS	1.5		
Boron (water soluble)	ma/ka	0.2	MCERTS	1.4		
Cadmium (aqua regia extractable)	ma/ka	0.2	MCERTS	0.3		
Chromium (aqua regia extractable)	ma/ka	1	MCERTS	30		
Copper (agua regia extractable)	ma/ka	1	MCFRTS	110		
Lead (anua regia extractable)	ma/ka	1	MCEDTS	570	 	
Mercury (aqua regia extractable)	mg/kg	03	MCEDTS	85		
Nickel (agua regia extractable)	ma/ka	1	MCEDTS	24	 	
Selenium (aqua regia extractable)	mg/kg	1	MCEDTS	<del>د 1</del>	 	
	mg/kg	1	MCEDTC	< 1.0 50		
Zinc (aqua regia extractable)	mg/kg	1	MCEDTC	300		
בוווב למקוום ובטום בצנו מכומטוב)	тту/ку	1	PICERIS	200		i





Analytical Report Number: 14-62807 Project / Site name: CLV P1 Building W Your Order No: 1432

Lab Sample Number				390517				
Sample Reference				BH2				
Sample Number				None Supplied				
Depth (m)				0.20-0.60				
Date Sampled				05/11/2014				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics	-	-	-		-	-	-	-
Benzene	µg/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				

#### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	29		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	29		





### Analytical Report Number : 14-62807

### Project / Site name: CLV P1 Building W

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390517	BH2	None Supplied	0.20-0.60	Brown topsoil and sand with gravel.





Analytical Report Number : 14-62807

Project / Site name: CLV P1 Building W

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.


t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-63102

Project / Site name:	CLV P2	Samples received on:	17/11/2014
Your job number:	CG-18067A	Samples instructed on:	17/11/2014
Your order number:	1499	Analysis completed by:	26/11/2014
Report Issue Number:	1	Report issued on:	26/11/2014
Samples Analysed:	2 soil samples		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

leachates	- 4
waters	- 2

Excel copies of reports are only valid when accompanied by this PDF certificate.

Rexona Rahman

Signed:

Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P2 Your Order No: 1499

Your Order No: 1499

Lab Sample Number	392525	392526						
Sample Reference				BH6	BH6		1	
Sample Number	220	221		1				
Depth (m)				0.30	2.20			
Date Sampled				14/11/2014	14/11/2014			
Time Taken				None Supplied	None Supplied			
			2					
		de L	. 6					
Analytical Parameter	Uni	iteo ini	edi					
(Soil Analysis)	s	tion	us					
		2	0n					
Stone Content	0/6	0.1	NONE	< 0.1	< 0.1			
Moisture Content	-70	N/A	NONE	8.8	18			
Total mass of sample received	-70 kg	0.001	NONE	1.2	10			
Total mass of sample received	ĸġ	0.001	NUNL	1.5	1.1			
			I	Chrysotile- Loose			l i i i i i i i i i i i i i i i i i i i	
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	fibres	-			
Ashestos in Soil	Type	N/A	ISO 17025	Detected	-			
///////////////////////////////////////	Type	14/1	150 17025	Dettetted				
General Inorganics								
nH	nH Units	N/A	MCERTS	10.3	7.6			
Total Cvanide	ma/ka	1	MCERTS	< 1	< 1			
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	1500	6000			
Organic Matter	%	0.1	MCERTS	3.0	0.2			
				2.0				
Total Phenols								
Total Phenols (monohydric)	ma/ka	1	MCERTS	< 1.0	< 1.0			
	ing/itg	-	HOLITO	1 110	1 110		a	
Speciated PAHs								
Naphthalene	ma/ka	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	ma/ka	0.1	MCERTS	2.4	< 0.10			
Acenaphthene	ma/ka	0.1	MCERTS	8.4	< 0.10			
Fluorene	ma/ka	0.1	MCERTS	11	< 0.10			
Phenanthrene	ma/ka	0.1	MCERTS	100	0.61			
Anthracene	mg/kg	0.1	MCERTS	30	0.17			
Fluoranthene	mg/kg	0.1	MCERTS	160	0.87			
Pyrene	mg/kg	0.1	MCERTS	130	0.69			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	78	0.33			
Chrysene	mg/kg	0.05	MCERTS	54	0.36			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	73	0.30			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	31	0.21			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	64	0.30			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	28	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	5.5	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	29	< 0.05			
Coronene	mg/kg	0.05	NONE	7.1	< 0.05			
Total PAH			_			-	-	
Total WAC-17 PAHs	mg/kg	1.6	NONE	810	3.8			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24	14			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	35			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8	1.7			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1.6			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	< 1.2			
Chromium (III)	mg/kg	1	NONE	-	46			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	46			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	160	31			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	340	14			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	47	45			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	67	87			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	430	87			





Project / Site name: CLV P2 Your Order No: 1499

Your Order No: 1499

Lab Sample Number				392525	392526		
Sample Reference				BH6	BH6		
Sample Number				220	221		
Depth (m)				0.30	2.20		
Date Sampled				14/11/2014	14/11/2014		
Time Taken				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics							
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0		

## Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	3.8	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	22	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	19	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	45	< 10		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	51	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	490	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	650	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1200	< 10		





#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
392525	BH6	220	0.30	Brown sandy topsoil with rubble and brick.
392526	BH6	221	2.20	Light brown clay.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62702

Project / Site name:	CLV P2	Samples received on:	07/11/2014
Your job number:	CG/18067A	Samples instructed on:	07/11/2014
Your order number:	1499	Analysis completed by:	18/11/2014
Report Issue Number:	1	Report issued on:	18/11/2014
Samples Analysed:	2 soil samples		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Analytical Report Number: 14-62702 Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number		389798	389799				
Sample Reference		BH7	BH7				
Sample Number				None Supplied	None Supplied		
Denth (m)				0.50-1.00	1 70-2 20		
Data Samulad				05/11/2014	05/11/2014		
Time Taken		None Supplied	None Supplied				
				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditatic Status				
			â				
Stone Content	%	0.1	NONE	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	25	21		
Total mass of sample received	kg	0.001	NONE	1.4	1.5		
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	Not-detected		
General Inorganics							
pH	pH Units	N/A	MCERTS	7.4	7.9		
Total Cvanide	ma/ka	1	MCERTS	< 1	< 1		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	1600	430		
Water Soluble Sulphate (Soil Equivalent)	a/l	0.0025	MCERTS	0.76	-		
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	760	-		
Water Soluble Sulphate (2:1 Leachate Equivalent)	a/l	0.00125	MCERTS	0.38	-		
Total Sulphur	ma/ka	50	NONE	1300	-		
Organic Matter	0/-	0.1	MCEDITS	0.5	< 0.1		
organic matter	70	0.1	PICERT3	0.5	< 0.1		
Total Phonois							
Tetal Dhanala (manahudria)			MCEDIC	.10	- 1.0		
Total Phenois (mononyunc)	mg/kg	1	MCERTS	< 1.0	< 1.0		II
Constant d DAUL							
Speciated PAHS		0.05		0.05	0.05		1
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Phenanthrene	mq/kq	0.1	MCERTS	< 0.10	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Benzo(k)fluoranthene	mq/kq	0.1	MCERTS	< 0.10	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05		
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05		
Total PAH							
Total WAC-17 PAHs	mg/kq	1.6	NONE	< 1.6	< 1.6		
				-			
Heavy Metals / Metalloids							
Arsenic (agua regia extractable)	ma/ka	1	MCERTS	48	13		
Barium (aqua regia extractable)	ma/ka	1	MCERTS	370	130		
Beryllium (aqua regia extractable)	ma/ka	0.06	MCERTS	47	14		
Boron (water soluble)	ma/ka	0.2	MCERTS	10	4.4		
Cadmium (aqua regia extractable)	ma/ka	0.2	MCERTS	0.6	< 0.2		
Chromium (hexavalent)	ma/ka	1.2	MCEPTS	< 1 7	< 1.7		
Chromium (III)	mg/kg	1	NONE	57	37		
Chromium (arua regia extractable)	mg/kg	1	MCEDITC	52	37		
Conner (agua regia extractable)	mq/kd		MCEDIC	120	3/		
Copper (aqua regia extractable)	mg/кg	1	MCEDIC	120	22		
Leau (aqua regia extractable)	mg/kg	1	MCERTS	8/	20		
mercury (aqua regia extractable)	mg/kg	0.3	MCERIS	< 0.3	< 0.3		
Nickei (aqua regia extractable)	mg/kg	1	MCERTS	//	30	 	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	 	
vanadium (aqua regia extractable)	mg/kg	1	MCERTS	200	69		
Zinc (agua regia extractable)	mq/kq	1	MCERTS	170	59		

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report are representative of the samples submitted for analysis.





