Report No D0050-10

PROJECT UCL HS, LONDON, W1T

FINAL REPORT ON GROUND INVESTIGATION

Carried out for:
UCL Properties Ltd

Engineer:
Ove Arup & Partners

June 2011

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UCL HS, LONDON, W1T

FINAL REPORT ON GROUND INVESTIGATION

Date: June 2011

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Issue No	Date	Details
1	June 2011	Final Report as submitted

CONTENTS

1 INTRODUCTION

During December 2010 Soil Mechanics (SM) were commissioned by Hannah Reed and Associates Ltd, who acted as the Project Manager on behalf of UCL Properties Ltd (the client) to carry out a ground investigation at Windeyer Building, University College London. The investigation was required to obtain geotechnical and geoenvironmental information for the proposed development, which is likely to comprise a six story building and up to two subsurface basement levels.

The scope of the investigation, which was specified by Ove Arup & Partners (the Engineer) comprised cable percussion boreholes, window sampling holes, concrete coring, sonic logging, in situ testing, vibration monitoring and laboratory testing. The investigation was carried out in accordance with the contract specification and relevant standards (see References). The fieldwork was carried out between 10 January 2011 to 21 January and 14 February 2010 to 03 March 2011.

This report presents the factual records of the fieldwork. The data will also be presented separately in digital format following AGS (2005) in the final report, Enclosure G.

2 THE SITE AND GEOLOGY

2.1 The Site

The site is an irregularly shaped plot, measuring approximately 100 m x 38 m and presently contains a 1960s-era structure known as the 'Windeyer Building'. This building is understood to comprise six levels of superstructure, a lower ground level entering onto a courtyard and a single level basement. The site is approximately centred at National Grid reference TQ 292 818, see Site Location Plan in Enclosure F

The site is bounded by:

- Howland Street and various four to six level office buildings to the north;
- Charlotte Street and a six level office building to the east;
- Astor College and Middlesex Hospital Annex to the south; and
- Cleveland Street and Regent's Residences (a three-storey residential building with shops at ground floor level) to the west.

2.2 Published Geology

The published geological map covering the site, BGS Sheet 256 North London (2006), shows the site to be underlain by the Quaternary River Terrace Deposits and by the Eocene London Clay Formation. At depth the Palaeocene Lambeth Group is present overlying the Thanet Sand Formation. This in turn overlies the Upper Cretaceous White Chalk Subgroup.

3 FIELDWORK

3.1 General

The fieldwork was carried out in general accordance with BS EN 1997-2 (2007) and its related standards together with the relevant section of BS 5930 (1999). The chalk was logged in accordance with CIRIA C574 (2002).

The exploratory hole locations were selected by Ove Arup & Partners. The locations were set out from local features. The co-ordinates and reduced levels were surveyed by Pelorus (a division of the Environmental Scientifics Group) to National Grid and Ordnance Datum. The exploratory hole locations are shown on the Exploratory Hole Location Plan in Enclosure F. In addition to the SM exploratory hole locations, Ove Arup & Partners requested an additional survey comprising five concrete core locations that were drilled by others. The positions of these concrete cores are displayed on the Exploratory Hole Location Plan in Enclosure F. The logs are presented within Enclosure A.

3.2 Exploratory Holes

The exploratory holes are listed in the following table.

SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	MAXIMUM DEPTH (m)	REMARKS
Cable Percussion Boring	2	48.30	Dando 3000 rig & Dando 100 rig
Concrete Coring	2	0.70	Hand Held Electric Coring Rig.
Probe Holes	8	>1.00	Hand Held Hilti Drill

The ground investigation was terminated early at the request of the client due to noise and vibration pollution as a result of the drilling operations, which interfered with experiments undertaken by the occupants of the Windeyer Building. The ground investigation was commenced approximately one month later to complete a reduced scope.

In addition to the schedule of exploratory holes in the specification document, Eight probe holes were drilled at some of the exploratory hole locations to determine the thickness of the concrete slab prior to undertaking the scheduled concrete coring.

Borehole location BH1 was temporally suspended due to problems with a third party wall agreement and the siting of a crane by others within the SM working area. Borehole location BH1 was recommenced and was drilled to a depth of 48.30 m bgl whereby the hole was terminated due to the density of the chalk stratum and problems recovering the drilling equipment.

The probe hole at location WS1 was suspended at 0.85 m bgl due to the failure of the electrics within the building and was consequentially terminated due to noise and vibration restrictions.

Three probe hole attempts were made at location WS2 and were all terminated at 0.20 m bgl due to an impenetrable layer of bitumen. A 300 mm diameter core hole was attempted but subsequently suspended due to excessive noise and vibration felt during the lecture taking place in the adjacent lecture theatre. This position was consequentially terminated and the core sample was not recovered.

Two probe hole attempts were made at location WS3 and were both terminated at 1.00 m bgl due the depth of concrete. A 52 mm diameter core was attempted but was suspended due to failure of the core barrel. This position was consequentially terminated due to noise and vibration restrictions.

Two probe hole attempts were made at location BH4. The first attempt was terminated due to the presence of reinforcing bar preventing progression of the hole at 0.17 m bgl. The second attempt was suspended at 0.45 m bgl due to equipment failure. This position was consequentially terminated due to noise and vibration restrictions.

The exploratory hole records are presented in Enclosure A and should be read in conjunction with the Key included therein. The records provide descriptions of the materials encountered, in accordance with the standards referenced on the Key, details of the samples taken, together with observations made during boring, coring. Photographs of the concrete cores are presented in Enclosure A.

On completion of the fieldwork all geotechnical samples were transported to the SM Wokingham storage facility for temporary retention. Geotechnical testing was carried out by the SM Doncaster laboratory. Geoenvironmental samples were transported from site directly to the Scientifics Bretby laboratory.

3.3 Instrumentation and Monitoring

The instruments installed in the exploratory holes are shown on the logs and detailed in Enclosure B. Records of groundwater and gas monitoring carried out by Soil Mechanics during and after the fieldwork period are presented in Enclosure B.

3.4 In Situ Testing

Standard Penetration Tests (SPT) were carried out in accordance with BS EN ISO 22476-3 :2005. The results are shown on the exploratory hole record presented in Enclosure A. The corresponding SPT Hammer Energy Report is included within Enclosure A.

Sonic logging was undertaken within Borehole BH1 and has been summarised below. The results are presented in Enclosure C and the digital data is presented within Enclosure G.

SUMMARY OF IN SITU TESTING

TYPE	QUANTITY	REMARKS
Standard Penetration Tests	15	Results displayed on exploratory hole logs. SPT hammer Energy Reports (calibration certificates) are presented in Enclosure A.
Sonic Logging	1	Sonic logging was undertaken in BH1 from GL to 26.00m

4 LABORATORY TESTING

4.1 Geotechnical Testing

The testing was scheduled by Ove Arup & Partners and was carried out in accordance with BS 1377 (1990). The testing is summarised overleaf and the results are presented in Enclosure D.

SUMMARY OF GEOTECHNICAL LABORATORY TESTING

TYPE	REMARKS
Moisture Content Determination	29 no.
Atterberg Limit Determination	24 no.
Particle Size Distribution Analysis	31 no.
pH and Water Soluble Sulphate Content of Soils and Water Magnesium, Chloride, Nitrate, Acid Soluble Sulphate and Total Sulphur	11 no. Testing appropriate for use with BRE Special Digest 1 (2005) and carried out at SM Doncaster. Test methods used by SM are indicated on the results report sheets in the Enclosure.
Unconsolidated Undrained Triaxial Compression Testing	25 no.
Unconfined Compression	5 no.

4.2 Geoenvironmental Testing

The testing was scheduled by Ove Arup & Partners and was carried out by Scientifics Bretby at their Burton on Trent laboratory. The results are presented in Enclosure E.

Prepared By	**J Burch BSc**
	S. Harlow BSc (Hons) FGS AMIEnvSci
Reviewed By	**P Mercer BSc (Hons) FGS**
Approved for Issue By	**S Valentine BSc (Hons) FGS** S. Valentine

REFERENCES

AGS : 2005 : Electronic transfer of geotechnical and geoenvironmental data (Edition 3.1 including addendum May 2005). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 256 : 2006 : North London. 1:50000 geological map (solid). British Geological Survey.

BRE Special Digest 1 : 2005 : Concrete in aggressive ground. Building Research Establishment.

BS 1377 : 1990 : Methods of test for soils for civil engineering purposes. British Standards Institution.

BS 5930 : 1999 : Code of practice for site investigations. British Standards Institution.

BS EN ISO 1997-2 : 2007 : Eurocode 7 - Geotechnical design - Part 2 - Ground investigation and testing. British Standards Institution.

EA : 2005 : Guidance on sampling and testing to meet landfill acceptance procedures. Version 1. Environment Agency, Bristol

CIRIA C574: 2002: Engineering in Chalk.

Ove Arup & Partners Specification for Ground Investigation, Project UCL HS, University College London. 211374 Issue 1, November 2010.

ENCLOSURE A

EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
SPT Hammer Calibration Certificates	SM04, SM07, and SM18
Borehole Logs	BH1 and BH3
Concrete Core	WS3, MSA1, MSA2, MSA3, MSA4 and MSA5

Key to Exploratory Hole Records

Soil Mechanics

SAMPLES

Undisturbed

U	Driven tube sample
TW	Pushed thin wall tube sample } nominally 100 mm diameter and full recovery unless otherwise stated
P	Pushed piston sample
L	Liner sample (from Windowless or similar sampler), full recovery unless otherwise stated
CBR	CBR mould sample
BLK	Block sample
CS	Core sample (from rotary core) taken for laboratory testing
AMAL	Amalgamated sample

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample
	Environmental chemistry samples (in more than one container where appropriate)
ES	Soil sample
EW	Water sample

Comments Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that attempt was made to take a tube sample, however, there was no recovery.

Monitoring samples taken after completion of hole construction are not shown on the exploratory hole logs.

TESTS

SPT S or SPT C — Standard Penetration Test, open shoe (S) or solid cone (C)

The Standard Penetration Test is defined in BS EN ISO 22476-3 (2005). The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 the total blow count beyond the seating drive is given (without the N = prefix).

IV	*in situ* Vane shear strength, peak (p) and remoulded (r)
HV	Hand vane shear strength, peak (p) and remoulded (r)
PP	Pocket penetrometer test, converted to shear strength
KFH, KRH, KPI	Permeability tests (KFH = falling head, KRH = rising head; KPI = packer inflow); results provided in Field Records column (one value per stage for packer tests)

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930 with Amendment 1(1999/2007)

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented. The term non-intact (NI) is used where the core is fragmented.

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss
NR	Not recovered

GROUNDWATER

▼	Groundwater strike
▽	Groundwater level after standing period

Key to Exploratory Hole Records

Soil Mechanics

INSTALLATION

Standpipe/ piezometer

Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

The type of instrument installed is indicated by a code in the Legend column at the depth of the response zone:

SP Standpipe
SPIE Standpipe piezometer
PPIE Pneumatic piezometer
EPIE Electronic piezometer

Inclinometer or Slip Indicator

The installation of vertical profiling instruments is indicated on the Record. The base of tubing is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column at the base of the tubing:

ICE Biaxial inclinometer
ICM Inclinometer tubing for use with probe
SLIP Slip indicator

Settlement Points or Pressure Cells

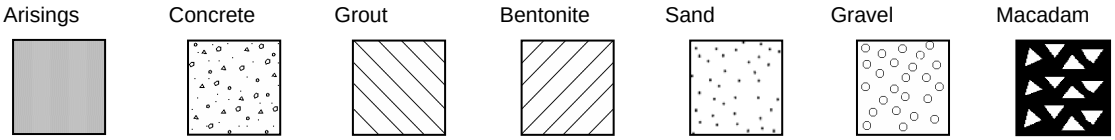
The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column:

ESET Electronic settlement cell/gauge
ETM Magnetic extensometer settlement point
EPCE Electronic embedment pressure cell
PPCE Electronic push in pressure cell

INSTALLATION LEGENDS

A legend describing the installation is shown in the rightmost column. Legends additional to BS5930 are used to describe the backfill materials as indicated below.



NOTES

1 Soils and rocks are described in accordance with BS EN ISO 14688-1 (2002), 14688-2 (2004), 14689-1 (2003) and BS 5930 with Amendment 1 (1999/2007) as clarified by Baldwin et al (2007).

2 Strata legends are in accordance with BS 5930 with Amendment 1 (1999/2007).

3 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced below groundwater level. Under certain conditions groundwater cannot be observed, for instance, drilling with water flush or overwater, or boring at a rate much faster than water can make its way into the borehole (ref BS5930 : 1999, Clause 47.2.7). In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.

4 Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs, however, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.

5 The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.

6 The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.

7 The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures

Key to Exploratory Hole Records

Soil Mechanics

REFERENCES

Baldwin M, Gosling R C and Brownlie N : 2007 : Soil and rock descriptions - a practical guide to the implementation of BS EN ISO 14688 and 14689. Ground Engineering, Vol 40 No 7 July.

BS EN ISO 14688-1 : 2002 : Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description. British Standards Institution.

BS EN ISO 14688-2 : 2004 : Geotechnical investigation and testing - Identification and classification of soil - Part 2 Principles for a classification. British Standards Institution.

BS EN ISO 14689-1 : 2003 : Geotechnical investigation and testing - Identification and classification of rock - Part 1 Identification and description. British Standards Institution.

BS EN ISO 22476-3 : 2005 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test. British Standards Institution.

BS 5930 with Amendment 1 : 1999/2007 : Code of Practice for site investigations. British Standards Institution

Updated July 2009

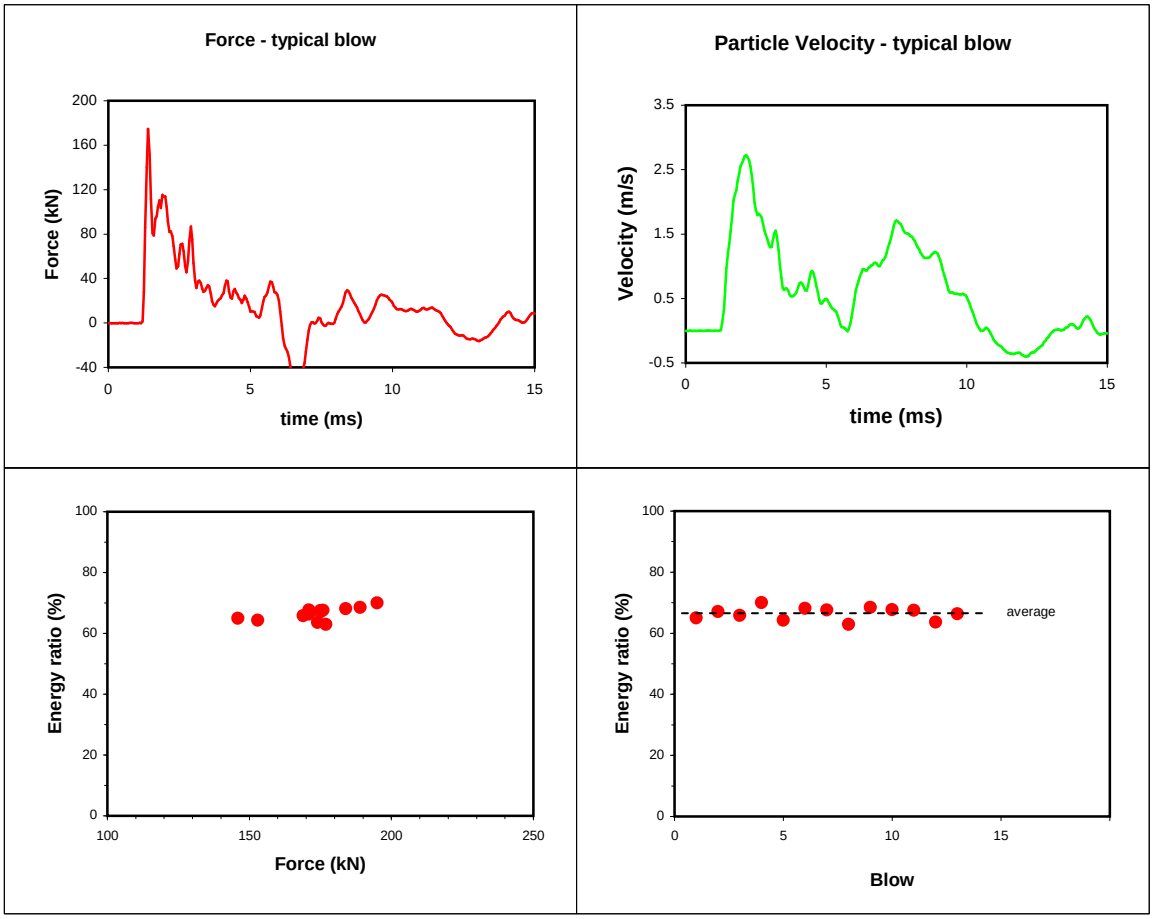
Hammer Energy Report

Soil Mechanics

Date of test:	14/07/2010	**Hammer ID:**	SM04
		Hammer mass (*m*)	63.5 kg
Instrumented rod:		**Fall height (*h*)**	0.76 m
Type	BW	**Test type:**	SPT
Cross-sectional area (*A*a)	11.30 cm^2	**Manufacturer:**	Archway
Young's modulus (*E*a)	207000 MPa	**Model:**	Automatic Trip Hammer
Length	0.60 m		
		Rig:	Dando 3000
Test rod type:	NWY	**Rig ID:**	CT35
		Type:	Cable Percussion
		Foreman:	A Dodd

Remarks:

Data obtained from test carried out in BH1, located in SM Doncaster yard. Test carried out at depth of 9.52mbgl, with a total blow count of 13. Energy determined from every blow.