Analytical Report Number: 14-62702 Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number	389798	389799					
Sample Reference				BH7	BH7		
Sample Number				None Supplied	None Supplied		
Depth (m)				0.50-1.00	1.70-2.20		
Date Sampled				05/11/2014	05/11/2014		
Time Taken				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics						-	
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Toluene	µq/kq	1	MCERTS	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0		

#### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	20		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	20		





#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
389798	BH7	None Supplied	0.50-1.00	Grey sandy clay.
389799	BH7	None Supplied	1.70-2.20	Light brown clay.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-61911

Project / Site name:	CLV P1 - Building B	Samples received on:	23/10/2014
Your job number:	CG-18067	Samples instructed on:	23/10/2014
Your order number:	1431	Analysis completed by:	03/11/2014
Report Issue Number:	1	Report issued on:	03/11/2014
Samples Analysed:	1 wac multi sample		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

Rexona Rahman Reporting Manager

Signed:

For & on behalf of i2 Analytical Ltd.

soils	<ul> <li>4 weeks from reporting</li> </ul>
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

# i2 Analytical

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

Report No:	Results	14-61911				
				Client:	CARDGEO	
Location		CLV P1 - Build	ing B			
l ab Reference (Sample Number)				Landfill	Waste Acceptane	ce Criteria
Lub Reference (Sumple Rumber)	384782			Limits		
Sampling Date		22/10/2014			Stable Non-	
Sample ID Depth (m)		0.30		Inert Waste Landfill	HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis						
TOC (%)**	1.3			3%	5%	6%
Loss on Ignition (%) **	8.7					10%
BTEX (µg/kg) **	< 10			6000		
Sum of PCBs (mg/kg)	< 0.30			1		
Mineral Oil (mg/kg)	120			500		
Total PAH (WAC-17) (mg/kg)	< 1.6			100		
pH (units)**	7.6				>6	
Acid Neutralisation Capacity (mol / kg)	3.4				To be evaluated	To be evaluate
Fluate Analysis	2.1	0.1	Cumulation 10:1	Limit valu	ues for compliance l	eaching test
	2:1	8:1	Cumulative 10:1	uning DC E	12457.2 -+ 1/6.10	) ///
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l	mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg		
Arsenic *	0.012	< 0.010	0.082	0.5	2	25
Barium *	0.065	0.064	0.64	20	100	300
Cadmium *	< 0.0005	< 0.0005	< 0.0020	0.04	1	5
Chromium *	< 0.0010	< 0.0010	< 0.0050	0.5	10	70
Copper *	0.0042	0.0038	0.039	2	50	100
Mercury *	< 0.0015	< 0.0015	< 0.010	0.01	0.2	2
Molybdenum *	0.024	0.012	0.13	0.5	10	30
Nickel *	0.0016	< 0.0010	< 0.0050	0.4	10	40
Lead *	0.0066	< 0.0050	0.033	0.5	10	50
Antimony *	0.0059	0.0054	0.054	0.06	0.7	5
Selenium *	< 0.010	< 0.010	< 0.040	0.1	0.5	7
Zinc *	0.0011	< 0.0010	< 0.020	4	50	200
Chloride *	< 4.0	< 4.0	< 15	800	4000	25000
Fluoride	0.33	0.30	3.0	10	150	500
Sulphate *	38	27	280	1000	20000	50000
TDS	240	170	1800	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13	< 0.50	1	-	-
DOC	45	20	230	500	800	1000
Leach lest information						
Stone Content (%)	< 0.1				1	
Sample Mass (kg)	1.1					
Dry Matter (%)	73					
Moisture (%)	27					
Stage 1						
Volume Eluate L2 (litres)	0.30					
Filtered Eluate VE1 (litres)	0.16					
Results are expressed on a dry weight basis, after correction for moisture content.	where applicable					

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#### Project / Site name: CLV P1 - Building B

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
384782	WS4	109	0.30	Brown clay and topsoil with brick.

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Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	w	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

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Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture

correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



t: 01483 310600 f: 01483 527285 e:



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t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62703

Project / Site name:	CLV P2	Samples received on:	07/11/2014
Your job number:	CG/18067A	Samples instructed on:	07/11/2014
Your order number:	1499	Analysis completed by:	18/11/2014
Report Issue Number:	1	Report issued on:	18/11/2014
Samples Analysed:	1 wac multi sample		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

# i2 Analytical

Report No:	Results	14-62	703				
					Client:	CARDGEO	
Location		CLV	P2				
Lab Paferance (Sample Number)					Landfill	Waste Acceptance	ce Criteria
		3898	00			Limits	
Sampling Date		05/11/	2014			Stable Non-	
Sample ID Depth (m)	BH7 0.50-1.00			Inert Waste Landfill	HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill	
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	2.9						10%
BTEX (µg/kg) **	< 10				6000		
Sum of PCBs (mg/kg)	< 0.30				1		
Mineral Oil (mg/kg)	< 10				500		
Total PAH (WAC-17) (mg/kg)	< 1.6				100		
pH (units)**	7.4					>6	
Acid Neutralisation Capacity (mol / kg)	1.3					To be evaluated	To be evaluate
Eluate Analysis	2.1	8.1		Cumulative 10:1	Limit valu	es for compliance le	eaching test
	2.1	0:1		cumulauve 10.1	using BS FI	12457-3 at 1 /S 10	) l/ka (ma/ka)
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg			n kg (mg/kg)
Arsenic.*	< 0.010	< 0.010		0.081	0.5	2	25
Barium *	0.20	0.14		1.5	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0023	< 0.0010		< 0.0050	0.5	10	70
Copper *	< 0.0010	< 0.0030		< 0.020	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molvbdenum *	0.076	0.013		0.19	0.5	10	30
Nickel *	0.0019	0.0015		0.016	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	0.011	0.010		0.10	0.06	0.7	5
Selenium *	0.16	0.037		0.48	0.1	0.5	7
Zinc *	0.0022	< 0.0010		< 0.020	4	50	200
Chloride *	21	< 4.0		41	800	4000	25000
Fluoride	1.2	0.93		9.5	10	150	500
Sulphate *	370	110		1400	1000	20000	50000
TDS	600	280		3100	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	1.8	1.2		12	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.4						
Dry Matter (%)	75						
Moisture (%)	25						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.16						
Results are expressed on a dry weight basis, after correction for moisture content	where applicable						

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

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Iss No 14-62703-1
Page 2 of 5









#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
389800	BH7	None Supplied	0.50-1.00	Grey sandy clay.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name Analytical Method Description		Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	w	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

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Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62848

Project / Site name:	CLV P2	Samples received on:	11/11/2014
Your job number:	CG-18067A	Samples instructed on:	12/11/2014
Your order number:	1499	Analysis completed by:	20/11/2014
Report Issue Number:	1	Report issued on:	20/11/2014
Samples Analysed:	1 wac multi sample		

Ut Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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# i2 Analytical

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

Report No:		14-62	2848					
					Client	CARDOLEC		
					Client:	CARDGEO		
Location		CLV	P2					
Lab Reference (Sample Number)		300	756		Landfill Waste Acceptance Criteria			
		390	/30			Limits		
Sampling Date		10/11	/2014			Stable Non-		
Sample 1D Depth (m)	WS6 204 0.70			Inert Waste Landfill	HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill		
iolid Waste Analysis								
OC (%)**	0.1				3%	5%	6%	
oss on Ignition (%) **	8.5						10%	
JTEX (μg/kg) **	< 10				6000			
um of PCBs (mg/kg)	< 0.30				1			
/lineral Oil (mg/kg)	< 10				500			
otal PAH (WAC-17) (mg/kg)	45				100			
/H (units)**	11.7					>6		
cid Neutralisation Capacity (mol / kg)	30					To be evaluated	To be evaluated	
fluate Analysis	2.1	0.1		Cumulative 10:1	Limit valu	es for compliance le	eaching test	
	2:1	8:1		Cumulative 10:1	uning DC F	112457 2 -+ 1 /6 10	) ///	
BS EN 12457 - 3 preparation utilising end over end leaching	ma/l	ma/l		malka	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
rocedure)	mg/i	mg/i		mg/kg				
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25	
3arium *	0.61	0.24		3.0	20	100	300	
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5	
Chromium *	0.0018	0.0016		0.016	0.5	10	70	
Copper *	0.026	0.0076		0.10	2	50	100	
1ercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2	
1olybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30	
lickel *	0.0049	0.0011		0.016	0.4	10	40	
.ead *	< 0.0050	< 0.0050		0.034	0.5	10	50	
ntimony *	< 0.0050	< 0.0050		0.027	0.06	0.7	5	
elenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7	
inc *	< 0.0010	< 0.0010		< 0.020	4	50	200	
chloride *	63	17		240	800	4000	25000	
luoride	0.97	0.94		9.4	10	150	500	
Sulphate *	8.2	7.5		/6	1000	20000	50000	
US	1/00	900		10000	4000	60000	100000	
nenoi Index (Monnyaric Phenois) *	< 0.13	< 0.13		< 0.50	1	-	-	
200	42	7.8		130	500	800	1000	
each Test Information	1							
Stone Content (%)	< 0.1					1		
ample Mass (kg)	2.0					İ	1	
Dry Matter (%)	94					İ	1	
loisture (%)	5.7					İ	1	
Stage 1	1					1		
/olume Eluate L2 (litres)	0.34							
iltered Eluate VE1 (litres)	0.26							
esults are expressed on a dry weight basis, after correction for moisture content	t where applicable							

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#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390756	WS6	204	0.70	Light brown clay and sand.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name Analytical Method Description		Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	w	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

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Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-62897

Project / Site name:	CLV P1 Building B	Samples received on:	12/11/2014
Your job number:	CG-18067	Samples instructed on:	12/11/2014
Your order number:	1432	Analysis completed by:	20/11/2014
Report Issue Number:	1	Report issued on:	20/11/2014
Samples Analysed:	8 soil samples		

TY Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report are representative of the samples submitted for analysis.





Analytical Report Number: 14-62897 Project / Site name: CLV P1 Building B Your Order No: 1432

Lab Sample Number		391089	391090	391091	391092	391093		
Sample Reference				BH3	BH3	BH3	BH3	BH2
Sample Number				6	11	17	27	4
Depth (m)	2.50	4.50	7.50	13.50	1.50			
Date Sampled	05/11/2014	05/11/2014	05/11/2014	05/11/2014	05/11/2014			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	20	21	20	21	15
Total mass of sample received	kg	0.001	NONE	0.37	0.42	0.39	0.32	0.47

#### **General Inorganics**

pH	pH Units	N/A	MCERTS	7.5	7.5	7.6	7.7	7.7
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	29000	15000	1800	1500	1100
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	4.6	4.8	1.4	1.3	0.22
Water Soluble Sulphate as $SO_4$ (2:1)	mg/kg	2.5	MCERTS	4600	4800	1400	1300	220
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.3	2.4	0.72	0.65	0.11
Total Sulphur	mg/kg	50	NONE	10000	5900	1400	6400	390





Analytical Report Number: 14-62897 Project / Site name: CLV P1 Building B Your Order No: 1432

Lab Sample Number				391094	391095	391096	
Sample Reference				BH2	BH2	BH2	
Sample Number				9	14	29	
Depth (m)	3.50	6.00	15.00				
Date Sampled				05/11/2014	05/11/2014	05/11/2014	
Time Taken				None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	22	20	18	
Total mass of sample received	kg	0.001	NONE	0.34	0.33	0.56	

#### **General Inorganics**

рН	pH Units	N/A	MCERTS	7.6	7.6	7.7	
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	6400	11000	860	
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	4.8	5.4	0.81	
Water Soluble Sulphate as $SO_4$ (2:1)	mg/kg	2.5	MCERTS	4800	5400	810	
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.4	2.7	0.40	
Total Sulphur	mg/kg	50	NONE	2700	4100	3200	





#### Project / Site name: CLV P1 Building B

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
391089	BH3	6	2.50	Light brown clay.
391090	BH3	11	4.50	Light brown clay.
391091	BH3	17	7.50	Light brown clay.
391092	BH3	27	13.50	Brown clay.
391093	BH2	4	1.50	Light brown clay and sand.
391094	BH2	9	3.50	Light brown clay.
391095	BH2	14	6.00	Light brown clay.
391096	BH2	29	15.00	Brown clay.





Project / Site name: CLV P1 Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-63013

Project / Site name:	CLV P2	Samples received on:	14/11/2014
Your job number:	CG18067A	Samples instructed on:	14/11/2014
Your order number:	1499	Analysis completed by:	25/11/2014
Report Issue Number:	1	Report issued on:	25/11/2014
Samples Analysed:	2 soil samples		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

leachates	-
waters	-

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Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P2 Your Order No: 1499

Lab Sample Number	391950
Sample Reference	BH7
Sample Number	None Supplied
Depth (m)	4.50-4.95
Date Complet	06/11/2014

Depth (m)	4.50-4.95	22.50-22.95					
Date Sampled	06/11/2014	06/11/2014					
lime Taken				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	19	14		
Total mass of sample received	kg	0.001	NONE	0.38	0.53		

391951

BH7

None Supplied

#### **General Inorganics**

pH	pH Units	N/A	MCERTS	7.2	8.3		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	1600	560		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	1.5	0.55		
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	1500	550		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.77	0.28		
Total Sulphur	mg/kg	50	NONE	710	8500		





#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
391950	BH7	None Supplied	4.50-4.95	Light brown clay.
391951	BH7	None Supplied	22.50-22.95	Grey clay.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (a/l).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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# Analytical Report Number : 14-63103

Project / Site name:	CLV P2	Samples received on:	17/11/2014
Your job number:	CG-18067A	Samples instructed on:	17/11/2014
Your order number:	1499	Analysis completed by:	26/11/2014
Report Issue Number:	1	Report issued on:	26/11/2014
Samples Analysed:	1 wac multi sample		

State Signed: (

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Rohmen ,

Signed:

Rexona Rahman Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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waste Acceptance Criteria Andiytica	Results						
Report No:		14-6	3103				
					Client:	CARDGEO	
					Chenti	CARDOLU	
Location		CLV	/ P2		Landfill	Waste Accentan	co Critoria
Lab Reference (Sample Number)		392	527		Lanumi	Limits	Le Criteria
Sampling Date		14/11/2014				Stable Non-	
Sample ID Depth (m)		BH6 220 0.30				reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis							
TOC (%)**	1.7				3%	5%	6%
Loss on Ignition (%) **	5.7						10%
BTEX (µg/kg) **	< 10				6000		
Sum of PCBs (mg/kg)	< 0.30				1		
Mineral Oli (mg/kg)	45				500		
Deal PAH (WAC-17) (fflg/kg)	10.3	-			100		
	10.5					To be evaluated	To be evaluated
Here here a subsective (here is kg)	11				t insite and	for secondiance	no be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit valu	es for compliance i	eaching test
(BS EN 12457 - 3 preparation utilising end over end leaching	ma/l	ma/l		ma/ka	using BS El	N 12457-3 at L/S 10	) l/kg (mg/kg)
	5,	5,	1	3, 3		-	
Arsenic *	< 0.010	< 0.010		0.068	0.5	2	25
Barium *	0.048	0.023		0.27	20	100	300
Cadimium *	< 0.0005	< 0.0005		< 0.0020	0.04	10	5
Copper *	0.030	0.0093		0.13	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.0066	< 0.0030		0.035	0.5	10	30
Nickel *	0.0017	< 0.0010		0.0098	0.4	10	40
Lead *	0.025	0.0071		0.10	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.021	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.023	0.0038		0.070	4	50	200
Chloride *	< 4.0	< 4.0		19	800	4000	25000
Fluoride	0.43	0.18		2.2	10	150	500
Sulphate *	19	3.9		65	1000	20000	50000
TDS	60	20		270	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	11	6.4		71	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	91						
Moisture (%)	8.8						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.30	<u> </u>					
Dearth and an end on a data stable basis of a sound that f	where applicable					1	1
varium are expressed on a dry weight bacic after correction for molecure contents							

#### Telephone: 01923 225404 Fax: 01923 237404 email:reception@i2analytical.com

Page 2 of 5









#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
392527	BH6	220	0.30	Brown sandy topsoil with rubble and brick.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	w	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

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Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-63590

Project / Site name:	CLV P2	Samples received on:	25/11/2014
Your job number:	CG-18067A	Samples instructed on:	26/11/2014
Your order number:	1500	Analysis completed by:	05/12/2014
Report Issue Number:	1	Report issued on:	05/12/2014
Samples Analysed:	7 soil samples		

State Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

(+ Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P2

Your	oraer	NO:	1500	

Lab Sample Number		395404	395405	395406	395407	395408		
Sample Reference				BH4	BH4	BH5	BH5	BH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	19.50	3.50	9.00	18.00
Date Sampled				18/11/2014	18/11/2014	12/11/2014	12/11/2014	12/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	18	22	20	19
Total mass of sample received	kg	0.001	NONE	0.48	0.60	0.40	0.47	0.40

#### **General Inorganics**

pH	pH Units	N/A	MCERTS	7.5	7.9	7.9	7.8	8.1
Total Sulphate as SO₄	mg/kg	50	ISO 17025	1800	870	490	2100	860
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	1.7	0.85	0.12	1.6	0.72
Water Soluble Sulphate as $SO_4$ (2:1)	mg/kg	2.5	MCERTS	1700	850	120	1600	720
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.85	0.43	0.061	0.81	0.36
Total Sulphur	mg/kg	50	NONE	710	4300	170	4200	7200





Project / Site name: CLV P2 Your Order No: 1500

Lab Sample Number				395409	395410		
Sample Reference				BH6	BH6		
Sample Number				None Supplied	None Supplied		
Depth (m)				4.50	16.50		
Date Sampled				14/11/2014	14/11/2014		
Time Taken				None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	20	17		
Total mass of sample received	kg	0.001	NONE	0.35	0.50		

#### **General Inorganics**

pН	pH Units	N/A	MCERTS	7.9	8.1		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	19000	940		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	5.6	0.84		
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	5600	840		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.8	0.42		
Total Sulphur	mg/kg	50	NONE	6200	4400		





#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
395404	BH4	None Supplied	4.50	Light brown clay.
395405	BH4	None Supplied	19.50	Light grey clay.
395406	BH5	None Supplied	3.50	Light brown clay.
395407	BH5	None Supplied	9.00	Light grey clay.
395408	BH5	None Supplied	18.00	Light grey clay.
395409	BH6	None Supplied	4.50	Light brown clay.
395410	BH6	None Supplied	16.50	Light grey clay.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland. Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-64676

Project / Site name:	CLV P2	Samples received on:	23/10/2014
Your job number:	CG/18067A	Samples instructed on:	11/12/2014
Your order number:	1499	Analysis completed by:	22/12/2014
Report Issue Number:	1	Report issued on:	22/12/2014
Samples Analysed:	4 soil samples		

Signed: Castate

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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all Signed:

Emma Winter Assistant Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P2

Your	Order	NO:	1499	

Lab Sample Number	402180	402181	402182	402183				
Sample Reference				WS4	WS7	WS8	WS9	
Sample Number				109	216	211	202	
Depth (m)				0.30	0.60	0.60	2.00	
Date Sampled				22/10/2014	10/11/2014	10/11/2014	10/11/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	27	18	23	28	
Total mass of sample received	kg	0.001	NONE	1.1	1.3	1.3	1.3	

#### **General Inorganics**

рН	pH Units	N/A	MCERTS	7.6	7.7	8.1	8.9	
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.55	0.20	0.43	0.55	
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	550	200	430	550	
Water Soluble Sulphate (2:1 Leachate Equivalent)	q/l	0.00125	MCERTS	0.28	0.099	0.22	0.28	





#### Project / Site name: CLV P2

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
402180	WS4	109	0.30	Brown clay and topsoil with brick.
402181	WS7	216	0.60	Brown clay and sand.
402182	WS8	211	0.60	Light brown clay and sand.
402183	WS9	202	2.00	Light grey clay and sand.





Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (n/l)	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-63523

Project / Site name:	CLV P3	Samples received on:	25/11/2014
Your job number:	CG/18067B	Samples instructed on:	25/11/2014
Your order number:	1536	Analysis completed by:	04/12/2014
Report Issue Number:	1	Report issued on:	04/12/2014
Samples Analysed:	1 wac multi sample		

State Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

(+ Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

## i2 Analytical

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

Waste Acceptance Criteria Analytical	Results						
Report No:		14-6	3523				
					Client:	CARDGEO	
Location		CL	V P3				
Lab Reference (Sample Number)					Landfill	Waste Acceptan	ce Criteria
Lab Reference (Sample Number)		395	5059			Limits	
Sampling Date		24/11	1/2014			Stable Non-	
Sample ID Depth (m)		BH9 0.	9 3.1 40		Inert Waste Landfill	HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	4.7						10%
BTEX (µg/kg) **	< 10				6000		
Sum of PCBs (mg/kg)	< 0.30				1		
Mineral Oil (mg/kg)	< 10				500		
Total PAH (WAC-17) (mg/kg)	18	-			100		
pH (units)**	9.3					>6	
Acid Neutralisation Capacity (mol / kg)	11					To be evaluated	To be evaluated
Fluate Analysis	2.4			G	Limit valu	es for compliance l	eaching test
	2:1	8:1		Cumulative 10:1	uning DC EN	12457.2 -+ 1/6.1/	) ///
(BS EN 12457 - 3 preparation utilising end over end leaching		//			USING BS EN	1 12457-3 at L/S 10	) I/Kg (mg/Kg)
procedure)	iiig/i	mg/i		ilig/kg			
Arsenic *	0.023	0.019		0.19	0.5	2	25
Barium *	0.047	0.021		0.24	20	100	300
Cadmium *	< 0.0005	< 0.0005		0.0020	0.04	1	5
Chromium *	0.029	0.0076		0.11	0.5	10	70
Copper *	0.056	0.014		0.20	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	0.0028	0.001/		0.019	0.4	10	40
Lead ~	0.041	0.024		0.26	0.5	10	50
Anumony *	0.0063	< 0.0050		0.034	0.06	0.7	5
Selenium ~	< 0.010	< 0.010		< 0.040	0.1	0.5	200
Chloride *	7.2	< 4.0		28	P00	4000	200
Fluoride	0.50	0.35		3.7	10	150	500
Sulphate *	47	9.8		150	1000	20000	50000
TDS	130	60		700	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	9.5	4.2		49	500	800	1000
		l	ł				
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.84						
Dry Matter (%)	83						
Moisture (%)	17						
Stage 1		ļ					
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.25						
Results are expressed on a dry weight basis, after correction for moisture content. Stated limits are for guidance only and I2 cannot be held responsible for any discr	wnere applicable epencies with current le	gislation					

\*= UKAS accredited (liquid eluate analysis only) \*\*= MCERTS accredited





email:reception@i2analytical.com





#### Project / Site name: CLV P3

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
395059	BH9	3.1	0.40	Light brown sandy clay with gravel.

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Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	w	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	w	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	w	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

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Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture

correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-63525

Project / Site name:	CLV P3	Samples received on:	25/11/2014
Your job number:	CG/18067B	Samples instructed on:	25/11/2014
Your order number:	1536	Analysis completed by:	04/12/2014
Report Issue Number:	1	Report issued on:	04/12/2014
Samples Analysed:	1 soil sample		

State Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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(+ Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P3

Your Order No: 1536

Lab Sample Number	395066							
Sample Reference	BH9							
Sample Number				301				
Depth (m)				0.40				
Date Sampled				24/11/2014				
Time Taken				None Supplied				
Analytical Parameter	Un	Limi detec	Accred Sta					
(Soil Analysis)	its	t of tion	itation tus					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	18				
Total mass of sample received	kg	0.001	NONE	0.55				
Ashasta is Call	-	N1/A	100 47005	Not detected		1	1	
Asdestos in Soli	Type	N/A	150 1/025	Not-detected		<u> </u>	<u> </u>	
General Inorganics						ī	ī	
pH	pH Units	N/A	MCERTS	9.1				
Total Cyanide	mg/kg	1	MCERTS	< 1				
	тту/ку 0/	0.1	130 17023 MCEDTC	2100				
Organic Matter	%	0.1	MCERTS	2.5				
Total Phenols								
Total Phenols (monohydric)	ma/ka	1	MCERTS	< 1.0				
	1119/119	-	HIGERTO	. 110		a	a	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	1.5				
Anthracene	mg/kg	0.1	MCERTS	0.39				
Fluoranthene	mg/kg	0.1	MCERTS	5.0				
Pyrelle Benze(a)anthracene	mg/kg	0.1	MCEDITS	4.5				
	mg/kg	0.1	MCEPTS	2.8				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.3				
Benzo(k)fluoranthene	ma/ka	0.1	MCERTS	2.2				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	3.0				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.73				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.25				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1				
Coronene	mg/kg	0.05	NONE	< 0.05				
	ma/lua	1.6	NONE	20		1	1	1
TULAI WAC-17 PAITS	mg/kg	1.0	NONE	28	l	1	1	1
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	260				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.9				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5				
Caumium (aqua regia extractable)	mg/kg	U.2 1	MCEDIC	< U.2 22				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23 88	<u> </u>			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	820				
Mercury (aqua regia extractable)	ma/ka	0.3	MCERTS	1,1		l	l	
Nickel (agua regia extractable)	ma/ka	1	MCERTS	18				
Selenium (agua regia extractable)	mg/ka	1	MCERTS	< 1.0		1	1	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	45				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	300				





Project / Site name: CLV P3

Your Order No: 1536

Lab Sample Number				395066		
Sample Reference				BH9		
Sample Number				301		
Depth (m)				0.40		
Date Sampled				24/11/2014		
Time Taken				None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Monoaromatics						
Benzene	µg/kg	1	MCERTS	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0		

#### Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	32		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	32		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	14		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	47		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	61		





#### Project / Site name: CLV P3

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
395066	BH9	301	0.40	Brown clay and sand with gravel.

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Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland. Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



**James Morrice** Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285





i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 **f:** 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-64042

Project / Site name:	CCU P3	Samples received on:	03/12/2014
Your job number:	CG-18067B	Samples instructed on:	03/12/2014
Your order number:		Analysis completed by:	15/12/2014
Report Issue Number:	1	Report issued on:	15/12/2014
Samples Analysed:	2 soil samples		

rete Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

- 4 weeks from reporting
- 2 weeks from reporting
- 2 weeks from reporting
- 6 months from reporting

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Project / Site name: CCU P3

Lab Sample Number	398053	398054					
Sample Reference				BH10.302	BH10.303		
Sample Number				None Supplied	None Supplied		
Depth (m)				0.60	0.50		
Date Sampled				02/12/2014	02/12/2014		
Time Taken			2310	0210			
			2				
		요드					
Analytical Parameter	Un.	te ini	sta				
(Soil Analysis)	ts.	tit	itat				
			ion i				
Stars Castert	04	0.1	NONE	0.1	0.1		
Stone Content	%	U. I	NONE	< 0.1	< 0.1		
	%	N/A	NONE	24	10		
Total mass of sample received	Кġ	0.001	NUNE	1.3	1.2		
			1		Chrysotile- Loose		
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	-	fibres		
Ashestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected		
Asbestos III Soli	турс	11/73	130 17023	Not-detected	Delected		·
General Inorganics							
pH	pH Units	N/A	MCERTS	7.5	7.5		
Total Cvanide	ma/ka	1	MCERTS	< 1	< 1		
Total Sulphate as $SO_4$	mg/kg	50	ISO 17025	2100	12000		
Organic Matter	%	0.1	MCERTS	0.2	15		
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0		
Speciated PAHs							
Naphthalene	ma/ka	0.05	MCERTS	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	0.53	0.97		
Anthracene	mg/kg	0.1	MCERTS	0.10	0.17		
Fluoranthene	mg/kg	0.1	MCERTS	0.78	2.0		
Pyrene	mg/kg	0.1	MCERTS	0.74	1.7		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.38	0.91		
Chrysene	mg/kg	0.05	MCERTS	0.36	0.94		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.51	1.3		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.21	0.57		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.37	0.91		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.29	0.70		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	0.14		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.29	0.78		
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05		
Total PAH							
Total WAC-17 PAHs	mg/kg	1.6	NONE	4.6	11		
Heavy Metals / Metalloids	1			4-	a =		
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	27		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	74	340		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8	2.4		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.5	3.1		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.0		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	-	 	
Chromium (III)	mg/kg		NONE	50	-	 	
Chromium (aqua regia extractable)	mg/kg	1	MCERIS	50	36	 	
Loopper (aqua regia extractable)	mg/kg	1	MCERIS	53	320	 	
	mg/kg	1	MCERIS	86	/60	 	
Mielcury (aqua regia extractable)	mg/kg	0.3	MCERIS	U.6	0.5	 	
Nickei (aqua regia extractable)	mg/kg	1	MCERIS	45	55	 	
	mg/kg		MCERTS	< 1.0	< 1.0	 	
Variadium (aqua regia extractable)	mg/kg		MCERTS	88 100	5/	 	
zinc (aqua regia extractable)	mg/kg		NULERIS	IUU	080		





Project / Site name: CCU P3

I ah Sample Number				308053	308057		
				570055	570034		
Sample Reference				BH10.302	BH10.303		
Sample Number				None Supplied	None Supplied		
Depth (m)				0.60	0.50		
Date Sampled				02/12/2014	02/12/2014		
Time Taken				2310	0210		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics	-		-			-	-
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0		

## Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	21		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	100		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	120		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10		





## Project / Site name: CCU P3

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
398053	BH10.302	None Supplied	0.60	Light brown clay and sand.
398054	BH10.303	None Supplied	0.50	Brown topsoil and sand with gravel.