Theoretical energy (E_{theor}) = *m x g x h* = **0.473 kN-m (473 J)**

Measured energy (E_{meas}) *average of 13 blows* = **0.315 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **67 %**

Test carried out by: Rob Cooke

Test carried out in accordance with BS EN ISO 22476-3:2005

Signed for issue:

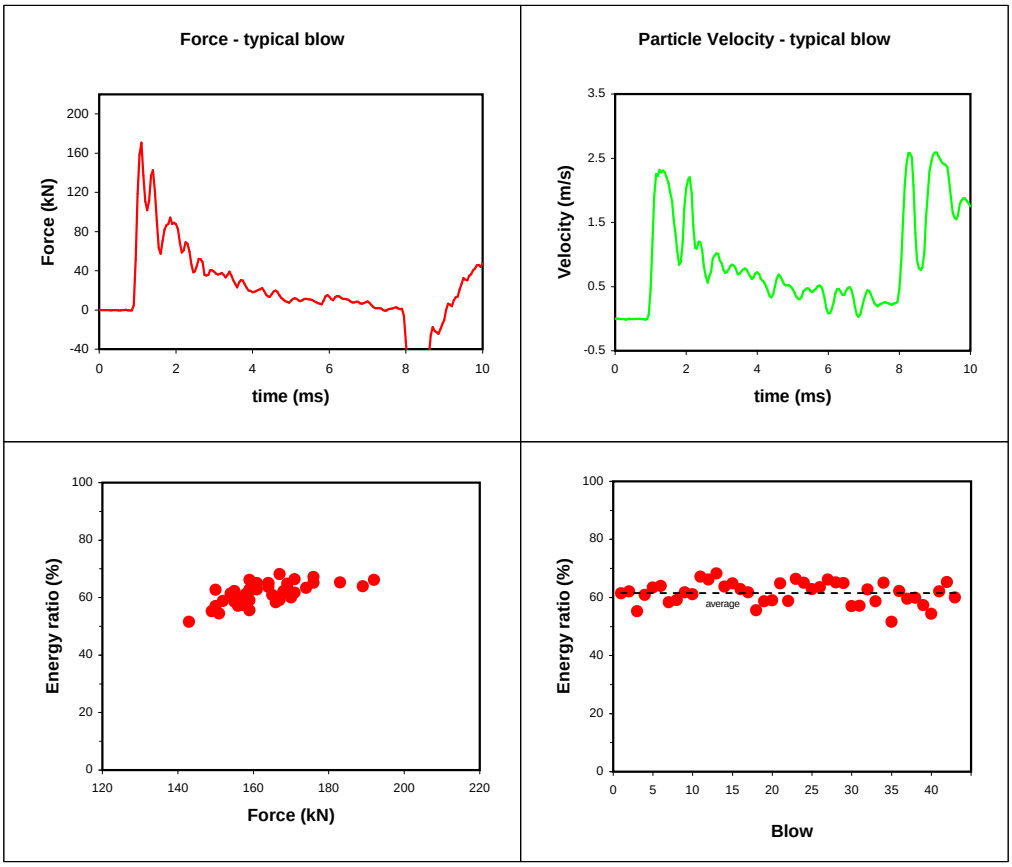
Equipment used: SPT Analyzer Serial No. 4032T

SPT Hammer Energy Report

Soil Mechanics

Date of test:	22/01/2009	**Hammer ID:**	SM07
		Hammer mass (*m*)	63.5 kg
Instrumented rod:		**Fall height (*h*)**	0.76 m
Type	BW		
Cross-sectional area (*A*a)	11.30 cm^2	**Rig:**	Dando 100
Young's modulus (*E*a)	207000 MPa	**Rig ID:**	CT56
Length	0.60 m	**Type:**	Cable Percussion
SPT rod type:	BWJ	**Foreman:**	Phil Horton

Remarks:
Data obtained from test carried out on Project No. E8901.
BHRT94, at depth of 15.80 mbgl.
N-value for test is 44.



Theoretical energy (E_{theor}) = *m x g x h* = **0.473 kN-m (473 J)**

Measured energy (E_{meas}) *average of 41 blows* = **0.291 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ **=** **62 %**

Test carried out by: Rob Cooke

Test carried out in accordance with BS EN ISO 22476-3:2005

Signed for issue:

Equipment used: SPT Analyzer Serial No. 4032T

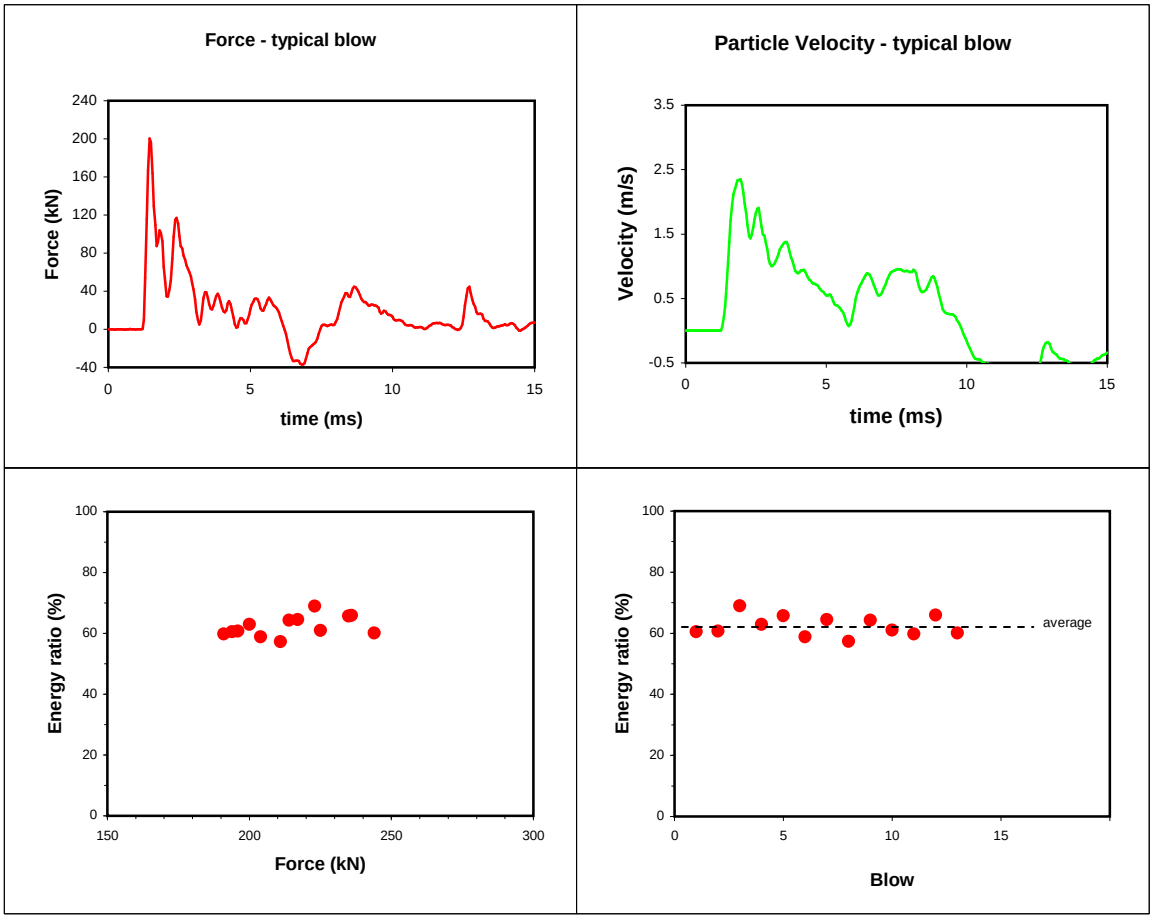
Hammer Energy Report

Soil Mechanics

Date of test:	14/07/2010	**Hammer ID:**	SM18
		Hammer mass (*m*)	63.5 kg
Instrumented rod:		**Fall height (*h*)**	0.76 m
Type	BW	**Test type:**	SPT
Cross-sectional area (*A* a)	11.30 cm^2	**Manufacturer:**	Archway
Young's modulus (*E* a)	207000 MPa	**Model:**	Automatic Trip Hammer
Length	0.60 m		
		Rig:	Dando 3000
Test rod type:	NWY	**Rig ID:**	CT35
		Type:	Cable Percussion
		Foreman:	A Dodd

Remarks:

Data obtained from test carried out in BH1, located in SM Doncaster yard. Test carried out at depth of 9.82mbgl, with a total blow count of 13. Energy determined from every blow.



Theoretical energy (E_{theor}) = *m x g x h* = **0.473 kN-m (473 J)**

Measured energy (E_{meas}) *average of 13 blows* = **0.295 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **62 %**

Test carried out by: Rob Cooke

Test carried out in accordance with BS EN ISO 22476-3:2005

Signed for issue:

Equipment used: SPT Analyzer Serial No. 4032T

Borehole Log

Soil Mechanics

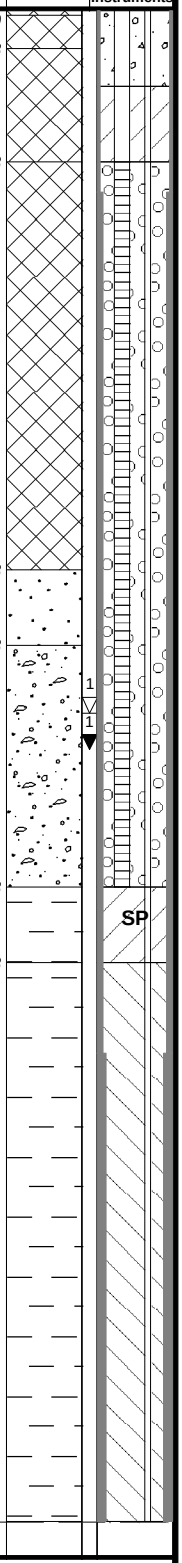
Drilled PH/IP **Logged** JB/SH **Checked** PM	**Start** 12/01/2011 **End** 24/02/2011	**Equipment, Methods and Remarks** Dando 3000 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring from 1.20 m to 48.30 m depth. BH terminated early due to hard stratum and problems retrieving the cutting tool.	**Depth from / to / Diameter / Casing Depth** 0.00m – 6.90m – 300mm – 1.20m 6.90m – 25.90m – 250mm – 6.90m 25.90m – 43.00m – 200mm – 26.00m 43.00m – 48.30m – 150mm – 43.00m	**Ground Level** +26.33 mOD **Coordinates** E 529320.68 **National Grid** N 181833.71 **Chainage**

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
0.30	ES 1	4 samples taken		
0.30	D 2			
0.30-0.50	B 3			
0.70-0.90	B 4			
1.00	ES 5	4 samples taken		
1.00	D 6			
1.00-1.20	B 7	*		
1.20-1.62	SPT S	9 (1,1/2,1,2,4 for 45mm)	1.20	dry
1.20	D 8			
1.20-1.70	B 9			
2.00	D 10			
2.00	ES 11	4 samples taken		
2.20-2.64	SPT S	0 (1,-)	1.20	dry
2.20	D 12	SW=20		
2.20-2.70	B 13			
2.20-2.70	D 14			
3.00	D 15			
3.00	ES 16	4 samples taken		
3.20-3.70	SPT S	N=10 (1,2/2,2,3,3)	3.20	dry
3.20	D 17	SW=50		
3.20-4.00	B 18			
4.00	D 19		12/01/2011	1200
4.00	ES 20	4 samples taken	4.00	dry
4.20-4.65	SPT S	N=16 (1,1/2,4,5,5)		
4.20	D 21		13/01/2011	0800
4.20-4.70	B 22		4.00	dry
4.65	W 23	2 samples taken		
5.00	D 24			
5.00	ES 25	4 samples taken		
5.20-5.65	SPT S	* N=19 (2,2/4,4,4,7)	5.20	damp
5.20-5.70	B 26			
5.80	D 27			
5.80-6.30	B 29			
6.00	ES 28	4 samples taken		
			13/01/2011	1800
6.30-6.90	B 30		6.30	dry
			21/01/2011	0800
			6.30	dry
			21/01/2011	1800
6.90-7.35	U 31	25 blows	6.90	dry
			16/02/2011	0800
			6.90	dry
7.40-7.85	SPT S	N=26 (2,3/5,6,7,8)	6.90	dry
7.40	D 32			
7.40	D 33			
7.90	D 34			
8.40-8.85	U 35	45 blows	8.00	dry
8.90-9.35	SPT S	N=29 (2,3/4,11,7,7)	8.00	dry
8.90	D 36			
8.90	D 37			
9.40	D 38			
9.90-10.35	U 39	50 blows	8.00	dry

Strata

Description	Depth, *Level* (Thickness)
(MADE GROUND) MACADAM	0.03 *+26.30* 0.25 *+26.08*
(MADE GROUND) CONCRETE 0.30-0.50 m Locally grey. Occasional pockets of ash (up to 10 mm)	(0.75)
(MADE GROUND) Soft greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to well rounded fine to coarse of brick, concrete, flint, rare clinker and marble fragments. Rare cobbles of brick.	1.00 *+25.33*
(MADE GROUND) Soft dark grey slightly sandy to sandy slightly gravelly to gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, concrete, flint, rare clinker, oyster shells, pottery and clay pipe fragments. 2.20-2.70 m Silty very sandy gravel. 2.70-3.00 m Bone fragments (up to 100 x 60 mm). 3.00 m Partly decomposed wood fragment and occasional pockets of black organic matter (up to 30 x 45 mm)	(2.70)
Orangish brown slightly gravelly fine to medium SAND. Gravel is angular to subrounded fine to medium of flint. (RIVER TERRACE DEPOSITS) 3.20 m Rare rope fragments. 4.20 m Occasional pockets of clay (up to 200 mm). Slightly gravelly.	3.70 *+22.63* (0.50) 4.20 *+22.13*
Medium dense orangish brown gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint. (RIVER TERRACE DEPOSITS) 5.20-5.70 m Locally clayey with low cobble content.	(1.60)
Firm brown slightly sandy slightly gravelly CLAY. Occasional partings of orangish brown silt. Rare gravel of flint. (BASAL RIVER TERRACE DEPOSITS / LONDON CLAY FORMATION) 6.30-6.90 m Occasional partings of fine sand and silt.	5.80 *+20.53* (0.50) 6.30 *+20.03*
Very stiff fissured grey CLAY. Fissures are extremely to very closely spaced, randomly orientated, smooth and matt. (LONDON CLAY FORMATION) 7.40 m Rare shell fragments. Slightly sandy. 8.40-8.85 m Slightly sandy and silty. 8.60-9.05 m Rare burrows infilled wth blueish grey clay. Rare fine to medium sand size selenite crystals on fissure surfaces.	(4.10)
Stratum continues to 10.40 m	



Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
1	4.80	Rose to 4.65 m after 20 minutes.	-

Depth Related Remarks *

From	to (m)	
1.20	50.00	SPT hammer ID SM04 (Er 67%); rod type B
5.20	5.70	Water added to assist boring.

Chiselling

Depths (m)	Time	Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Borehole

BH1

Borehole Log

Soil Mechanics

Drilled PH/IP **Logged** JB/SH **Checked** PM	**Start** 12/01/2011 **End** 24/02/2011	**Equipment, Methods and Remarks** Dando 3000 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring from 1.20 m to 48.30 m depth. BH terminated early due to hard stratum and problems retrieving the cutting tool.					**Ground Level** +26.33 mOD **Coordinates** E 529320.68 **National Grid** N 181833.71 **Chainage**

Depth from	to	Diameter	Casing Depth
0.00m	6.90m	300mm	1.20m
6.90m	25.90m	250mm	6.90m
25.90m	43.00m	200mm	26.00m
43.00m	48.30m	150mm	43.00m

Samples and Tests

Strata

Depth	Type & No	Records	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, *Level* (Thickness)	Legend	Backfill/ Instruments
					Very stiff fissured grey CLAY. Fissures are extremely to very closely spaced, randomly orientated, smooth and matt. (LONDON CLAY FORMATION)			
10.40-10.85	SPT S	N=27 (2,3/5,6,7,9)	8.00	dry	10.40-10.95 m Rare fine to medium gravel size selenite crystals.	10.40 *+15.93*		
10.40	D 40							
10.40	D 41							
10.90	D 42				Very stiff fissured grey CLAY. Fissures are randomly orientated, planar to undulating and matt. Rare burrows infilled with blueish grey clay. (LONDON CLAY FORMATION)	(1.70)		
11.40-11.85	U 43	50 blows	8.00	dry				
11.90-12.30	SPT S	52 (9,14 for 50mm/ 20,20,6,6 for 50mm)	8.00	dry				
11.90	D 44							
11.90	D 45					12.10 *+14.23*		2
12.40	D 46				Weak grey CLAYSTONE recovered as grey subangular to subrounded fine to coarse gravel. (LONDON CLAY FORMATION)	12.20 *+14.13*		
12.90-13.35	U 47	45 blows	8.00	damp	Very stiff fissured grey CLAY. Fissures are extremely closely spaced, planar to undulating and matt. (LONDON CLAY FORMATION)			
13.40-13.85	SPT S	N=28 (2,5/6,7,7,8)	8.00	damp				
13.40	D 48							
13.40	D 49							
13.90	D 50				13.90 m Becoming slightly sandy.	(3.20)		
14.40-14.85	U 51	50 blows	8.00	damp	14.40-14.85 m Slightly sandy and silty.			
14.90-15.35	SPT S	N=37 (3,5/7,9,10,11)	8.00	dry				
14.90	D 52							
14.90	D 53							
15.40	D 54					15.40 *+10.93*		
					Very stiff grey slightly sandy silty CLAY. Sand is fine. (LONDON CLAY FORMATION)			
15.90-16.35	U 55	55 blows	8.00	dry				
16.40-16.85	SPT S	N=33 (4,5/7,8,9,9)	8.00	dry				
16.40	D 56							
16.40	D 57							
			16/02/2011	1800				
16.90	D 58		8.00	dry				
			17/02/2011	0800				
			8.00	dry				
17.40-17.85	U 59	65 blows	8.00	dry				
17.90-18.35	SPT S	N=35 (5,6/7,8,9,11)	8.00	dry	17.90-18.35 m Rare burrows infilled with blueish grey clay.			
17.90	D 60							
17.90	D 61							
18.40	D 62							
18.90-19.35	U 63	65 blows	8.00	dry				
19.40-19.85	SPT S	N=41 (5,8/9,10,10,12)	8.00	dry				
19.40	D 64							
19.40	D 65							
19.90	D 66							
Depth	**Type & No**	**Records**	**Date Casing**	**Time Water**	Stratum continues to 24.90 m			

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
2	12.10	very slow seepage	-

Depth Related Remarks *

From	to (m)

Chiselling

Depths (m)	Time	Tools used
12.10 -12.20	15 mins	Chisel

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Borehole

BH1

Borehole Log

Soil Mechanics

Drilled PH/IP **Logged** JB/SH **Checked** PM	**Start** 12/01/2011 **End** 24/02/2011	**Equipment, Methods and Remarks** Dando 3000 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring from 1.20 m to 48.30 m depth. BH terminated early due to hard stratum and problems retrieving the cutting tool.	**Depth from** / **to** / **Diameter** / **Casing Depth** 0.00m – 6.90m – 300mm – 1.20m 6.90m – 25.90m – 250mm – 6.90m 25.90m – 43.00m – 200mm – 26.00m 43.00m – 48.30m – 150mm – 43.00m	**Ground Level** +26.33 mOD **Coordinates** E 529320.68 **National Grid** N 181833.71 **Chainage**			

Samples and Tests

Strata

Depth	Type & No	Records	Date Casing	Time Water	Description (Continued from Sheet 2)	Depth, *Level* (Thickness)	Legend	Backfill/ Instruments
					Very stiff grey slightly sandy silty CLAY. Sand is fine. (LONDON CLAY FORMATION)	(9.50)		
20.40-20.85	U 67	65 blows	8.00	dry				
20.90-21.35	SPT S	N=42 (6,8/9,10,11,12)	8.00	dry				
20.90	D 68				20.90 m 1 no. subrounded black gravel.			
20.90	D 69							
21.40	D 70							
21.90-22.35	U 71	65 blows	8.00	dry				
22.40-22.85	SPT S	N=40 (5,8/9,9,10,12)	8.00	dry				
22.40	D 72							
22.40	D 73							
22.90	D 74							
23.40-23.85	U 75	70 blows	8.00	dry				
23.90-24.35	SPT S	N=39 (6,8/9,9,10,11)	8.00	dry				
23.90	D 76				23.90-24.35 m 1 no. white shell frgament.			
23.90	D 77							
24.40	D 78							
24.90-25.35	U 79	70 blows	8.00	dry		24.90 *+1.43*		
					Stiff brown mottled blue CLAY. (LAMBETH GROUP)			
25.40-25.85	SPT S	N=50 (6,10/15,15,20,-)	8.00	dry		(1.10)		
25.40	D 80							
25.40	D 81							
			17/02/2011	1800				
			8.00	dry				
26.00	D 82		21/02/2011	0800		26.00 *+0.33*		
			8.00	dry	Stiff to very stiff multicoloured brown, red, yellow and blue CLAY. (LAMBETH GROUP)			
26.40-26.85	U 83	100 blows 350 mm rec	26.00	dry	26.40-26.85 m Slightly sandy and silty			
26.80-27.21	SPT S	50 (11,14 for 50mm/ 25,25 for 60mm)	26.00	dry	26.80-27.25 m Slightly sandy. Sand is fine.			
26.80	D 84							
26.80	D 85					(2.40)		
27.40	D 86							
27.90-28.35	U 87	100 blows	26.00	dry				
28.40-28.83	SPT S	48 (8,14/16,18,14 for 50mm)	26.00	dry		28.40 *-2.07*		
28.40	D 88							
28.40	D 89				Very stiff fissured multicoloured brown, red, blue and grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Colours are red, brown, blue and grey. (LAMBETH GROUP)			
28.90	D 90				28.85 m Slightly sandy and slightly silty.			
29.40-29.85	U 91	100 blows	26.00	dry		(2.40)		
29.90-30.31	SPT S	50 (6,11/12,13,17,8 for 35mm)	26.00	dry	29.90 m Fissures			
Depth	**Type & No**	**Records**	**Date Casing**	**Time Water**	Stratum continues to 30.80 m			

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)

Depth Related Remarks *

From	to (m)

Chiselling

Depths (m)	Time	Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Borehole

BH1

Borehole Log

Soil Mechanics

Drilled PH/IP **Logged** JB/SH **Checked** PM	**Start** 12/01/2011 **End** 24/02/2011	**Equipment, Methods and Remarks** Dando 3000 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring from 1.20 m to 48.30 m depth. BH terminated early due to hard stratum and problems retrieving the cutting tool.	**Depth from / to / Diameter / Casing Depth** 0.00m – 6.90m – 300mm – 1.20m 6.90m – 25.90m – 250mm – 6.90m 25.90m – 43.00m – 200mm – 26.00m 43.00m – 48.30m – 150mm – 43.00m	**Ground Level** +26.33 mOD **Coordinates** E 529320.68 **National Grid** N 181833.71 **Chainage**

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
29.90	D 92			
29.90	D 93			
30.40	D 94			
30.90-31.35	U 95	60 blows	26.00	dry
31.40-31.85	SPT S	N=34 (4,6/6,7,10,11)	26.00	dry
31.40	D 96			
31.40	D 97			
31.90	D 98			
32.40-32.85	U 99	70 blows	26.00	dry
32.90-33.35	SPT S	N=44 (6,10/10,11,11,12)	26.00	dry
32.90	D 100			
32.90	D 101			
33.40	D 102			
33.90-34.35	U 103	100 blows 400 mm rec	26.00	damp
34.35-34.78	SPT S	50 (6,10/13,17,20 for 50mm)	26.00	damp
34.35	D 104			
34.35	D 105			
			21/02/2011	1800
34.90	D 106		26.00	damp
			22/02/2011	0800
			26.00	dry
35.40-35.85	U 107	100 blows 200 mm rec	26.00	damp
35.65-36.10	SPT S	N=50 (25,-/50,-,-,-)	26.00	damp
35.65	D 108			
35.65	D 109			
36.40	D 110			
36.90-37.35	U 111	100 blows 200 mm rec	26.00	damp
37.15-37.54	SPT S	50 (15,10 for 35mm/ 26,24 for 50mm)	26.00	damp
37.15	D 112			
37.15	D 113			
37.90	D 114			
38.40-38.85	U 115	100 blows 250 mm rec	26.00	damp
38.70-39.15	SPT S	50 (10,15/23,27 for 70mm)	26.00	damp
38.70	D 116			
38.70	D 117			
39.40	D 118			
39.90-40.35	U 119	100 blows 400 mm rec	26.00	damp

Strata

Description (Continued from Sheet 3)

Very stiff fissured multicoloured brown, red, blue and grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Colours are red, brown, blue and grey. (LAMBETH GROUP)
are closely spaced, planar, undulose and matt.

30.80 -4.47 (1.00)

Very stiff fissured grey CLAY. Fissures are extremely closely spaced, planar to undulating and polished. (LAMBETH GROUP)

31.80 -5.47 (0.80)

Very stiff fissured dark grey CLAY. Fissures are closely spaced, planar to undulating and polished. (LAMBETH GROUP)
31.80 m Pockets (10 x 15 mm) of black material - possible lignite.
31.90 m Gleying on fissure surfaces.
32.40-32.85 m Slightly sandy and slightly gravelly.

32.60 -6.27 (0.80)

Very stiff fissured multicoloured orange, red, brown, blue and grey sandy CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Sand is fine to medium. (LAMBETH GROUP)
32.40 m Becoming very dark in colour.

33.40 -7.07 (2.10)

Very stiff fissured multicoloured orange, red, brown, blue and grey sandy CLAY. Fissures are extremely closely spaced, randomly orientated and matt. Sand is fine to medium. (LAMBETH GROUP)

35.50 -9.17 (1.20)

Dense to very dense brownish grey clayey SAND. Sand is fine to medium. (LAMBETH GROUP)

36.70 -10.37 (0.80)

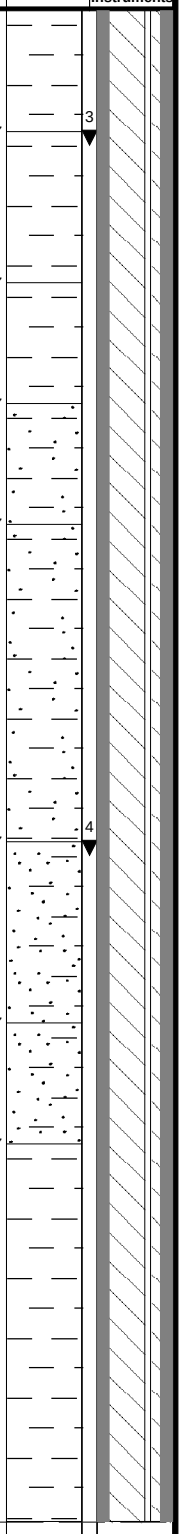
Very dense brown mottled bluish grey very clayey SAND. Sand is fine. (LAMBETH GROUP)
37.15 m Locally clayey.

37.50 -11.17 (4.00)

Very stiff fissured multicoloured red, brown, blue and grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (LAMBETH GROUP)
38.40-38.85 m Sandy and slightly silty.
38.70 m Locally dark grey to black.
39.40 m Locally slightly sandy. Sand is fine. Locally green, blue, grey, purple and yellow.

Stratum continues to 41.50 m

Depth, *Level* (Thickness) | **Legend** | **Backfill/ Instruments**



Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
3	30.80	very slow seepage	-
4	35.50	very slow seepage	-

Depth Related Remarks *
From to (m)

Chiselling
Depths (m) Time Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T
Project No. D0050-10
Carried out for UCL Properties Ltd

Borehole BH1

Borehole Log

Soil Mechanics

Drilled PH/IP **Logged** JB/SH **Checked** PM	**Start** 12/01/2011 **End** 24/02/2011	**Equipment, Methods and Remarks** Dando 3000 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring from 1.20 m to 48.30 m depth. BH terminated early due to hard stratum and problems retrieving the cutting tool.	**Depth from** / **to** / **Diameter** / **Casing Depth** 0.00m – 6.90m – 300mm – 1.20m 6.90m – 25.90m – 250mm – 6.90m 25.90m – 43.00m – 200mm – 26.00m 43.00m – 48.30m – 150mm – 43.00m	**Ground Level** +26.33 mOD **Coordinates** E 529320.68 **National Grid** N 181833.71 **Chainage**

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
40.35-40.75	SPT S	50 (8,12/17,25,8 for 25mm)	26.00	damp
40.35	D 120			
40.35	D 121			
40.90	D 122			
41.40-41.85	U 123	100 blows 400 mm rec	26.00	damp
41.85-42.28	SPT S	50 (8,17/27,23 for 50mm)	22/02/2011	1800
41.85	D 124		26.00	dry
41.85	D 125		23/02/2011	0800
			26.00	damp
42.40	D 126			
42.90-43.05	D 127		26.00	
42.90-43.35	U 127A	100 blows 150 mm rec		dry
43.10-43.49	SPT S	50 (10,15 for 40mm/ 50 for 50mm)	43.00	dry
43.10	D 128			
43.90	D 129			
44.40-44.82	SPT S	50 (25,- for 70mm/50 for 50mm)	23/02/2011 43.00	1800 dry
44.40	D 130	*	24/02/2011 43.00	0800 dry
45.40	D 132			
45.90-46.29	SPT C	50 (25,-/42,8 for 10mm)	43.00	dry
45.90	D 133			
45.90-46.40	B 134			
47.40-47.81	SPT S	50 (25,-/50 for 35mm)	47.40	dry
47.40	D 135			
		*	24/02/2011 47.40	1800 dry
48.30-48.72	SPT S	50 (25,- for 70mm/50 for 50mm)		
48.30	D 136			

Strata

Description (Continued from Sheet 4)		Depth, *Level* (Thickness)	Legend	Backfill/ Instruments
Very stiff fissured multicoloured red, brown, blue and grey CLAY. Fissures are extremely closely spaced, randomly orientated and matt. (LAMBETH GROUP)	40.35 m Locally sandy and silty.			
		41.50 *-15.17*		
Very stiff grey mottled blueish grey very sandy CLAY. Sand is fine. (LAMBETH GROUP)	41.85 m Locally sandy and silty.	(1.40)		
		42.90 *-16.57*		
Very stiff fissured grey slightly sandy slightly gravelly slightly silty CLAY. Fissures are closely spaced, randomly orientated and matt. Rare pockets of fine sand on fissure surfaces. (LAMBETH GROUP)	43.10 m Rare shell fragments.	43.00 *-16.67*		
Very dense greenish grey very clayey SAND. Sand is fine. (THANET SAND FORMATION)	43.90 m Becoming light grey. Locally sandy clay.	(2.90)		
	45.40-45.50 m Slightly gravelly, slightly silty and slightly clayey.			
		45.90 *-19.57*		
Very dense grey very sandy, silty, slightly clayey GRAVEL with low cobble content. Gravel is subangular to subrounded fine to coarse of flint. Sand is fine. (THANET SAND FORMATION)		(0.70)		
		46.60 *-20.27*		
Weak low density white CHALK recovered as silty gravel of chalk. (WHITE CHALK SUBGROUP)		(1.70)		
EXPLORATORY HOLE ENDS AT 48.30 m	48.30 m Becoming weak high density white chalk.	48.30 *-21.97*		SP

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)

Depth Related Remarks *

From	to (m)	
44.50	46.00	Water added to assist boring.
48.00	48.30	Water added to assist boring.

Chiselling

Depths (m)	Time	Tools used
44.00 -44.40	60 mins	Chisel
45.90 -46.50	60 mins	Chisel

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Borehole

BH1

Borehole Log

Soil Mechanics

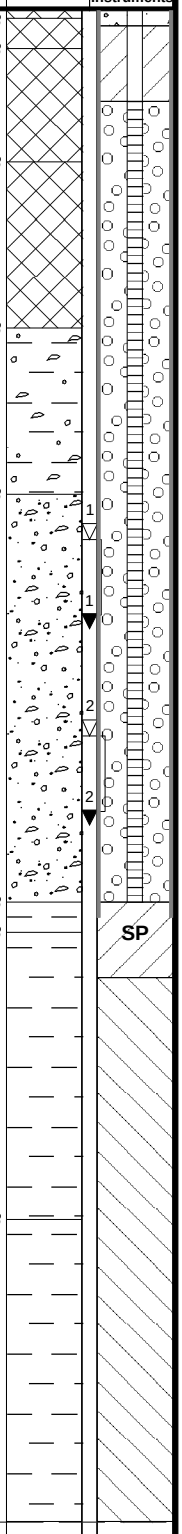
Drilled IP **Logged** JB **Checked** PM	**Start** 14/01/2011 **End** 18/01/2011	**Equipment, Methods and Remarks** D100 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring form 1.20 m to 11.95 m depth. Hole terminated at 11.95 m due to noise and vibrations.	**Depth from** 0.00m	**to** 11.95m	**Diameter** 150mm	**Casing Depth** 6.00m	**Ground Level** +24.78 mOD **Coordinates** E 529284.07 **National Grid** N 181868.75 **Chainage**

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
0.30	ES 1	4 Samples Taken		
0.30	B 2			
0.50	D 3			
1.00	ES 4	4 Samples Taken		
1.00	D 5			
1.00-1.20	B 6			
1.20-1.65	SPT S	N=15 (1,1/2,2,3,8)		dry
1.20	D 7			
1.70	D 8			
2.00	ES 9	4 Samples Taken		
			2.10	dry
2.20-2.65	SPT C	N=14 (1,2/2,3,4,5)	2.20	damp
2.20-2.70	B 10	*		
2.70	D 11			
3.00	ES 12	4 Samples Taken		
3.20-3.65	SPT C	N=21 (2,2/3,5,6,7)	3.20	damp
3.20-3.70	B 13			
3.70	D 14			
4.00	ES 15	4 Samples Taken		
4.20-4.65	SPT C	N=23 (2,3/5,5,6,7)	4.20	3.50
4.20-4.70	B 16			
4.70	D 17			
5.00	ES 18	* 4 Samples Taken		
5.20-5.64	SPT C	50 (7,10/12,19,19,- for 60mm)	5.20	4.80
5.20-5.70	B 19			
6.00	ES 20	4 Samples Taken		
6.00	D 21			
			6.00	damp
6.50-6.95	U 22	60 blows	6.00	dry
7.00-7.45	SPT S	N=23 (2,4/5,6,6,6)	6.00	dry
7.00	D 23			
7.00-7.45	D 24			
7.50	D 25			
8.00-8.45	U 26	75 blows	6.00	dry
8.50-8.95	SPT S	N=25 (3,4/6,6,6,7)	6.00	dry
8.50	D 27			
8.50-8.95	D 28			
9.00	D 29			
9.50-9.95	U 30	50 blows	6.00	dry