#### Project / Site name: CCU P3

#### Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	LO38-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	LO68-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	LO38-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	LOO5-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	LO64-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCI followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



**James Morrice** Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:





i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 **f:** 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-64044

Project / Site name:	CG-180687B	Samples received on:	03/12/2014
Your job number:	CCU P3	Samples instructed on:	03/12/2014
Your order number:		Analysis completed by:	15/12/2014
Report Issue Number:	1	Report issued on:	15/12/2014
Samples Analysed:	2 wac multi samples		

rtte Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

- 4 weeks from reporting
- 2 weeks from reporting
- 2 weeks from reporting
- 6 months from reporting

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Stated limits are for guidance only and 12 cannot be held responsible for any discr \*= UKAS accredited (liquid eluate analysis only) \*\* = MCERTS accrediited

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

					Client:	CARDGEO		
Leasting		CC-19	16978					
Location	CG-180687B				Landfill	Wasta Accontan	o Critoria	
Lab Reference (Sample Number)		3980	)60		Lanumi waste Acceptance Criteria			
Sampling Date		02/12/	2014			Stable Non-		
Sample ID		BH10	.302			reactive		
Sumple 15		Birro			Inert Waste	HAZARDOUS	Hazardous	
Depth (m)		0.6	0		Landfill	waste in non- bazardous	Waste Landfill	
						Landfill		
Solid Waste Analysis								
TOC (%)**	0.5				3%	5%	6%	
Loss on Ignition (%) **	5.4						10%	
BTEX (µg/kg) **	< 10				6000			
Sum of PCBs (mg/kg)	< 0.30				1			
Mineral Oil (mg/kg)	< 10				500			
Total PAH (WAC-17) (mg/kg)	4.6				100			
pH (units)**	7.5					>6		
Acid Neutralisation Capacity (mol / kg)	1.7					To be evaluated	To be evaluated	
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit valu	es for compliance le	eaching test	
					using BS EN	N 12457-3 at L/S 10	l/kg (mg/kg)	
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg			3 ( 3 3)	
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25	
Barium *	0.11	0.040		0.46	20	100	300	
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5	
Chromium *	< 0.0010	< 0.0010		< 0.0050	0.5	10	70	
Copper *	0.0021	< 0.0030		< 0.020	2	50	100	
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2	
Molybdenum *	0.0048	0.0036		0.037	0.5	10	30	
Nickel *	0.0014	< 0.0010		< 0.0050	0.4	10	40	
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50	
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5	
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7	
Zinc *	0.0034	< 0.0010		< 0.020	4	50	200	
Chloride *	25	< 4.0		57	800	4000	25000	
Fluoride	0.47	0.50		5.0	10	150	500	
Sulphate *	660	150		1900	1000	20000	50000	
TDS	670	230		2700	4000	60000	100000	
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-	
DOC	2.6	2.0		21	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	1.3							
Dry Matter (%)	76							
Moisture (%)	24							
Stage 1								
Volume Eluate L2 (litres)	0.31							
Filtered Eluate VE1 (litres)	0.17							
Results are expressed on a dry weight basis, after correction for moisture content w	here applicable							

14-64044

# Telephone: 01923 225404 Fax: 01923 237404 email:reception@i2analytical.com

V	Ê.	
MCER	15	

Waste Acceptance Criteria Analytical Results Report No:

2



## i2 Analytical

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

Waste Acceptance Criteria Analytical Results

Report No:		14-64044				
				Client:	CARDGEO	
Location		CG-1806878	3			
Lab Poforonco (Samulo Numbor)				Landfill	Waste Acceptance	e Criteria
		398061			Limits	1
Sampling Date		02/12/2014			Stable Non-	
Sample ID		BH10.303		Inert Waste	HAZARDOUS	Hazardous
Depth (m)	0.50		Landfill	waste in non- hazardous Landfill	Waste Landfill	
Solid Waste Analysis						
TOC (%)**	1.3			3%	5%	6%
Loss on Ignition (%) **	6.4					10%
BTEX (µg/kg) **	< 10			6000		
Sum of PCBs (mg/kg)	< 0.30			1		
Mineral Oil (mg/kg)	120			500		
Total PAH (WAC-17) (mg/kg)	11			100		
pH (units)^^	/.5				>6	
Acid Neutralisation Capacity (mol / kg)	1.5				To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1	Cumulative 10:1	Limit valu	ues for compliance le	eaching test
(BS EN 12457 - 3 preparation utilising end over end leaching				using BS E	N 12457-3 at L/S 10	l/kg (mg/kg)
procedure)	mg/l	mg/l	mg/kg			
Arsenic *	< 0.010	< 0.010	< 0.050	0.5	2	25
Barium *	0.095	0.094	0.94	20	100	300
Cadmium *	< 0.0005	< 0.0005	< 0.0020	0.04	1	5
Chromium *	0.0035	0.0027	0.028	0.5	10	70
Copper *	0.0090	0.0041	0.048	2	50	100
Mercury *	< 0.0015	< 0.0015	< 0.010	0.01	0.2	2
Molybdenum *	0.012	0.0049	0.059	0.5	10	30
Nickel *	0.0034	< 0.0010	0.012	0.4	10	40
Lead *	< 0.0050	< 0.0050	0.027	0.5	10	50
Antimony *	0.0087	< 0.0050	0.044	0.06	0.7	5
Selenium *	< 0.010	< 0.010	0.043	0.1	0.5	7
Zinc *	0.017	0.0056	0.072	4	50	200
Chloride *	32	< 4.0	70	800	4000	25000
Fluoride	0.48	0.39	4.0	10	150	500
Sulphate *	1700	430	6100	1000	20000	50000
TDS	1300	510	6300	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13	< 0.50	1	-	-
DOC	17	4.6	64	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1	<b>├</b> ── <b>├</b> ──			-	
Sample Mass (kg)	1.2				-	
Dry Matter (%)	84	<b>├</b> ── <b>├</b> ──			-	
Moisture (%)	16				+	
Stage 1	0.00	<u>                                     </u>				
Volume Eluate L2 (litres)	0.32	<u>├</u> ───			-	
riitereu Eluate VET (IItres)	U.25					
		<u>├</u>				
Results are expressed on a dry weight basis, after correction for moisture content w	vhere applicable	1 1			1	

# Telephone: 01923 225404 Fax: 01923 237404 email:reception@i2analytical.com









## Project / Site name: CG-180687B

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
398060	BH10.302	None Supplied	0.60	Light brown clay and sand.
398061	BH10.303	None Supplied	0.50	Brown topsoil and sand with gravel.





## Project / Site name: CG-180687B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	LO46-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	LO47-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	LO39-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	LO64-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	LOO4-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

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#### Project / Site name: CG-180687B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland. Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

# Analytical Report Number : 14-64192

Project / Site name:	CLV P3	Samples received on:	04/12/2014
Your job number:	CG18067B	Samples instructed on:	08/12/2014
Your order number:	1536	Analysis completed by:	16/12/2014
Report Issue Number:	1	Report issued on:	16/12/2014
Samples Analysed:	2 soil samples		

State Signed:

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

(+ Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P3

Your Order No: 1536

Lab Sample Number				398945	398946		
Sample Reference			BH10	BH10			
Sample Number			304	3.5			
Depth (m)			2.80	7.00			
Date Sampled			03/10/2014	04/10/2014			
Time Taken			2240	0040			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	17		
Total mass of sample received	kg	0.001	NONE	2.0	2.0		

#### **General Inorganics**

pН	pH Units	N/A	MCERTS	8.2	7.9		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	5600	8400		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	5.4	6.2		
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	5400	6200		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.7	3.1		
Total Sulphur	mg/kg	50	NONE	2400	3300		




#### Project / Site name: CLV P3

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
398945	BH10	304	2.80	Light brown clay.
398946	BH10	3.5	7.00	Light brown clay.





Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (g/l)	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-64395

Project / Site name:	CLV P3	Samples received on:	10/12/2014
Your job number:	CG-18067B	Samples instructed on:	10/12/2014
Your order number:	1536	Analysis completed by:	19/12/2014
Report Issue Number:	1	Report issued on:	19/12/2014
Samples Analysed:	1 soil sample		

Signed:

Neil Donovan Environmental Forensics Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

TY Signed:

Thurstan Plummer Organics Technical Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P3 Your Order No: 1536

TOUL	Order	NO:	1220	

Lab Sample Number	400399					
Sample Reference				BH10		
Sample Number				306		
Depth (m)				20.50		
Date Sampled				09/12/2014		
Time Taken				None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1		
Moisture Content	%	N/A	NONE	36		
Total mass of sample received	kg	0.001	NONE	2.0		

#### **General Inorganics**

рН	pH Units	N/A	MCERTS	7.5		
Total Sulphate as SO <sub>4</sub>	mg/kg	50	ISO 17025	3400		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	3.3		
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	mg/kg	2.5	MCERTS	3300		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.7		
Total Sulphur	mg/kg	50	NONE	5900		





#### Project / Site name: CLV P3

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
400399	BH10	306	20.50	Grey clay.





Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland. Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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t: 01483 310600 f: 01483 527285 e:



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t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-64726

Project / Site name:	CLV P3	Samples received on:	15/12/2014
Your job number:	CG-18067B	Samples instructed on:	17/12/2014
Your order number:	1536	Analysis completed by:	30/12/2014
Report Issue Number:	1	Report issued on:	30/12/2014
Samples Analysed:	4 soil samples		

Signed: Castate

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

all Signed:

Emma Winter Assistant Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting





Project / Site name: CLV P3 Your Order No: 1536

Your Order No: 1536

Lab Camula Number	402400	402400	402401	402402				
Lab Sample Number	402489	402490	402491	402492				
	BH8	BH9	BH9 211	BH9 212				
Sample Number		380	390	311	312			
Depth (m)		24.00	11/12/2014	7.00	9.00			
Date Sampled				None Supplied	None Supplied	Nono Cupplied	None Supplied	
			-	None Supplied	None Supplied	None Supplieu	None Supplied	
		۹	Acc					
Analytical Parameter	Ş	ete Lim	Sta					
(Soil Analysis)	lits	ctic						
		ă A	tion					
			_					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	21	22	19	19	
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	2.0	
Askastas in Cail	<b>T</b>	NI/A	100 17025		Nat data at a d			
Aspestos III Soli	Туре	N/A	150 17025	-	Not-detected	-	-	I
General Inorganics								
nH	nH Unite	N/A	MCEDIS	7.8	71	7.6	75	
pri Total Ovanida	pri units	1	MCEDTS	7.0	7.1	7.0	7.5	
Total Sulphate as SO4	mg/kg	50	ISO 17025	3100	1100	10000	10000	
Water Soluble Sulphate (Soil Equivalent)	a/l	0.0025	MCERTS	23	1.0	7.0	6.8	
Water Soluble Sulphate as SO <sub>4</sub> (2:1)	ma/ka	2.5	MCERTS	2300	1000	7000	6800	
Water Soluble Sulphate (2:1 Leachate Equivalent)	0/l	0.00125	MCERTS	11	0.51	3.5	3.4	
Total Sulphur	ma/ka	50	NONE	5600	-	3600	3500	
Organic Matter	//////////////////////////////////////	0.1	MCERTS	-	2.2	-	-	
organie Hatten	70	0.12	HIGERING					
Total Phenols								
Total Phenols (monohydric)	ma/ka	1	MCERTS	-	< 1.0	-	-	
· · · · · · · · · · · · · · · · · · ·								
Speciated PAHs								
Naphthalene	ma/ka	0.05	MCERTS	-	< 0.05	-	-	
Acenaphthylene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Acenaphthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Fluorene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Phenanthrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Coronene	mg/kg	0.05	NONE	-	< 0.05	-	-	
Total BAH								
	mallia	1.6	NONE		< 1.6			
Total WAC-17 PARS	тту/ку	1.0	NONE	-	< 1.0	-	-	
Hoppy Motals / Motalloids								
Arconic (agua regia extractable)	ma/ka	1	MCEDTC	-	11	-	_	
Arsenic (aqua regia extractable)	mg/kg	1	MCEDTS	-	55			
Benyllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	15	-	-	
Boron (water soluble)	mg/kg	0.00	MCEDTS		1.5			
Cadmium (aqua regia extractable)	ma/ka	0.2	MCERTS	-	< 0.2	-	-	
Chromium (hexavalent)	ma/ka	1.2	MCERTS	-	< 1.2	-	-	
Chromium (III)	ma/ka	1	NONE	-	47	-	-	
Chromium (agua regia extractable)	ma/ka	1	MCERTS	-	47	-	-	
Copper (agua regia extractable)	ma/ka	1	MCERTS	-	28	-	-	
Lead (agua regia extractable)	ma/ka	1	MCERTS	-	29	-	-	
Mercury (agua regia extractable)	ma/ka	0.3	MCERTS	-	< 0.3	-	-	
Nickel (agua regia extractable)	ma/ka	1	MCERTS	-	27	-	-	
Selenium (agua regia extractable)	ma/ka	1	MCERTS	-	< 1.0	-	-	
Vanadium (aqua regia extractable)	mg/kq	1	MCERTS	-	78	-	-	
Zinc (aqua regia extractable)	ma/ka	1	MCERTS	-	61	-	-	





Project / Site name: CLV P3 Your Order No: 1536

TOUL	Order	NO:	1220	

Lab Sample Number				402489	402490	402491	402492	
Sample Reference				BH8	BH9	BH9	BH9	
Sample Number				380	390	311	312	
Depth (m)				24.00	1.20	7.00	9.00	
Date Sampled				11/12/2014	11/12/2014	11/12/2014	11/12/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	

#### **Petroleum Hydrocarbons**

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	-	-	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	-	-	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-	





#### Project / Site name: CLV P3

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
402489	BH8	380	24.00	Light grey clay.
402490	BH9	390	1.20	Light grey clay.
402491	BH9	311	7.00	Light brown clay.
402492	BH9	312	9.00	Light brown clay.





Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	unalytical Test Name Analytical Method Description /		Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	w	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	w	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 lacebate (d)	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	w	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE





Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



James Morrice Card Geotechnics Ltd 4 Godalming Business Centre Woolsack Way Godalming Surrey GU7 1XW

t: 01483 310600 f: 01483 527285 e:



i2 Analytical Ltd. 7 Woodshots Meadow, Croxley Green Business Park, Watford, Herts, WD18 8YS

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

## Analytical Report Number : 14-64727

Project / Site name:	CLV P3	Samples received on:	15/12/2014
Your job number:	CG-18067B	Samples instructed on:	17/12/2014
Your order number:	1536	Analysis completed by:	30/12/2014
Report Issue Number:	1	Report issued on:	30/12/2014
Samples Analysed:	1 wac multi sample		

Signed: Castate

Dr Claire Stone Quality Manager For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

all Signed:

Emma Winter Assistant Reporting Manager For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

#### i2 Analytical

7 Woodshots Meadow Croxley Green Business Park Watford, WD18 8YS

Waste Acceptance Criteria Analytical	Results				1		
Report No:		14-6	4727				
					Client	CARDGEO	
					Chent:	CARDGEO	
Location	CLV P3				1 4611		Culturia
Lab Reference (Sample Number)		402	2493		Landfill	Waste Acceptane	ce Criteria
Sampling Date		11/12	2/2014			Stable Non-	1
Sample ID Depth (m)		BH9	20		Inert Waste Landfill	reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis							
TOC (%)**	1.3				3%	5%	6%
Loss on Ignition (%) **	8.1						10%
BTEX (µg/kg) **	< 10				6000		
Sum of PCBs (mg/kg) **	< 0.30				1		
Mineral Oil (mg/kg)	< 10				500		
Total PAH (WAC-17) (mg/kg)	< 1.6				100		
pH (units)**	7.1					>6	
Acid Neutralisation Capacity (mol / kg)	0.41					To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit valu	es for compliance l	eaching test
					using BS Ef	N 12457-3 at L/S 10	) l/kg (mg/kg)
procedure)	mg/l	mg/l		mg/kg	-		
Amonio *	< 0.010	< 0.010	1	< 0.050	0.5	2	25
Rarium *	< 0.010	< 0.010		< 0.030	20	100	23
Cadmium *	< 0.005	< 0.0005		< 0.0020	20	100	500
Chromium *	0.0003	< 0.0003		0.0051	0.04	10	70
Copper *	0.0022	< 0.0010		< 0.020	2	50	100
Mercury *	< 0.0021	< 0.0000		< 0.020	0.01	0.2	2
Molybdenum *	0.050	0.013		0.16	0.5	10	30
Nickel *	0.0031	0.0026		0.026	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	< 0.0010	< 0.0010		< 0.020	4	50	200
Chloride *	28	4.2		61	800	4000	25000
Fluoride	2.7	1.2		13	10	150	500
Sulphate *	340	120		1400	1000	20000	50000
TDS	420	200		2200	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	22	9.9		110	500	800	1000
Leach Test Information			1			1	1
Stone Content (%)	< 0.1	1	1			1	1
Sample Mass (kg)	2.0						
Dry Matter (%)	78						
Moisture (%)	22						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.14						
Results are expressed on a dry weight basis, after correction for moisture content Stated limits are for guidance only and I2 cannot be held responsible for any disco	where applicable epencies with current les	aislation					
*= UKAS accredited (liquid eluate analysis only)							
<ul> <li>*= UKAS accredited (liquid eluate analysis only)</li> <li>** = MCERTS accredited</li> </ul>							

Telephone: 01923 225404 Fax: 01923 237404 email:reception@i2analytical.com

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#### Project / Site name: CLV P3

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
402493	BH9	390	1.20	Light grey clay.





Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	alytical Test Name Analytical Method Description		Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	w	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457- 3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	w	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	w	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

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Project / Site name: CLV P3

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

## **APPENDIX E**

Results of geotechnical analysis

			Sample	details		Class	ificatior	n Tests		Densit	y Tests	Undraine	d Triaxial Co	iaxial Compression		hemical Te	ests	
Borehole / Trial Pit	Sample Ref	Depth (m)	Туре	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m <sup>3</sup>	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	рН	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	Other tests and comments
	l	<u> </u>		Stiff vellowish brown silty CLAY with occasional		(,	(,	()	(,		5					(3-7		
BH2	4	1.50-1.95	U	fine to medium gravel	21	61	23	38	43	2.03	1.68	29	121	61				
BH2	9	3.50-3.95	U	Mottled brown and grey silty CLAY with occasional gypsum	33	75	27	48	100									
BH2	14	6.00-6.45	U	Stiff fissured brown silty CLAY with rare gypsum	31	73	28	45	99	1.95	1.49	114	222	111				
BH2	19	9.00-9.45	U	Brown mottled orange-brown silty CLAY	29	77	27	50	100									
BH2	24	12.00-12.45	U	Stiff fissured brownish grey silty CLAY	29	75	25	50	100	1.96	1.52	228	174	87				
BH2	29	15.00-15.45	U	Brown fine sandy silty CLAY	24	62	24	38	100									
BH2	34	18.00-18.45	U	Stiff fissured dark brownish grey silty CLAY	25	67	25	42	100	1.99	1.59	342	165	83				
BH2	44	24.00-24.45	U	Very stiff fissured brownish grey silty CLAY	26	79	28	51	100	1.88	1.49	456	598	299				
BH2	54	30.00-30.45	U	Stiff fissured brownish grey silty CLAY	25	75	29	46	99	1.91	1.53	570	434	217				
BH3	6	2.50-2.95	U	Stiff fissured brown silty CLAY	34	76	29	47	99	1.92	1.43	48	140	70				
BH3	11	4.50-4.95	U	Brown mottled grey silty CLAY with rare gypsum	32	73	27	46	99									
BH3	17	7.50-7.95	U	Stiff fissured brown silty CLAY	30	72	25	47	97	1.95	1.50	143	277	138				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

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CAMDEN LOCK VILLAGE PHASE 1	
Senior Technician         CG/18067	

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			Sample of	details		Class	ificatior	n Test	ts		Density	/ Tests	Undraine	ed Triaxial Co	mpression	С	hemical Te	ests	
Borehole / Trial Pit	Sample Ref	Depth (m)	Туре	Description	MC (%)	LL (%)	PL (%)	PI (%)	<42 • m	:5 n	Bulk Ma/m³	Dry Ma/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	рН	2:1 W/S SO4 (q/L)	W/S Mg (mg/L)	Other tests and comments
r					(70)	(70)	(70)	(70)	) (70		wig/m	Mg/III	N U	N U	N U		(9/=/	(119/2)	
BH3	22	10.50-10.95	U	Brown silty CLAY	31	77	27	50	100	0									
BH3	27	13.50-13.95	U	Stiff fissured greyish brown silty CLAY	30	83	28	55	100	0	1.94	1.49	257	168	84				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Cł	necked and Approved by	Project Number:	
6	RL	GEO / 21947-2	[®
1	Dure		GEOLABS
	Senior Technician	CAMDEN LOCK VILLAGE PHASE 1	
	26/11/2014	CG/18067	

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

			Sample of	letails		Class	sificatio	n Tests	;	Densit	y Tests	Undraine	d Triaxial Co	npression	Cł	nemical Te	sts	
Borehole / Trial Pit	Sample Ref	Depth (m)	Туре	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Ma/m <sup>3</sup>	Dry Ma/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	рН	2:1 W/S SO4 (a/L)	W/S Mg (ma/L)	Other tests and comments
					(,,,)	(70)	(70)	(70)	(70)		g		in a	in u		(9/2/	(g/ =/	
BH4	7	2.50-2.95	U	Firm fissured brown mottled grey CLAY	31	71	27	44	100	1.92	1.47	48	95	47				
BH4	12	4.50-4.95	U	Brown mottled grey silty CLAY with rare gypsum	31	75	26	49	100									
BH4	23	10.50-10.95	U	Very fissured dark grey CLAY	29					1.90	1.47	200	200	100				
BH4	38	19.50-19.95	U	Brown grey silty CLAY	25	62	26	36	100									
BH4	43	22.50-22.95	U	Very stiff fissured dark grey CLAY	26	63	25	38	100	2.08	1.65	428	312	156				
BH5	4	1.50-1.95	U	Stiff fissured brown CLAY	31	71	27	44	100	1.96	1.50	29	135	67				
BH5	9	3.50-3.95	U	Brown mottled orange silty CLAY with rare fine siltstone	28	67	25	42	98									
BH5	19	9.00-9.45	U	Brown silty CLAY	30	77	31	46	100									
BH5	24	12.00-12.45	U	Very stiff fissured dark grey CLAY	28	71	27	44	100	1.96	1.53	228	210	105				
BH5	34	18.00-18.45	U	Greyish brown slightly fine sandy silty CLAY	26	60	28	32	100									
BH5	39	21.00-21.45	U	Very stiff fissured dark grey silty CLAY	27	63	26	37	100	1.98	1.56	399	324	162				
BH5	49	27.00-27.45	U	Very stiff fissured dark grey silty CLAY	24	68	27	41	100	2.01	1.62	513	1,067	533				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by	Project Number:	
roh	GEO / 21995	
2 Dure	Project Name:	GEOLABS
5.1.0	CAMDEN LOCK VILLAGE PHASE II	
Senior Technician 09/12/2014	CG/18067A	

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

			Sample of	letails		Class	ificatior	n Test	is	D	ensity	Tests	Undrained	d Triaxial Co	mpression	С	hemical Te	ests	
Borehole / Trial Pit	Sample Ref	Depth (m)	Туре	Description	MC	LL (%)	PL	PI	<425 • m	Bu Ma	ılk /m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	рН	2:1 W/S SO4	W/S Mg	Other tests and comments
					(70)	(70)	(70)	(70)	(70)	ivig	/111	Mg/III	κια	κια	Να		(g/Ľ)	(iiig/L)	
BH5	62	36.00-36.50	U	Brown silty CLAY	20	48	20	28	100										
BH6	5	2.50-2.95	U	Firm to stiff fissured brown CLAY	33	72	26	46	100	1.9	95	1.47	48	147	73				
BH6	10	4.50-4.95	U	Brown silty CLAY with rare gypsum	31	73	27	46	100										
BH6	20	10.50-10.95	U	Very stiff fissured dark brown CLAY	30					1.9	95	1.50	200	160	80				
BH6	29	16.50-16.95	U	Brownish grey silty CLAY	25	59	28	31	100										
BH6	34	19.50-19.95	U	Very stiff fissured dark grey CLAY	24	64	25	39	100	1.9	97	1.59	371	478	239				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by Project Number:	
GEO / 21995	(CEOLARS) <sup>®</sup>
CAMDEN LOCK VILLAGE PHASE II	GEOLABS
Senior Technician 09/12/2014 CG/18067A	

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

			Sample	details		Class	sificatio	n Tests	3	Densit	y Tests	Undraine	d Triaxial Cor	npression	Cł	nemical Te	sts	
Borehole / Trial Pit	Sample Ref	Depth (m)	Туре	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	рН	2:1 W/S SO4 (q/L)	W/S Mg (mg/L)	Other tests and comments
BH7	7	2.20-2.65	U	Firm to stiff yellow-brown silty CLAY	32	67	25	42	100	1.93	1.46	42	127	64		(3-)	(	
BH7	12	4.50-4.95	U	Stiff fissured brown mottled grey silty CLAY	30					1.94	1.49	86	220	110				
BH7	16	7.50-7.95	U	Stiff fissured brown silty CLAY	34	79	29	50	100	1.94	1.45	143	208	104				
BH7	21	10.50-10.95	U	Stiff fissured brownish grey silty CLAY	25					2.03	1.62	200	291	146				
BH7	26	13.50-13.95	U	Dark grey-brown silty CLAY	26	65	27	38	100									
BH7	31	16.50-16.95	U	Very stiff fissured brownish grey silty CLAY	27					2.01	1.58	314	277	139				
BH7	42	19.50-19.95	U	Dark grey-brown silty CLAY	28	73	29	44	100									
BH7	48	22.50-22.95	U	Very stiff fissured brownish grey silty CLAY	24					2.08	1.68	428	688	344				
BH7	58	28.50-28.95	U	Very stiff fissured brownish grey silty CLAY	25					1.97	1.58	542	630	315				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by	Project Number:	
GQL	GEO / 21953	(®
Joure	Project Name:	GEOLABS
	CAMDEN LOCK VILLAGE PHASE 2	
Senior Technician 20/11/2014	CG/18067a	

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 4 1.50-1.95 U Description: Stiff yellowish brown gravelly silty CLAY. Gravel is fine to medium.

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.5
Moisture Content	(%)	21
Bulk Density	(Mg/m³)	2.03
Dry Density	(Mg/m <sup>3</sup> )	1.68
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.83
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	29
Strain at failure	(%)	13.4
Maximum Deviator Stress	(kPa)	121
Shear Stress Cu	(kPa)	61



Orientation of the sample	Vertical
Distance from top of tube mm	50



Checked and Approved by: Project Number:

Senior Technician 26/11/2014 GEO / 21947-2

## GEOLABS

### CAMDEN LOCK VILLAGE PHASE 1 CG/18067

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

Project Name:

Page 1 of 1 (Ref 38369.45841)

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 14 6.00-6.45 U Description:

Stiff fissured brown silty CLAY with rare gypsum

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.5
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.48
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	114
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	222
Shear Stress Cu	(kPa)	111



Orientation of the sample	Vertical
Distance from top of tube mm	30



Checked and Approved by: Project Number:

Senior Technician 26/11/2014 GEO / 21947-2

## GEOLABS

### CAMDEN LOCK VILLAGE PHASE 1 CG/18067

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 24 12.00-12.45 U

Description:

Stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	202.5
Diameter	(mm)	102.7
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.52
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.52
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	228
Strain at failure	(%)	7.4
Maximum Deviator Stress	(kPa)	174
Shear Stress Cu	(kPa)	87

Mode of failure	

Orientation of the sample	Vertical
Distance from top of tube mm	90



Checked and Approved by: Project Number:

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GEO / 21947-2

# GEOLABS

## **CAMDEN LOCK VILLAGE PHASE 1** CG/18067

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 34 18.00-18.45 U Description:

Stiff fissured dark brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	102.4
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.99
Dry Density	(Mg/m³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	342
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	165
Shear Stress Cu	(kPa)	83



Orientation of the sample	Vertical
Distance from top of tube mm	160



Checked and Approved by: Project Number:

Senior Technician 26/11/2014 GEO / 21947-2

## GEOLABS)\*

## CAMDEN LOCK VILLAGE PHASE 1 CG/18067

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 44 24.00-24.45 U

Description:

Very stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	103.4
Moisture Content	(%)	26
Bulk Density	(Mg/m³)	1.88
Dry Density	(Mg/m³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	456
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	598
Shear Stress Cu	(kPa)	299



Orientation of the sample	Vertical
Distance from top of tube mm	110



Checked and Approved by: Project Number:

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# GEOLABS

### **CAMDEN LOCK VILLAGE PHASE 1** CG/18067

Page 1 of 1

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

Project Name:

(Ref 38369.45860)

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH2 54 30.00-30.45 U Description:

Stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.6
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.91
Dry Density	(Mg/m³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.34
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	570
Strain at failure	(%)	4.5
Maximum Deviator Stress	(kPa)	434
Shear Stress Cu	(kPa)	217



Orientation of the sample	Vertical
Distance from top of tube mm	120



Checked and Approved by: Project Number:

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## GEOLABS

## CAMDEN LOCK VILLAGE PHASE 1 CG/18067

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH3 6 2.50-2.95 U Description:

Stiff fissured brown silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	188.5
Diameter	(mm)	102.4
Moisture Content	(%)	34
Bulk Density	(Mg/m³)	1.92
Dry Density	(Mg/m³)	1.43
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	48
Strain at failure	(%)	8.0
Maximum Deviator Stress	(kPa)	140
Shear Stress Cu	(kPa)	70