Strata

Description	Depth, *Level* (Thickness)
(MADE GROUND) CONCRETE PAVING SLAB	0.05 *+24.73* (0.20)
0.30 m Locally with low cobble content. (MADE GROUND) CONCRETE	0.25 *+24.53* (0.75)
(MADE GROUND) Grey slightly clayey fine to coarse SAND and GRAVEL. Gravel is angular to subrounded fine to coarse of brick, concrete, flint and rare tile fragments. Occasional pockets of grey sandy clay (up to 30 mm) 1.00 m Rare unidentifiable white rock (up to 60 mm) 1.00 m Clayey very sandy gravel. 1.20 m Becoming dark grey mottled light grey and red brown.	1.00 *+23.78* (1.10)
(MADE GROUND) Dark grey very gravelly, sandy, slightly clayey SILT with low cobble content. Gravel is angular to subangular fine to coarse of brick, concrete, flint and rare tile fragments. Sand is fine to coarse. 2.00 m Pockets of orangish brown sand. 2.20-2.70 m Locally light grey. Sandy gravelly clay.	2.10 *+22.68*
Soft orangish brown slightly sandy slightly gravelly to gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint. (RIVER TERRACE DEPOSITS)	(1.10)
Medium dense orangish brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint. Occasional pockets of clay (up to 75 mm). (RIVER TERRACE DEPOSITS) 3.20-3.70 m Slightly clayey with low cobble content.	3.20 *+21.58*
4.20-4.70 m Slightly clayey and very sandy with low cobble content.	(2.70)
5.20-5.70 m Slightly clayey and very sandy.	5.90 *+18.88*
Firm brown slightly gravelly CLAY with occasional partings of orangish brown silt. Gravel is subangular to subrounded fine to medium of flint. (LONDON CLAY FORMATION)	6.10 *+18.68*
Stiff grey CLAY. (LONDON CLAY FORMATION) 7.00 m Rare partings of sand and silt. Rare extremely closely spaced fissuring. 7.50 m Rare to occasional shell fragments (up to 5 mm)	(1.90)
Very stiff fissured grey CLAY. Fissures are extremely to very closely spaced, randomly orientated, smooth and matt. Occasional partings of fine sand and silt. (LONDON CLAY FORMATION) 8.50-8.95 m Slightly sandy and silty. 9.00 m Rare burrows infilled with light grey clay.	8.00 *+16.78* (2.10)
Stratum continues to 10.10 m	



Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
1	4.00	Rose to 3.50 m after 20 minutes. Slow infill	5.00
2	5.30	Rose to 4.80 m after 20 minutes. Slow infill	5.90

Depth Related Remarks *

From	to (m)	
2.30	4.00	Water added to assist boring
5.00	5.90	Water added to assist boring

Chiselling

Depths (m)	Time	Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Borehole

BH3

Borehole Log

Soil Mechanics

Drilled IP **Logged** JB **Checked** PM	**Start** 14/01/2011 **End** 18/01/2011	**Equipment, Methods and Remarks** D100 CAT scanned prior to excavation. Hand excavated inspection pit from GL to 1.20 m depth. Cable percussive boring form 1.20 m to 11.95 m depth. Hole terminated at 11.95 m due to noise and vibrations.	**Depth from** 0.00m **to** 11.95m	**Diameter** 150mm	**Casing Depth** 6.00m

Ground Level +24.78 mOD
Coordinates E 529284.07
National Grid N 181868.75
Chainage

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
10.00-10.39	SPT S	50 (5,10/25,25,-,- for 10mm)	6.00	damp
10.00	D 31			
10.00-10.45	D 32			
10.50	D 33			
11.00-11.45	U 34	50 blows	6.00	damp
11.50	D 35			
11.50	D 36			
11.50-11.95	SPT S	N=30 (4,6/6,7,8,9)	6.00	damp
			6.00	damp

Strata

Description (Continued from Sheet 1)

Very stiff fissured grey CLAY. Fissures are extremely to very closely spaced, randomly orientated, smooth and matt. Occasional partings of fine sand and silt. (LONDON CLAY FORMATION) — 10.00 m Gravelly (mudstone).

MUDSTONE recovered as light grey angular to subangular fine to coarse gravel. (LONDON CLAY FORMATION)

Very stiff fissured grey CLAY. Fissures are extremely closley spaced, randomly orientated, smooth and matt. (LONDON CLAY FORMATION) — 11.50 m Occasional partings of fine sand and silt. Occasional burrows infilled with light grey clay. Rare dark grey mottling on some fissure surfaces.

EXPLORATORY HOLE ENDS AT 11.95 m

Depth,*Level* (Thickness)	Legend	Backfill/ Instruments
10.10 *+14.68*		2
10.15 *+14.63*		
(1.80)		
11.95 *+12.83*		

Depth	Type & No	Records	Date Casing	Time Water

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
2	10.10	Very slow seepage	-

Depth Related Remarks *
From to (m)

Chiselling

Depths (m)	Time	Tools used
10.10 -10.15	30 mins	Chisel

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

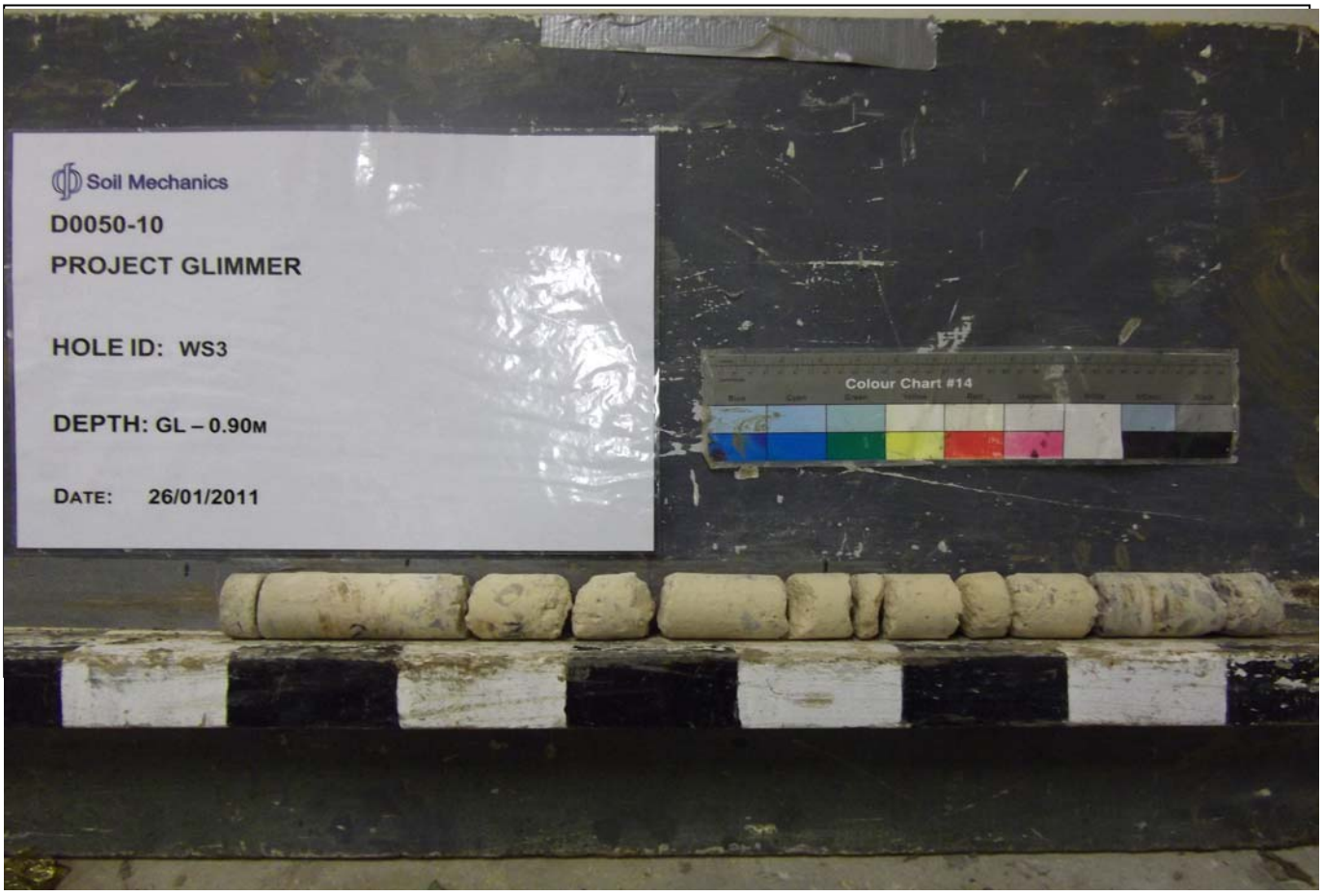
Scale 1:50

Project Project UCL HS, London, W1T
Project No. D0050-10
Carried out for UCL Properties Ltd

Borehole
BH3
Sheet 2 of 2

Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.03	25.00	Carpet over wooded parquade floor
2	0.03	0.58	550.00	Weak CONCRETE
3	0.58	0.70	120.00	Strong CONCRETE

Trial pit cored form GL to 0.70 m in 52 mm diameter.

Core Location Details

Coring Date	Dia, mm	Vert
17 Jan 2011	52	Yes

Level	24.41	Backfill
East	529239.98	Concrete
North	181868.15	

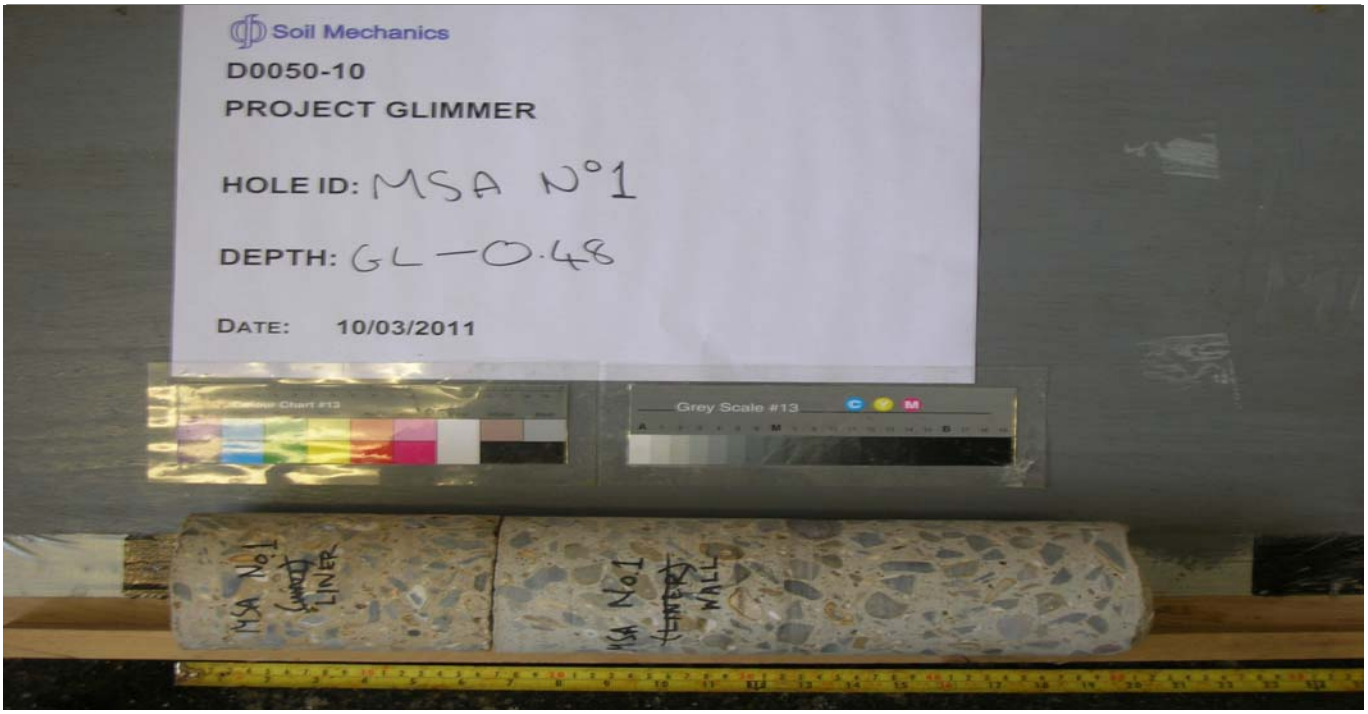
Notes:

Project	Project UCL HS
Project No.	D0050-10
Carried out for	UCL Properties Ltd

Core **WS3**

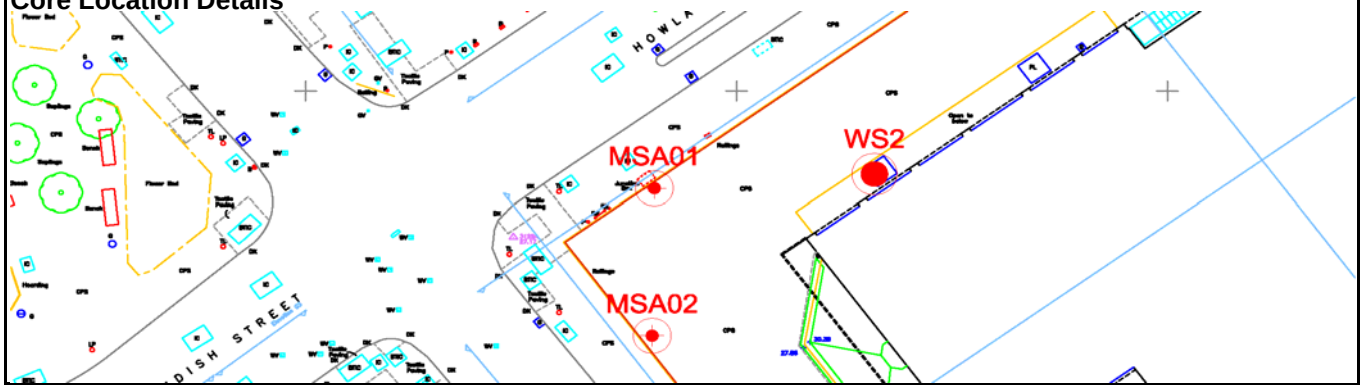
Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.16	0.16	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids.
2	0.16	0.48	0.32	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids. DETAIL: 0.30 m - Steel reinforcing (30 mm)

Core Location Details



Coring Date	Dia, mm	Vert
Unknown	100	No

		Backfill
Level	25.43	Unknown. Plywood blanking plate.
East	529216.18	
North	181855.11	

Notes:

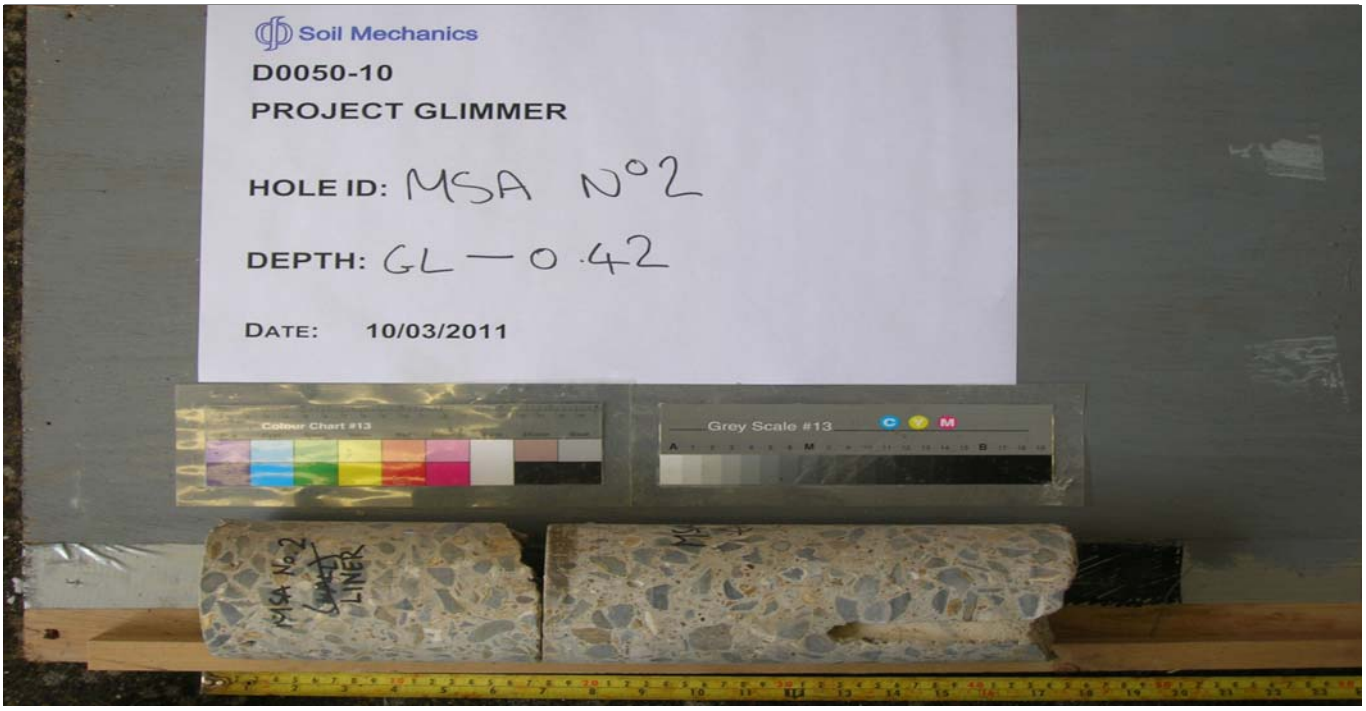
Project	UCL Project UCL HS
Project No.	D0050-10
Carried out for	UCL Properties Ltd

Core

MSA 1

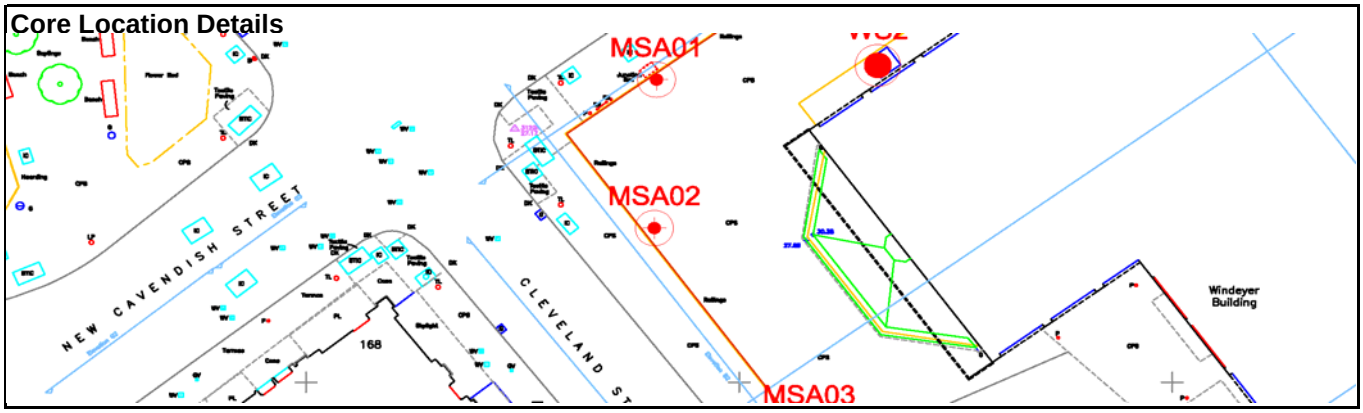
Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.16	0.16	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids.
2	0.16	0.42	0.26	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids. 1 no. 15 mm pilot hole drilled throughout core.

Core Location Details



Coring Date	Dia, mm	Vert
Unknown	100	No

Level	25.43	Backfill
East	529216.08	Unknown. Plywood blanking plate.
North	181847.70	

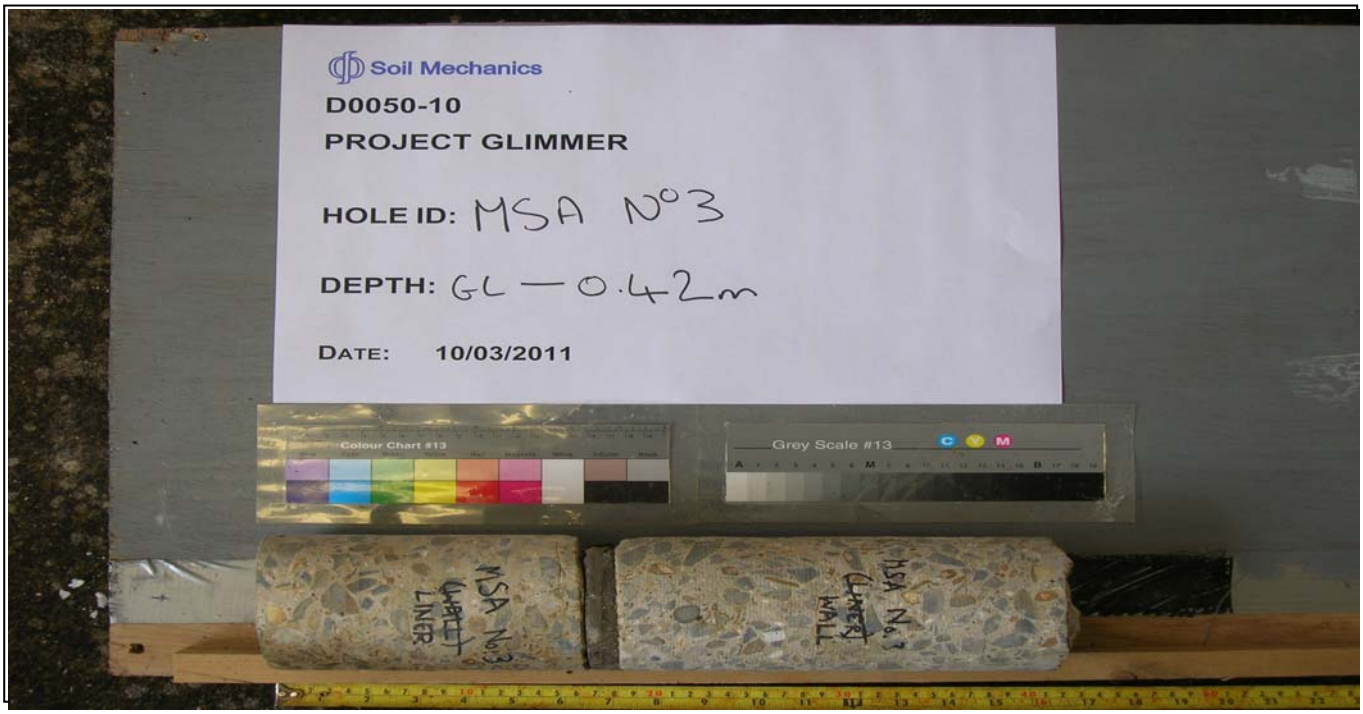
Notes:

Project	UCL Project UCL HS
Project No.	D0050-10
Carried out for	UCL Properties Ltd

Core
MSA 2

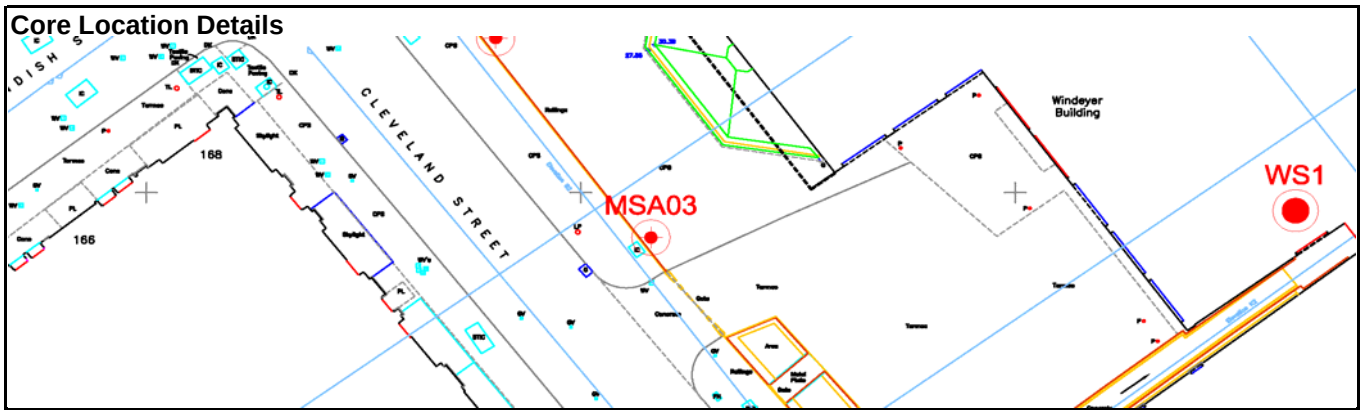
Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.16	0.16	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids.
2	0.16	0.17	0.01	Bitumen liner
3	0.17	0.42	0.25	Strong light grey CONCRETE. 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids. 2 no. 25 mm pilot hole drilled throughout core.

Core Location Details



Coring Date	Dia, mm	Vert
Unknwon	100	No

Level	25.56	Backfill
East	529223.23	Unknown. Plywood blanking plate.
North	181837.76	

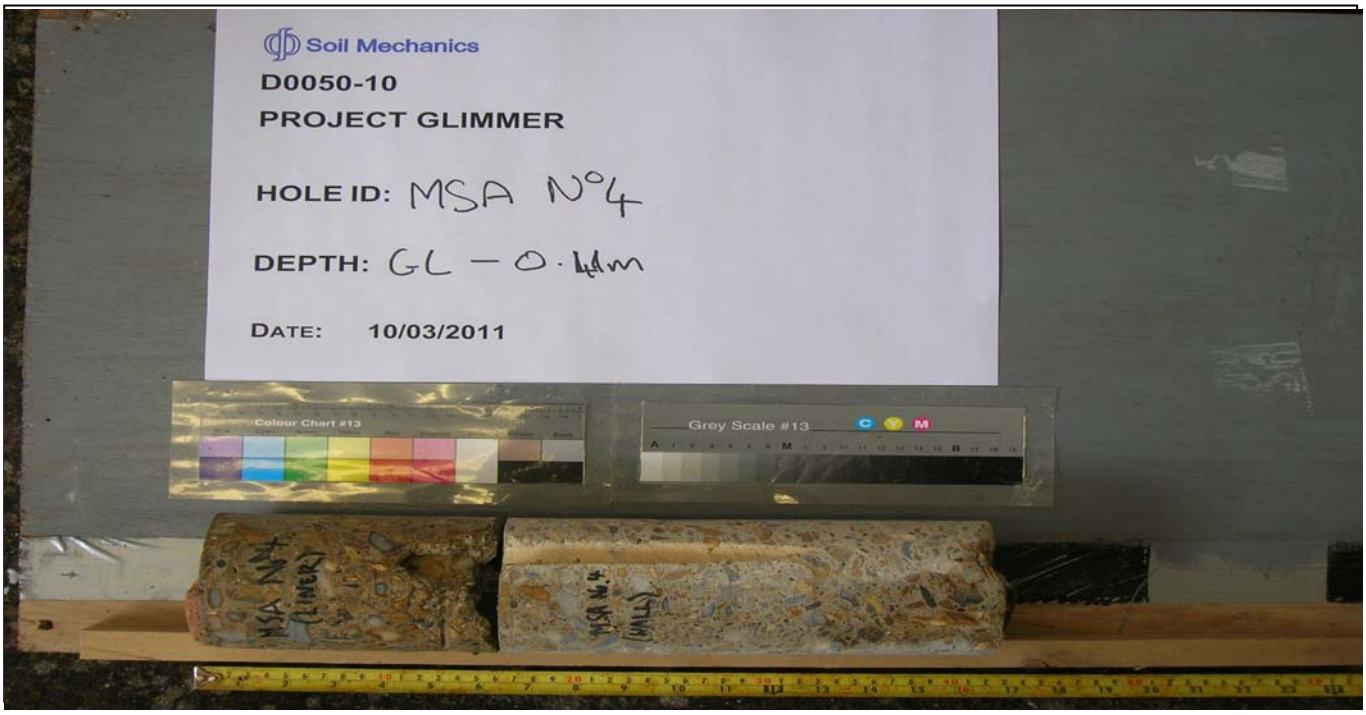
Notes:

Project	UCL Project UCL HS
Project No.	D0050-10
Carried out for	UCL Properties Ltd

Core **MSA 3**

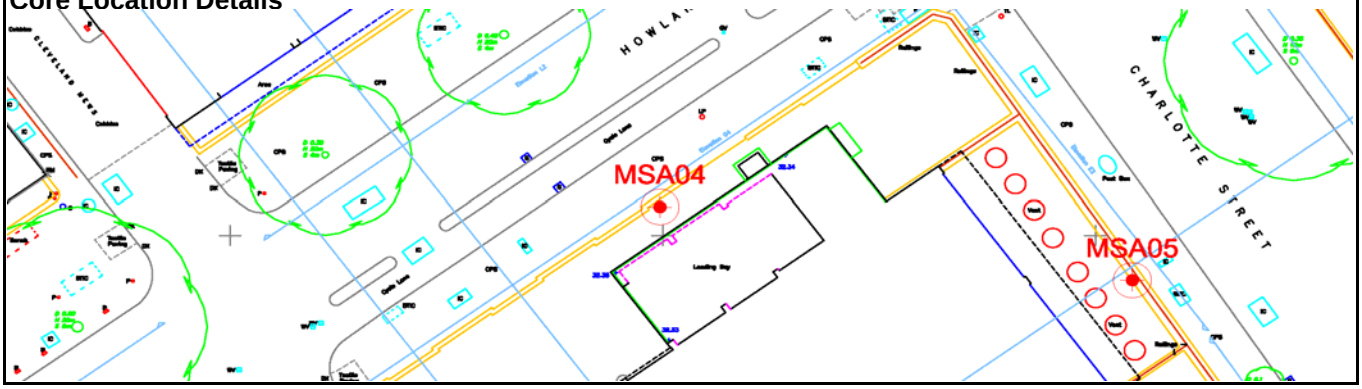
Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.01	0.01	Plaster
2	0.01	0.15	0.14	Strong light grey CONCRETE. 60 - 70% aggregate of angular to subrounded fine to coarse flint. 0.5 - 1% small voids.
3	0.15	0.41	0.26	Strong light grey CONCRETE. 60 - 70% aggregate of angular to subrounded fine to coarse flint. 0.5 - 1% small voids. 1 no. 15 mm pilot hole drilled throughout core. DETAIL: 0.15 m - Void between cores.

Core Location Details



Coring Date	Dia, mm	Vert
Unknown	100	No

Level	25.84	**Backfill**
East	529279.87	Unknown. Plywood blanking plate.
North	181901.42	

Notes:

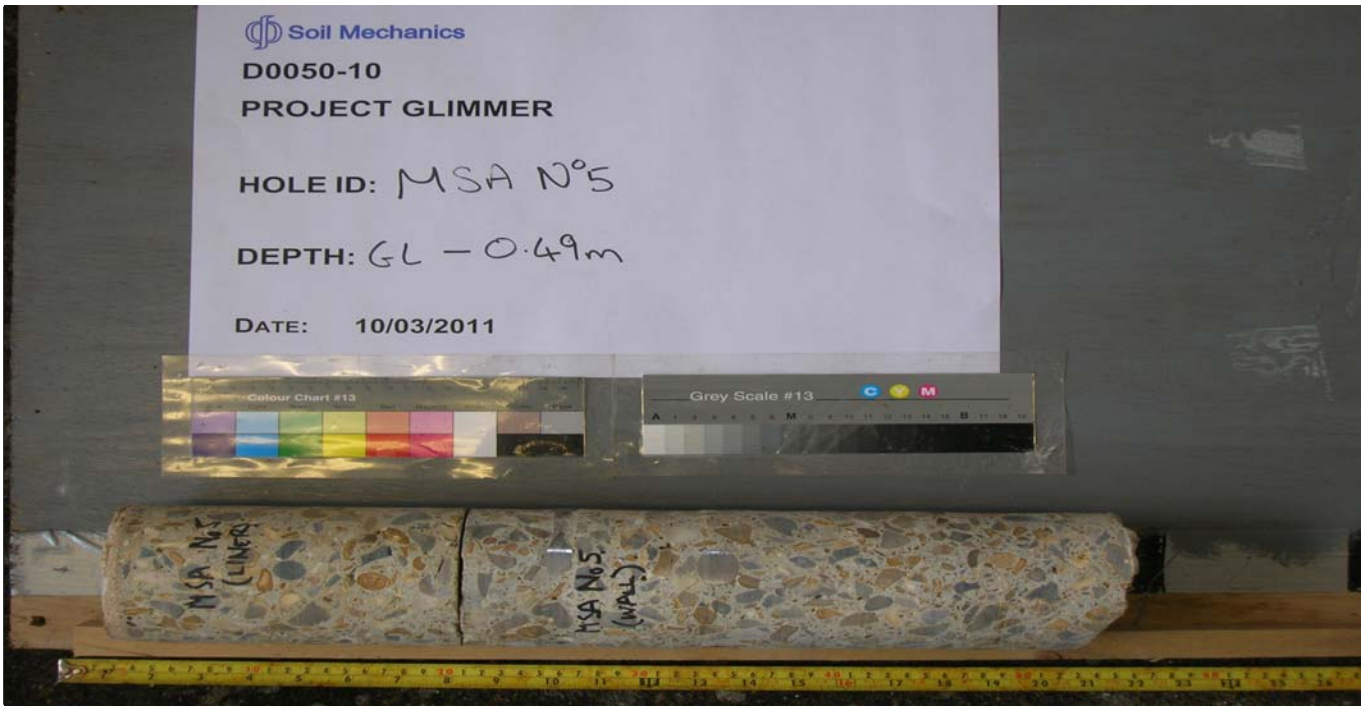
Project	**UCL Project UCL HS**
Project No.	**D0050-10**
Carried out for	**UCL Properties Ltd**

Core

MSA 4

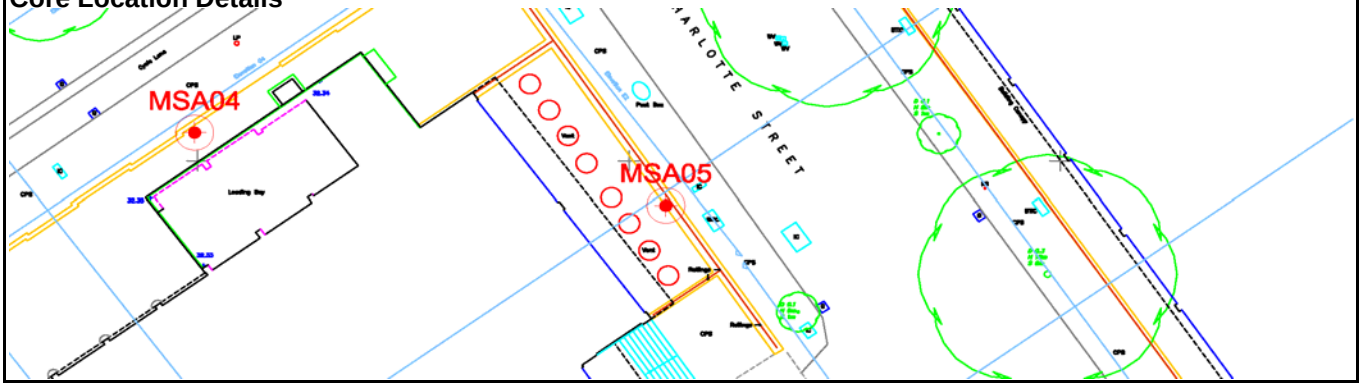
Concrete Core Record

Soil Mechanics



Layers				Description
No	Depth (top)	Depth (base)	Thick-ness mm	
1	0.00	0.01	0.01	Plaster
2	0.01	0.17	0.16	Strong light grey CONCRETE. 60 - 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids.
3	0.17	0.49	0.32	Strong light grey CONCRETE. 60 - 70% aggregate of angular to subrounded fine to coarse flint. 1% small voids. 1 no. 17 mm pilot hole drilled throughout core. DETAIL: 0.17 m - Void between cores. DETAIL: 0.21 m - 12 mm steel reinforcing. DETAIL: 0.41 m - 20 mm steel reinforcing.

Core Location Details



Coring Date	Dia, mm	Vert
Unknown	100	No

		Backfill
Level	25.45	
East	529301.71	Unknown. Plywood blanking plate.
North	181897.76	

Notes:

Project	UCL Project UCL HS
Project No.	D0050-10
Carried out for	UCL Properties Ltd

Core

MSA 5

ENCLOSURE B
INSTRUMENTATION AND MONITORING

Groundwater Installation Details

Soil Mechanics

Hole No	Instrument ID	Installation Type	Date of Installation	Reference depth (mBGL)	Piezometer Diameter (mm)	Top of response zone (mBGL)	Base of response zone (mBGL)	Tubing Completion Details	Headworks	Remarks
BH1	1	SP	1 Mar 2011	0.00	50	1.00	5.80	Gas tap	Stop cock cover	
BH1	2	SP	1 Mar 2011	0.00	19	43.00	48.30	Open	Stop cock cover	
BH3	1	SP	19 Jan 2011	0.00	50	0.60	5.90	Gas tap	Lockable top cover	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Electronic Piezometer Prepared: 07/03/2011 12:09

AGS

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Table

B1

Groundwater Monitoring

Soil Mechanics

Hole ID	Instrument ID	Instrument Type	Base of Instrument (mBGL)	Reference Depth (mBGL)	Reading				
					Date	Time (hhmmss)	Water Level (mBGL) * calculated	Head (m above Tip) * calculated	Comments
BH1	1	SP	5.8	0.00	9 Mar 2011	084000	4.20		
BH1	2	SP	48.3	0.00	9 Mar 2011	085000	48.00		
BH3	1	SP	5.9	0.00	20 Jan 2011	160000	2.33		
BH3	1	SP	5.9	0.00	21 Jan 2011	110000	2.33		
BH3	1	SP	5.9	0.00	24 Jan 2011	120000	2.37		
BH3	1	SP	5.9	0.00	9 Mar 2011	090010	2.39		

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

AGS

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Sheet B2

Gas Monitoring

Soil Mechanics

							Detection Limit	<0.1	<1	<1	<0.1	<0.1	<0.1	<0.1
							Unit	%vol	ppm	ppm	%LEL	%vol	%vol	%vol
Hole No	Date	Reading Depth, mBGL	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Gas	Carbon dioxide	Carbon monoxide	Hydrogen sulphide	Methane	Methane	Nitrogen	Oxygen
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		0.4	<1	<1	<0.1	<0.1	N/D	19.8
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	N/D	15.3
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	N/D	14.9
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	N/D	14.9
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	85.3	14.6
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	85.3	14.6
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	85.3	14.6
BH1	9 Mar 2011	5.80	10	1010	0.0	<0.1		<0.1	<1	<1	<0.1	<0.1	85.3	14.6
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		1.3	<1	<1	<0.1	<0.1	78.3	19.9
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		1.7	<1	<1	<0.1	<0.1	78.4	19.7
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		2.6	<1	<1	<0.1	<0.1	78.6	18.8
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		3.2	<1	<1	<0.1	<0.1	79.0	17.9
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		3.3	<1	<1	<0.1	<0.1	79.0	17.6
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		3.2	<1	<1	<0.1	<0.1	79.0	17.6
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		3.1	<1	<1	<0.1	<0.1	79.0	17.8
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		2.9	<1	<1	<0.1	<0.1	78.8	18.2
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		2.6	<1	<1	<0.1	<0.1	78.5	18.6
BH3	9 Mar 2011	5.90	10	1010	0.0	<0.1		1.4	<1	<1	<0.1	<0.1	78.4	20.1

Notes: ND - not detected

Project Project UCL HS, London, W1T

Project No. D0050-10

Carried out for UCL Properties Ltd

Table B3

ENCLOSURE C

IN SITU TESTING

Sonic Logging Reports	FDGS_BH1_UCL HS FDVS_BH1_UCL HS

ROBERTSON GEOLOGGING LIMITED

PROJECT UCL HS

FORMATION DENSITY - 1:100

COMPANY	SOIL MECHANICS
WELL	BH1
FIELD	LONDON
COUNTRY	ENGLAND
STATE	
COUNTY	
LAT.:	
LONG.:	

OTHER SERVICES

Perm. Datum	GL	Elev	KB 0.00
Log. Datum	GL		DF 0.00
Drill Datum			GL 0.00

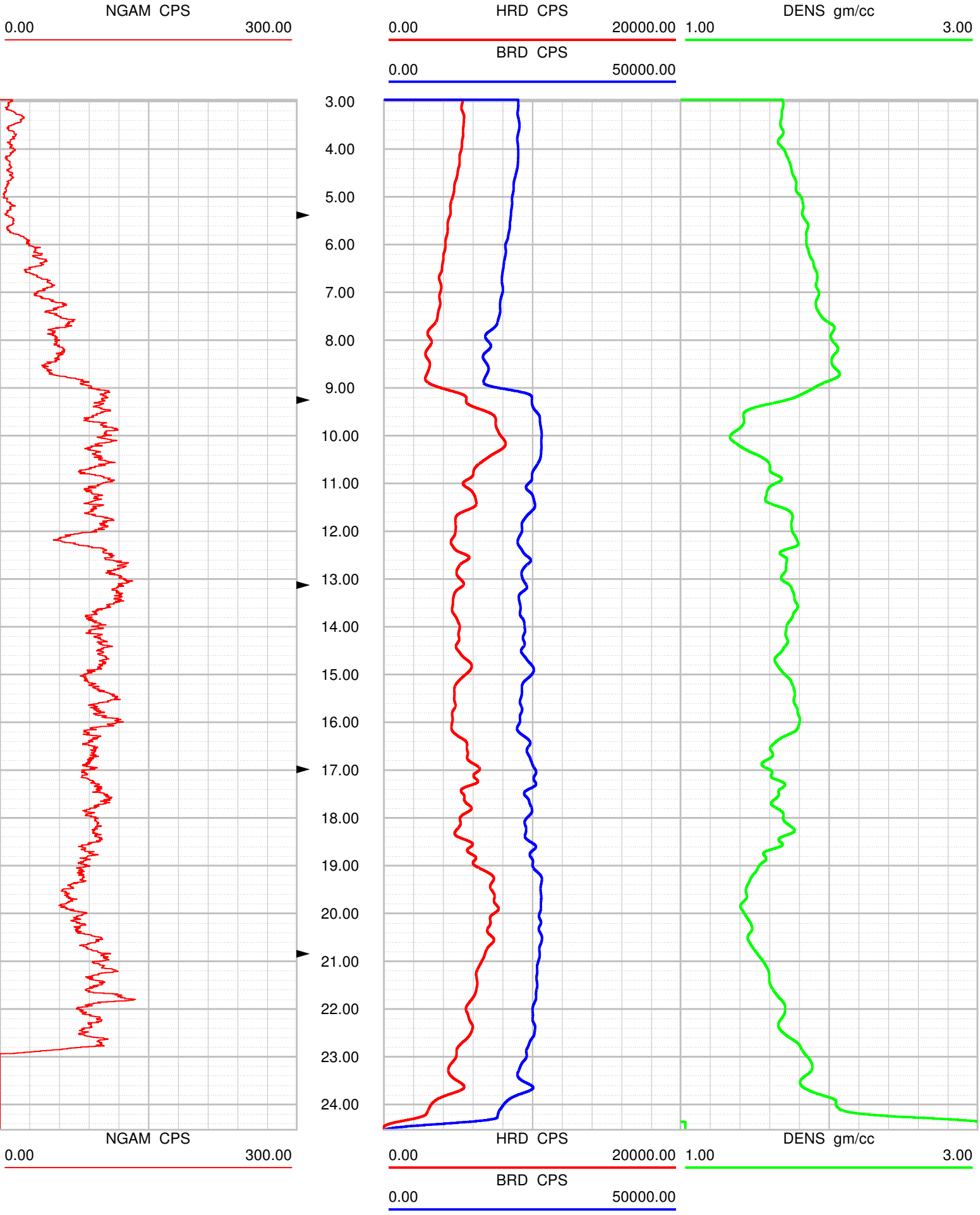
DATE	18 Feb 1	11 Dec 0	11 Dec 0
RUN#	0	0	0
TYPE OF LOG	FDGS		
DEPTH DRILLER	25.90	0.00	0.00
DEPTH LOGGER	24.55	0.00	0.00
LOG DEEPEST	24.55	0.00	0.00
LOG SHALLOW	4.30	0.00	0.00
FLUID IN HOLE	WATER		
SALINITY			
DENSITY			
LEVEL			
MAX TEMP ℃	0.00	0.00	0.00
RIG TIME			
RECORDED BY	IJ		
WITNESSED BY			

RUN#	BIT RECORD SIZE	BIT RECORD FROM	BIT RECORD TO	CASING RECORD SIZE	CASING RECORD WEIGHT	CASING RECORD FROM	CASING RECORD TO
0	0.00	0.00	0.00	254.00	0.00	0.00	8.50
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ROBERTSON GEOLOGGING TECHNOLOGY

REMARKS (C:\WinLogger\Data\UCL HS_london\FDGS_BH1_GLIMME..

5294GQ



Depth: 2.00 m Date: 18 Feb 2011 Time: 11:19:45 File: "C:\WinLogger\Data\UCL HS_london\FDGS_BH1_UCL HS.LOG"

ROBERTSON GEOLOGGING LIMITED

PROJECT UCL HS

FULL WAVEFORM SONIC - 1:100

COMPANY	SOIL MECHANICS	OTHER SERVICES
WELL	BH1	
FIELD	LONDON	
COUNTRY	ENGLAND	
STATE		
COUNTY		
LAT.:		
LONG.:		

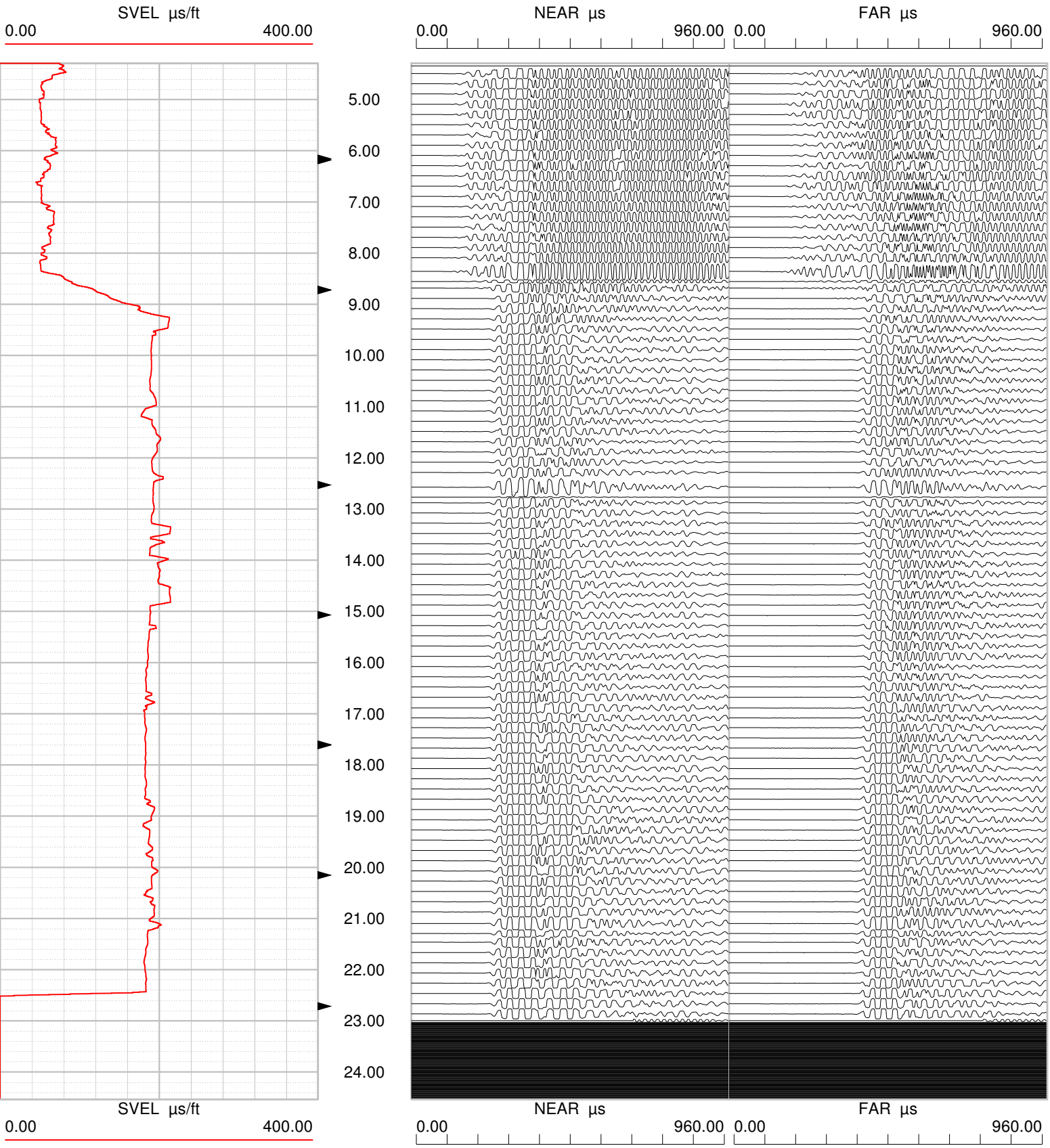
Perm. Datum	GL	Elev	KB 0.00
Log. Datum	GL		DF 0.00
Drill Datum			GL 0.00

DATE	18 Feb 1	11 Dec 0	11 Dec 0
RUN#	0	0	0
TYPE OF LOG	FWVS		
DEPTH DRILLER	25.90	0.00	0.00
DEPTH LOGGER	24.55	0.00	0.00
LOG DEEPEST	24.55	0.00	0.00
LOG SHALLOW	4.30	0.00	0.00
FLUID IN HOLE	WATER		
SALINITY			
DENSITY			
LEVEL			
MAX TEMP ℃	0.00	0.00	0.00
RIG TIME			
RECORDED BY	IJ		
WITNESSED BY			

RUN#	BIT RECORD SIZE	BIT RECORD FROM	BIT RECORD TO	CASING RECORD SIZE	CASING RECORD WEIGHT	CASING RECORD FROM	CASING RECORD TO
0	0.00	0.00	0.00	254.00	0.00	0.00	8.50
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ROBERTSON GEOLOGGING TECHNOLOGY

REMARKS (C:\WinLogger\Data\UCL HS_london\FWVS_BH1_GLIMME..



Depth: 4.00 m Date: 18 Feb 2011 Time: 11:00:48 File: "C:\WinLogger\Data\UCL HS_london\FWVS_BH1_UCL HS.VDL"

ENCLOSURE D

GEOTECHNICAL LABORATORY TEST RESULTS

INDEX PROPERTIES - SUMMARY OF RESULTS

Project No	Project Name
D0050-10	UCL Project UCL HS

Hole No.	Sample				Soil Description	p	p_d	w	< 425 µm sieve	W_L	W_P	I_P	p_s	Remarks
	No.	Depth (m)		type										
		from	to			Mg/m^3		%	%	%	%		Mg/m^3	
BH1	13	2.20	2.70	B	Greyish brown silty very sandy GRAVEL.			30	41 s	50 b	NP			
BH1	18	3.20	4.00	B	Dark brownish grey silty gravelly SAND.			24	64 s	30 b	NP			
BH1	29	5.80	6.30	B	Brown slightly sandy slightly gravelly CLAY.			32	92 s	64 a	25	39		
BH1	30	6.30	6.90	B	Greyish brown thinly laminated CLAY.			27	100 n	69 a	24	45		
BH1	31	6.90	7.35	U	Stiff greyish brown slightly sandy CLAY.	2.02	1.60	26						
BH1	32	7.40		D	Greyish brown slightly sandy CLAY.			26	100 n	70 a	26	44		
BH1	39	9.90	10.35	U	Stiff greyish brown CLAY.			26	100 n	71 a	27	44		
BH1	47	12.90	13.35	U	Stiff greyish brown CLAY.			27	100 n	78 a	28	50		
BH1	55	15.90	16.35	U	Stiff greyish brown slightly sandy CLAY with silt partings.			23	99 n	62 a	23	39		
BH1	63	18.90	19.35	U	Stiff greyish brown CLAY with sand partings.			20	100 n	52 a	19	33		
BH1	71	21.90	22.35	U	Stiff greyish brown CLAY with sand partings.			23	100 n	68 a	26	42		
BH1	79	24.90	25.35	U	Very stiff light brown mottled grey slightly sandy CLAY.			21	100 n	62 a	24	38		
BH1	87	27.90	28.35	U	Very stiff brown mottled grey slightly sandy CLAY.			17	100 n	53 a	21	32		
BH1	95	30.90	31.35	U	Stiff friable dark grey slightly CLAY.			27	100 n	81 a	29	52		
BH1	103	33.90	34.35	U	Stiff to very stiff fissured light grey mottled purple slightly sandy CLAY.			19	100 n	52 a	21	31		
BH1	111	36.90	37.35	U	Firm light brown CLAY with silt pockets.			12	100 n	29 a	14	15		
BH1	119	39.90	40.35	U	Stiff brown mottled grey and purple slightly sandy CLAY.			16	100 n	44 a	18	26		
BH1	123	41.40	41.85	U	Stiff brownish grey slightly sandy silty CLAY.			14	100 n	37 a	14	23		
BH3	7	1.20		D	Brown slightly sandy gravelly CLAY.			17	49 s	33 b	18	15		
BH3	11	2.70		D	Brown sandy gravelly CLAY.			14	40 s	31 a	15	16		
BH3	21	6.00		D	Brown slightly gravelly CLAY.			31	95 n	63 a	25	38		
BH3	22	6.50	6.95	U	Stiff greyish brown CLAY with rare sand partings.	2.01	1.60	26						
BH3	23	7.00		D	Greyish brown silty CLAY.			27	100 n	70 a	27	43		
BH3	26	8.00	8.45	U	Stiff greyish brown slightly sandy CLAY.	2.02	1.58	27						
BH3	27	8.50		D	Greyish brown CLAY.			27	100 n	68 a	27	41		
BH3	30	9.50	9.95	U	Stiff greyish brown CLAY with occasional sand partings.	1.98	1.54	28						
BH3	31	10.00		D	Brown slightly sandy CLAY.			29	100 n	72 a	28	44		
BH3	34	11.00	11.45	U	Stiff greyish brown slightly sandy CLAY.	2.01	1.58	27						
BH3	35	11.50		D	Greyish brown slightly sandy CLAY.			25	100 n	71 a	24	47		

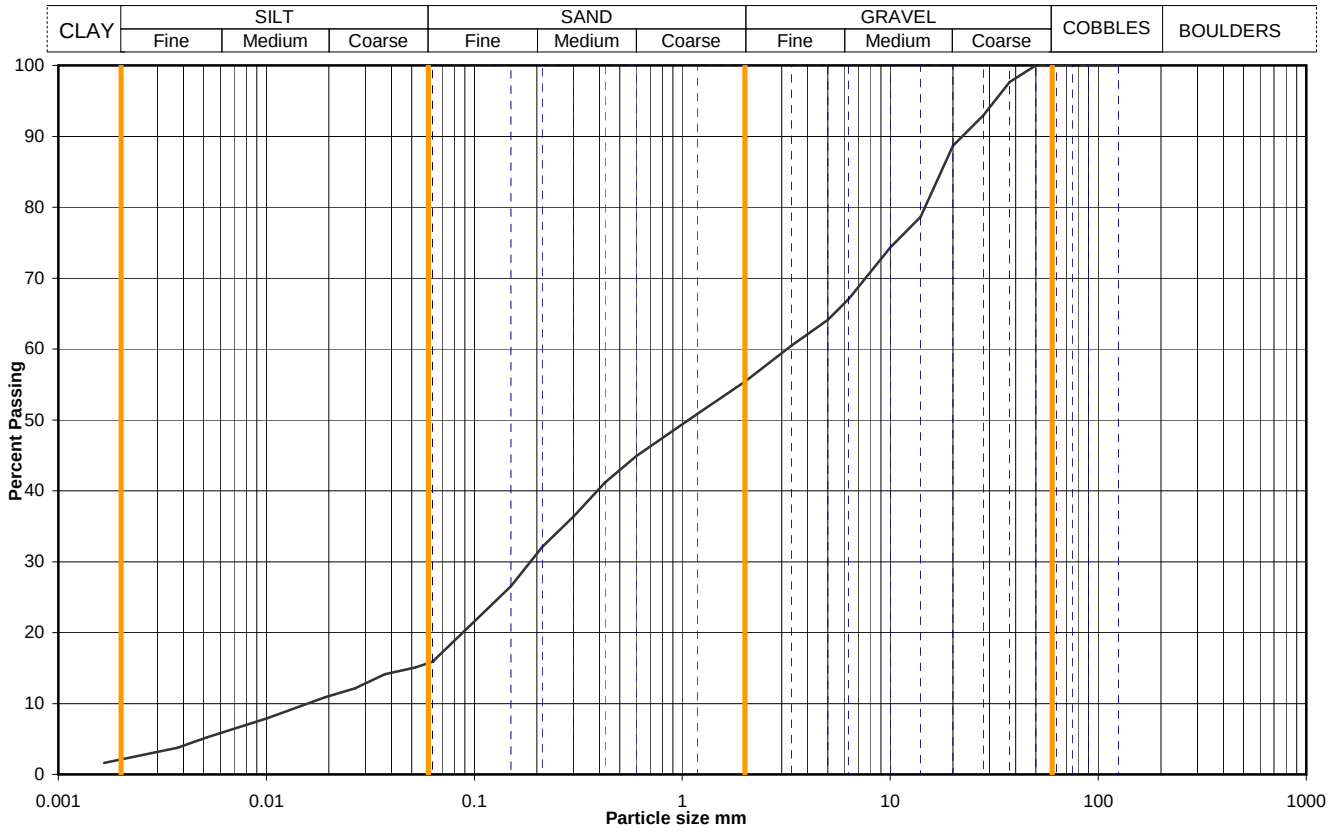
General notes: All above tests carried out to BS1377 : 1990 definitive method in all cases unless annotated otherwise. See individual test reports for further details.

Key :

p	bulk density, linear	W_L Liquid limit	W_P	Plastic limit	<425um preparation	p_s	particle density
p_d	dry density	a 4 point cone test	NP	non - plastic	n from natural soil	-g = gas jar	
w	moisture content	b 1 point cone test	I_P	Plasticity Index	s sieved specimen	-p = small pyknometer	

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	2.20		
			Samp No	13	Type	B
			ID	ESGD0050-10201101260000000013		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	16
90	100	0.0520	15
75	100	0.0371	14
63	100	0.0267	12
50	100	0.0191	11
37.5	98	0.0101	8
28	93	0.0052	5
20	89	0.0037	4
14	79	0.0017	2
10	74		
6.3	67		
5.0	64		
3.35	60		
2.00	55		
1.18	51	Particle density, Mg/m3	
0.600	45		
0.425	41	2.65 assumed	
0.300	36	Dry mass of sample, kg	
0.212	32		
0.150	27	8.3	
0.063	16		

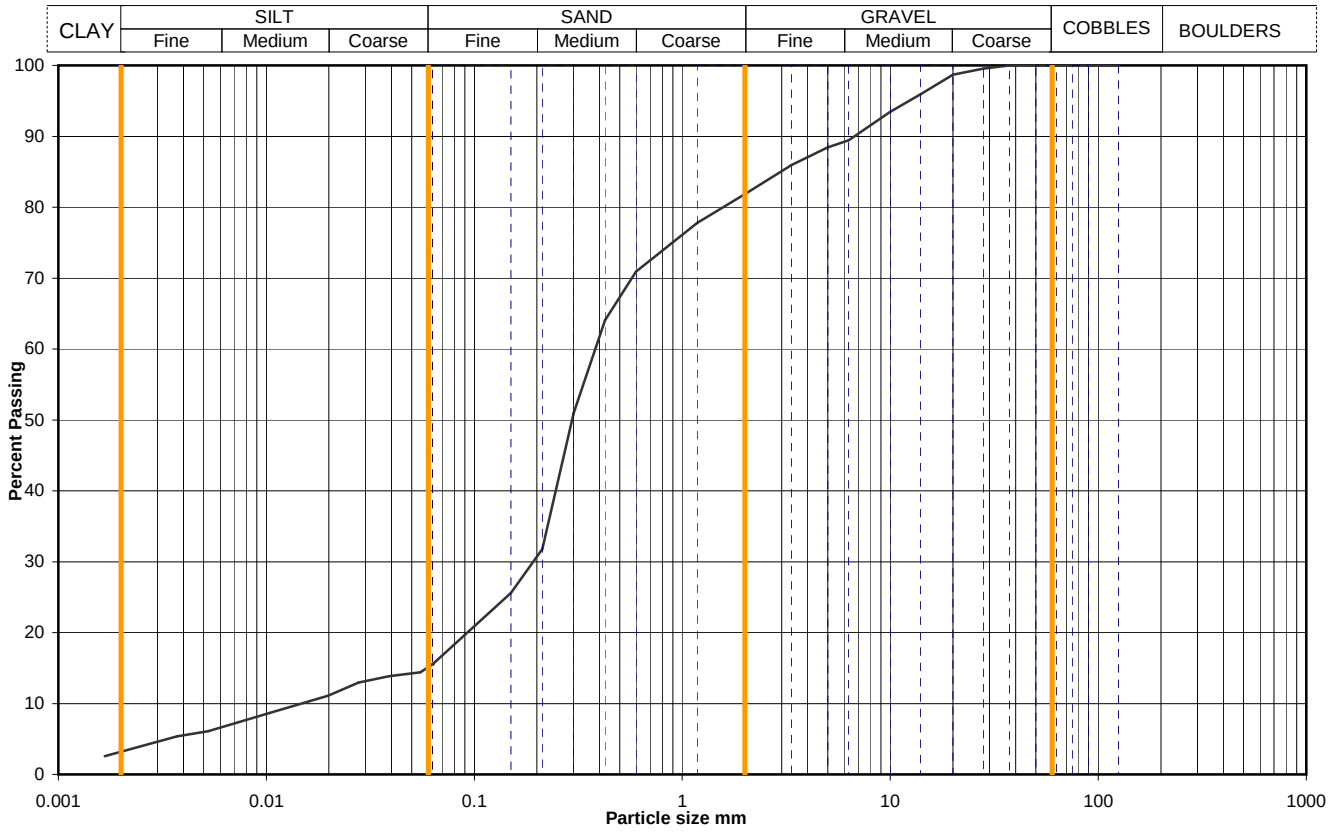
Soil description	Greyish brown silty very sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	45	45
	Sand	40	40
	Silt	13	13
	Clay	2	2

Uniformity Coefficient	D_{60} / D_{10}	201

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	3.20		
			Samp No	18	Type	B
			ID	ESGD0050-10201101260000000018		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	16
90	100	0.0550	14
75	100	0.0390	14
63	100	0.0277	13
50	100	0.0198	11
37.5	100	0.0104	9
28	100	0.0053	6
20	99	0.0037	5
14	96	0.0017	3
10	93		
6.3	89		
5.0	88		
3.35	86		
2.00	82		
1.18	78	Particle density, Mg/m3	
0.600	71		
0.425	64	2.65 assumed	
0.300	51	Dry mass of sample, kg	
0.212	32		
0.150	26	11.8	
0.063	16		

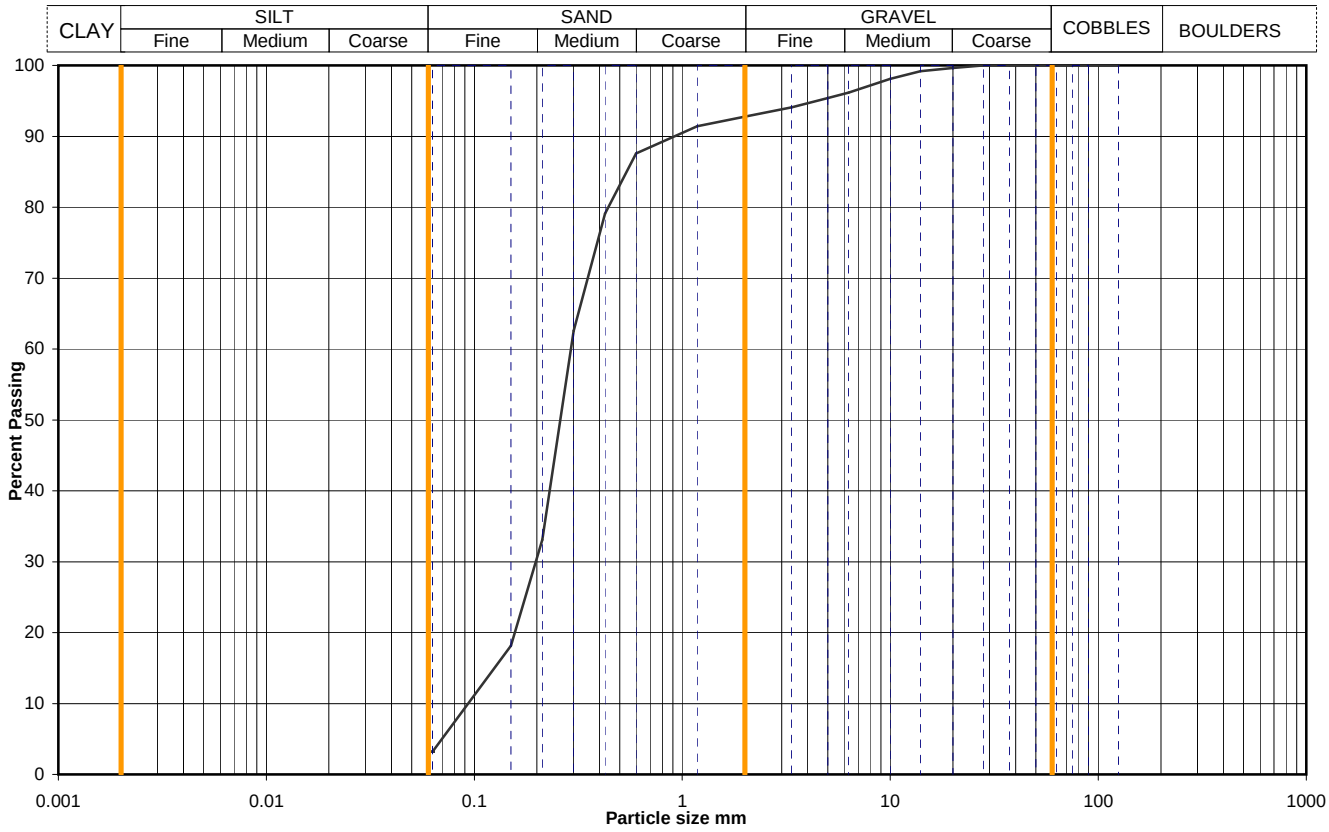
Soil description	Dark brownish grey silty gravelly SAND.		
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	18	18
	Sand	67	67
	Silt	12	12
	Clay	3	3

Uniformity Coefficient	D_{60} / D_{10}	26

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	4.20		
			Samp No	22	Type	B
			ID	ESGD0050-10201101260000000022		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	96		
5.0	95		
3.35	94		
2.00	93		
1.18	91		
0.600	88		
0.425	79		
0.300	63	Dry mass of sample, kg	
0.212	33		
0.150	18	20.7	
0.063	3		

Soil description	Light brown slightly silty gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	7	7
	Sand	90	90
	Silt	silt+clay =	
	Clay	3	3

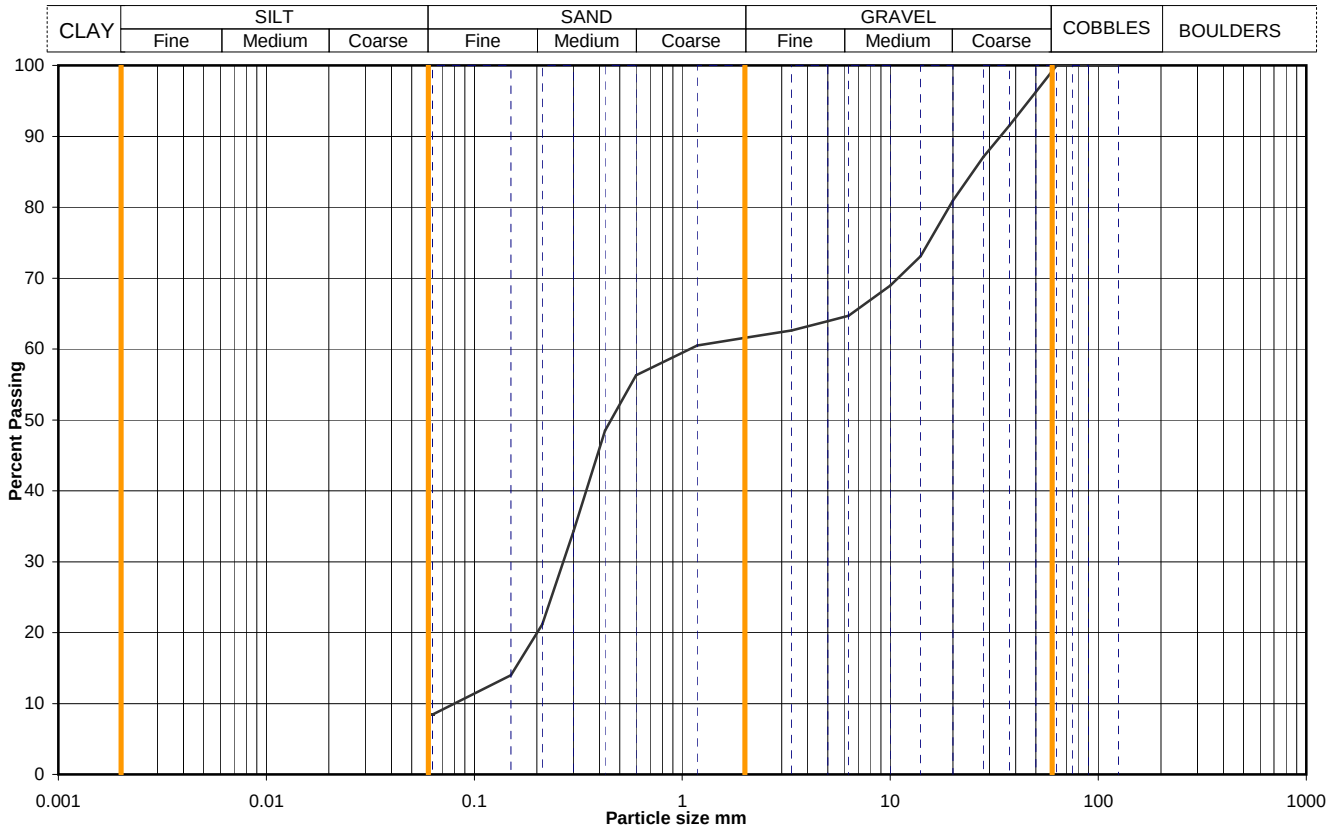
Uniformity Coefficient	D_{60} / D_{10}	3

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:22	**Figure** **PSD 3**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	5.20		
			Samp No	26	Type	B
			ID	ESGD0050-10201101260000000026		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	92		
28	87		
20	81		
14	73		
10	69		
6.3	65		
5.0	64		
3.35	63		
2.00	62		
1.18	61		
0.600	56		
0.425	48		
0.300	34	Dry mass of sample, kg	
0.212	21		
0.150	14	19.5	
0.063	8		

Soil description	Orange clayey very gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	1	0
	Gravel	37	37
	Sand	53	54
	Silt	silt+clay =	
	Clay	9	9

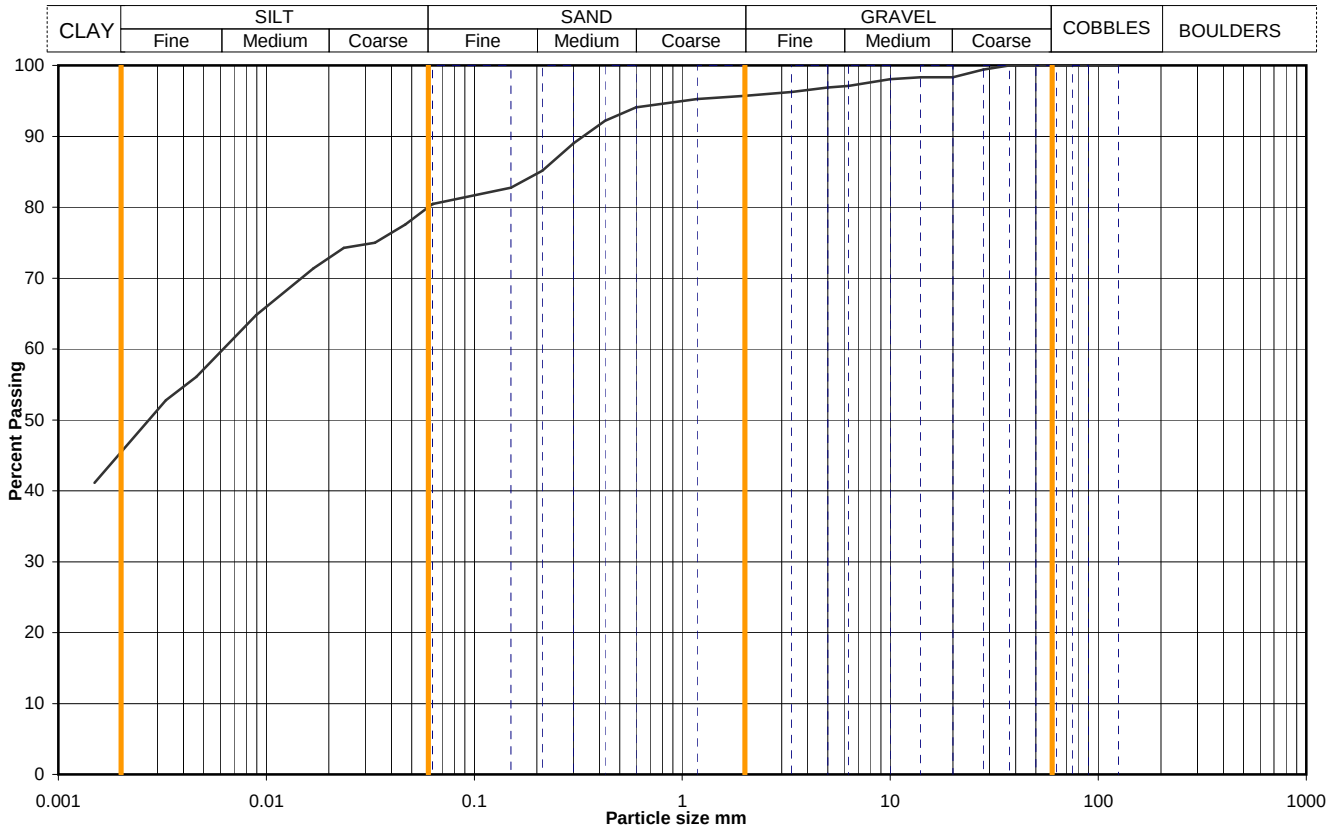
Uniformity Coefficient	D_{60} / D_{10}	13

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:22	**Figure** **PSD 4**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	5.80		
			Samp No	29	Type	B
			ID	ESGD0050-10201101260000000028		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	80
90	100	0.0466	78
75	100	0.0333	75
63	100	0.0236	74
50	100	0.0169	71
37.5	100	0.0089	65
28	99	0.0046	56
20	98	0.0033	53
14	98	0.0015	41
10	98		
6.3	97		
5.0	97		
3.35	96		
2.00	96		
1.18	95	Particle density, Mg/m3	
0.600	94		
0.425	92	2.65 assumed	
0.300	89	Dry mass of sample, kg	
0.212	85		
0.150	83	7.8	
0.063	80		

Soil description	Brown slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	4	4
	Sand	16	16
	Silt	35	35
	Clay	45	45

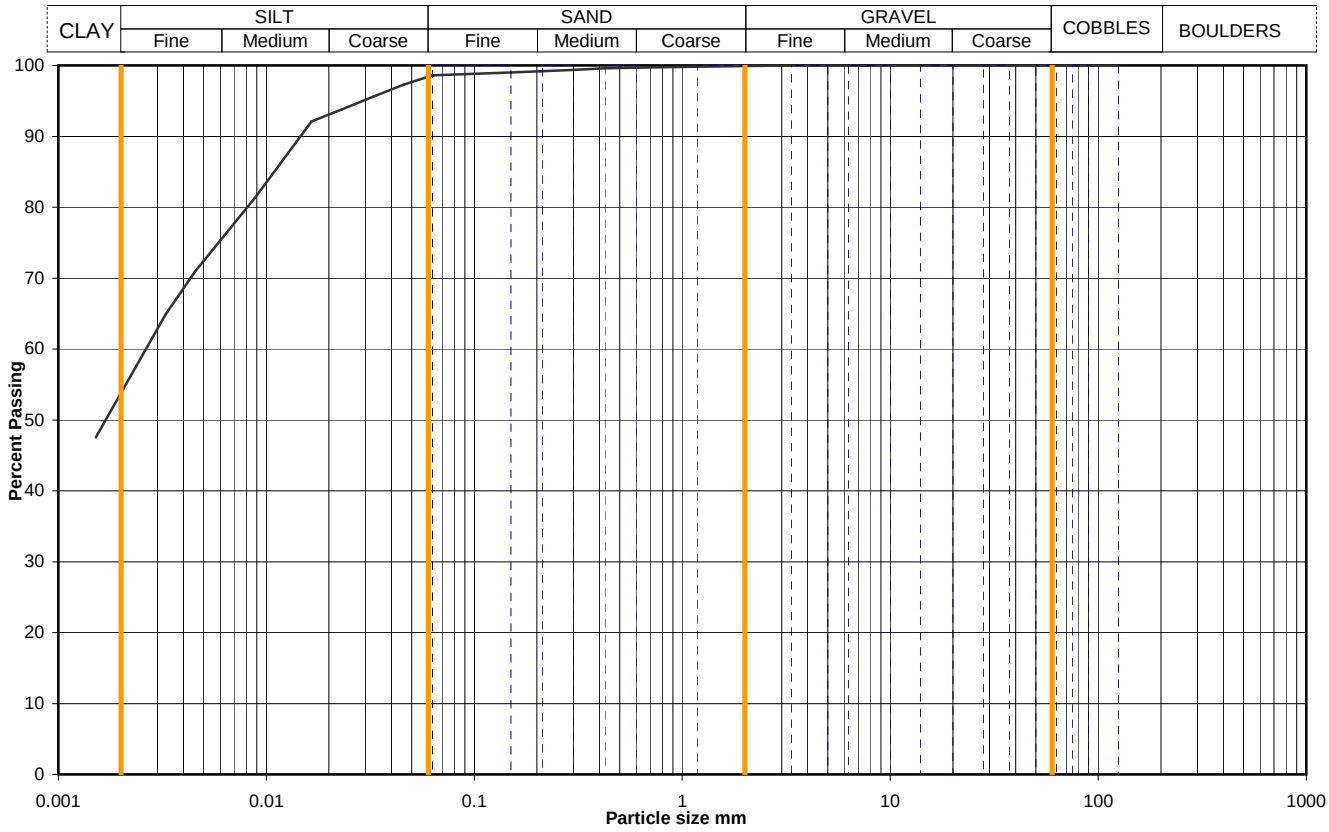
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:22	**Figure** **PSD 5**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	6.30		
			Samp No	30	Type	B
			ID	ESGD0050-10201101260000000030		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0458	97
75	100	0.0326	96
63	100	0.0232	94
50	100	0.0165	92
37.5	100	0.0088	81
28	100	0.0045	71
20	100	0.0033	65
14	100	0.0015	48
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	3.5	
0.063	99		

Soil description	Greyish brown thinly laminated CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	2	2
	Silt	44	44
	Clay	54	54

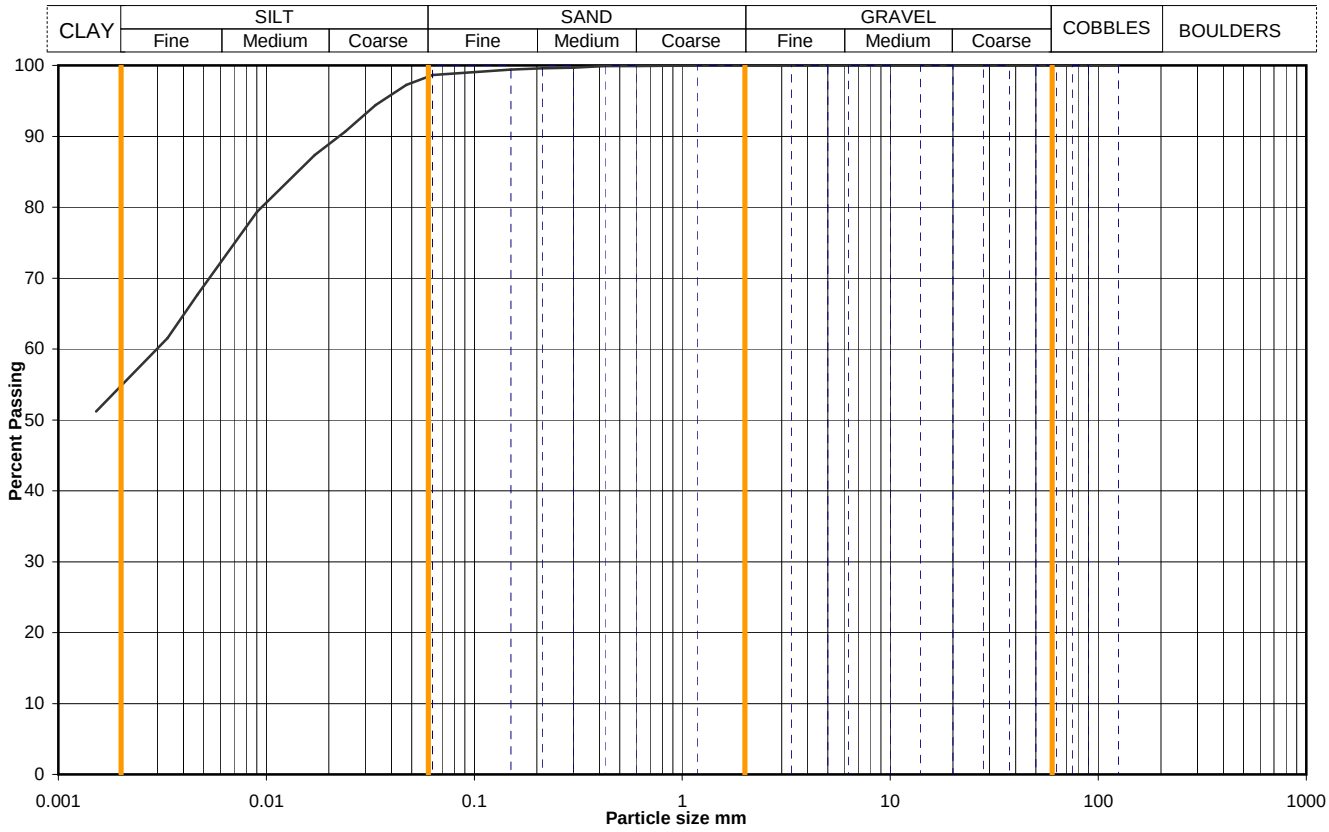
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:22	**Figure** **PSD 6**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	7.40		
			Samp No	32	Type	D
			ID	ESGD0050-10201101260000000032		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0470	97
75	100	0.0335	94
63	100	0.0240	91
50	100	0.0171	87
37.5	100	0.0090	79
28	100	0.0047	68
20	100	0.0033	62
14	100	0.0015	51
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	99	0.5	
0.063	99		

Soil description	Greyish brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	2	2
	Silt	43	43
	Clay	55	55

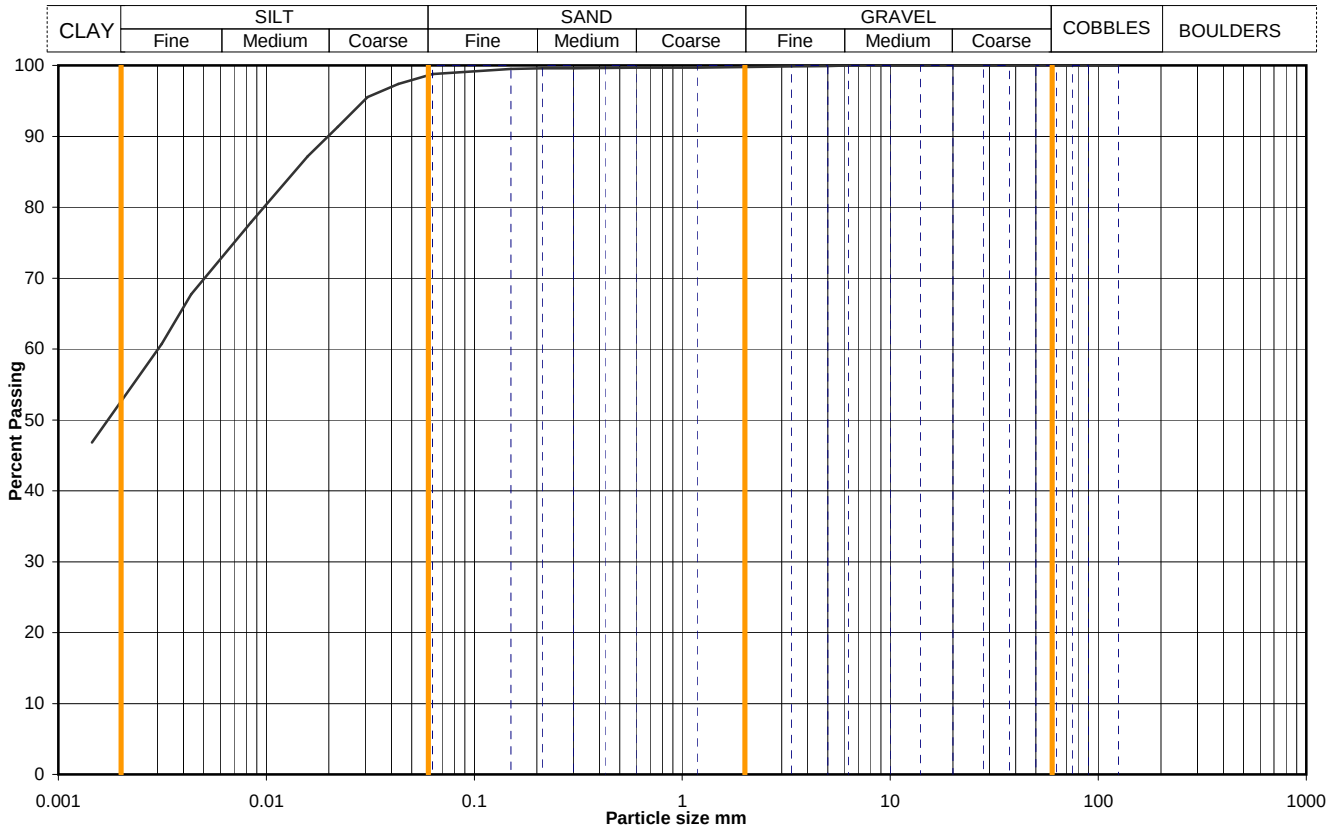
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:22	**Figure** **PSD 7**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	8.40		
			Samp No	35	Type	U
			ID	ESGD0050-10201103030000000071		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0431	97
75	100	0.0307	96
63	100	0.0220	91
50	100	0.0158	87
37.5	100	0.0084	78
28	100	0.0044	68
20	100	0.0031	61
14	100	0.0015	47
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	100	4.7	
0.063	99		

Soil description	Stiff greyish brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	1	1
	Silt	46	46
	Clay	53	53