Orientation of the sample	Vertical
Distance from top of tube mm	50



Checked and Approved by: Project Number:

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## GEOLABS

## CAMDEN LOCK VILLAGE PHASE 1 CG/18067

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

Project Name:

Page 1 of 1 (Ref 38369.45869)

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH3 17 7.50-7.95 U

Description:

Stiff fissured brown silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	103.4
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.05
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	143
Strain at failure	(%)	0.5
Maximum Deviator Stress	(kPa)	277
Shear Stress Cu	(kPa)	138



Orientation of the sample	Vertical
Distance from top of tube mm	120



Checked and Approved by: Project Number:

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## GEOLABS

## **CAMDEN LOCK VILLAGE PHASE 1** CG/18067

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH3 27 13.50-13.95 U

Description:

Stiff fissured greyish brown silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	102.6
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.24
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	257
Strain at failure	(%)	3.0
Maximum Deviator Stress	(kPa)	168
Shear Stress Cu	(kPa)	84



Orientation of the sample	Vertical
Distance from top of tube mm	30



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## GEOLABS

## **CAMDEN LOCK VILLAGE PHASE 1** CG/18067

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 7 2.20-2.65 U Description:

Firm to stiff yellow-brown silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.6
Moisture Content	(%)	32
Bulk Density	(Mg/m³)	1.93
Dry Density	(Mg/m <sup>3</sup> )	1.46
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	1.03
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	42
Strain at failure	(%)	17.9
Maximum Deviator Stress	(kPa)	127
Shear Stress Cu	(kPa)	64



Orientation of the sample	Vertical
Distance from top of tube mm	120



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# GEOLABS

### CAMDEN LOCK VILLAGE PHASE 2 CG/18067a

UKAS ISINA Page 1 of 1

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 12 4.50-4.95 U Description:

Stiff fissured brown mottled grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	188.2
Diameter	(mm)	103.7
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.58
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	86
Strain at failure	(%)	8.5
Maximum Deviator Stress	(kPa)	220
Shear Stress Cu	(kPa)	110



Orientation of the sample	Vertical
Distance from top of tube mm	210



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GEO / 21953

# GEOLABS

### CAMDEN LOCK VILLAGE PHASE 2 CG/18067a

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1731 - UUTXL BH7 04.50 12 U - 21953-105483.xls

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 16 7.50-7.95 U

Description:

Stiff fissured brown silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	103.7
Moisture Content	(%)	34
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.45
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	143
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	208
Shear Stress Cu	(kPa)	104



Orientation of the sample	Vertical
Distance from top of tube mm	110



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# GEOLABS

### **CAMDEN LOCK VILLAGE PHASE 2** CG/18067a

Senior Technician 20/11/2014 Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 21 10.50-10.95 U Description:

Stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	103.6
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	2.03
Dry Density	(Mg/m <sup>3</sup> )	1.62
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.46
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	200
Strain at failure	(%)	6.5
Maximum Deviator Stress	(kPa)	291
Shear Stress Cu	(kPa)	146



Orientation of the sample	Vertical
Distance from top of tube mm	80



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# GEOLABS

### CAMDEN LOCK VILLAGE PHASE 2 CG/18067a

2 Page 1 of 1 (Ref 38363.48063)

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,
## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 31 16.50-16.95 U

Description:

Very stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	202.3
Diameter	(mm)	103.3
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	2.01
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	314
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	277
Shear Stress Cu	(kPa)	139



Orientation of the sample	Vertical
Distance from top of tube mm	80



Checked and Approved by: Project Number:

Senior Technician 20/11/2014

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## GEOLABS

#### **CAMDEN LOCK VILLAGE PHASE 2** CG/18067a

Page 1 of 1

(Ref 38363.48068)

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 48 22.50-22.95 U Description:

Very stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	188.7
Diameter	(mm)	102.0
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	2.08
Dry Density	(Mg/m³)	1.68
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.31
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	428
Strain at failure	(%)	4.0
Maximum Deviator Stress	(kPa)	688
Shear Stress Cu	(kPa)	344



Orientation of the sample	Vertical
Distance from top of tube mm	160



Checked and Approved by: Project Number:

Senior Technician 20/11/2014

GEO / 21953

# GEOLABS

#### CAMDEN LOCK VILLAGE PHASE 2 CG/18067a

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH7 58 28.50-28.95 U Description:

Very stiff fissured brownish grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	103.3
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.24
Axial displacement rate	(%/min)	0.99
Cell pressure	(kPa)	542
Strain at failure	(%)	3.0
Maximum Deviator Stress	(kPa)	630
Shear Stress Cu	(kPa)	315



Orientation of the sample	Vertical
Distance from top of tube mm	120



Checked and Approved by: Project Number:

Senior Technician 20/11/2014

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## GEOLABS

#### CAMDEN LOCK VILLAGE PHASE 2 CG/18067a

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

### QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH4 7 2.50-2.95 U Description:

Firm fissured brown mottled grey CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.6
Diameter	(mm)	103.2
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.92
Dry Density	(Mg/m³)	1.46
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.80
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	48
Strain at failure	(%)	12.9
Maximum Deviator Stress	(kPa)	95
Shear Stress Cu	(kPa)	47



Orientation of the sample	Vertical
Distance from top of tube mm	60



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 Project Name:

GEO / 21995

## GEOLABS

#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

Page 1 of 1 (Ref 38382.67191)

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH4 23 10.50-10.95 U

Description:

Very fissured dark grey CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	202.1
Diameter	(mm)	104.4
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.90
Dry Density	(Mg/m³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.27
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	200
Strain at failure	(%)	3.5
Maximum Deviator Stress	(kPa)	200
Shear Stress Cu	(kPa)	100



Orientation of the sample	Vertical
Distance from top of tube mm	30



Checked and Approved by: Project Number:

Senior Technician 09/12/2014

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# GEOLABS

#### **CAMDEN LOCK VILLAGE PHASE II** CG/18067A

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

Project Name:

1731 - UUTXL BH4 10.50 23 U - 21995-107093.xls

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH4 43 22.50-22.95 U Description:

Very stiff fissured dark grey CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	202.3
Diameter	(mm)	100.6
Moisture Content	(%)	26
Bulk Density	(Mg/m³)	2.08
Dry Density	(Mg/m³)	1.64
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.41
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	428
Strain at failure	(%)	5.4
Maximum Deviator Stress	(kPa)	312
Shear Stress Cu	(kPa)	156



Orientation of the sample	Vertical
Distance from top of tube mm	50



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

# GEOLABS

#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

**5/18067A** shire, WD25 9XX

Page 1 of 1 (Ref 38382.67203)

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

### QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH5 4 1.50-1.95 U

Description:

Stiff fissured brown CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	102.6
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	29
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	135
Shear Stress Cu	(kPa)	67



Orientation of the sample	Vertical
Distance from top of tube mm	50



Checked and Approved by: Project Number:

Senior Technician 09/12/2014

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# GEOLABS

#### **CAMDEN LOCK VILLAGE PHASE II** CG/18067A

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH5 24 12.00-12.45 U Description:

Very stiff fissured dark grey CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	103.3
Moisture Content	(%)	28
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.54
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.12
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	228
Strain at failure	(%)	1.5
Maximum Deviator Stress	(kPa)	210
Shear Stress Cu	(kPa)	105



Orientation of the sample	Vertical
Distance from top of tube mm	50



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

## GEOLABS)\*

#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

UKAS IBING 1937 Page 1 of 1

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH5 39 21.00-21.45 U Description:

Very stiff fissured dark grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	103.7
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	1.98
Dry Density	(Mg/m³)	1.56
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	399
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	324
Shear Stress Cu	(kPa)	162



Orientation of the sample	Vertical
Distance from top of tube mm	60



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

# GEOLABS

#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

Like Konstanting

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH5 49 27.00-27.45 U Description:

Very stiff fissured dark grey silty CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	185.2
Diameter	(mm)	103.6
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	2.01
Dry Density	(Mg/m³)	1.62
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.25
Axial displacement rate	(%/min)	2.16
Cell pressure	(kPa)	513
Strain at failure	(%)	3.2
Maximum Deviator Stress	(kPa)	1067
Shear Stress Cu	(kPa)	533



Orientation of the sample	Vertical
Distance from top of tube mm	10



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

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#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

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 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

### QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH6 5 2.50-2.95 U Description:

Firm to stiff fissured brown CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	102.8
Moisture Content	(%)	33
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.53
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	48
Strain at failure	(%)	7.5
Maximum Deviator Stress	(kPa)	147
Shear Stress Cu	(kPa)	73

Mode of failure	

Orientation of the sample	Vertical
Distance from top of tube mm	20



Checked and Approved by: Project Number:

Project Name:

GEO / 21995

## GEOLABS

#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

 
 Senior Technician 09/12/2014
 CG/18067A

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

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## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH6 20 10.50-10.95 U Description:

Very stiff fissured dark brown CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	103.6
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	200
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	160
Shear Stress Cu	(kPa)	80



Orientation of the sample	Vertical
Distance from top of tube mm	20



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

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#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

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Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,

## QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No Sample Ref Depth (m) Sample Type

BH6 34 19.50-19.95 U Description:

Very stiff fissured dark grey CLAY

#### **Specimen Details**

Specimen conditions		Undisturbed
Length	(mm)	200.3
Diameter	(mm)	104.6
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.29
Axial displacement rate	(%/min)	2.00
Cell pressure	(kPa)	371
Strain at failure	(%)	3.7
Maximum Deviator Stress	(kPa)	478
Shear Stress Cu	(kPa)	239



Orientation of the sample	Vertical
Distance from top of tube mm	60



Checked and Approved by: Project Number:

Senior Technician 09/12/2014 GEO / 21995

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#### CAMDEN LOCK VILLAGE PHASE II CG/18067A

 Test Report By GEOLABS Limited
 Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

 Client : Card Geotechnics Limited, 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey,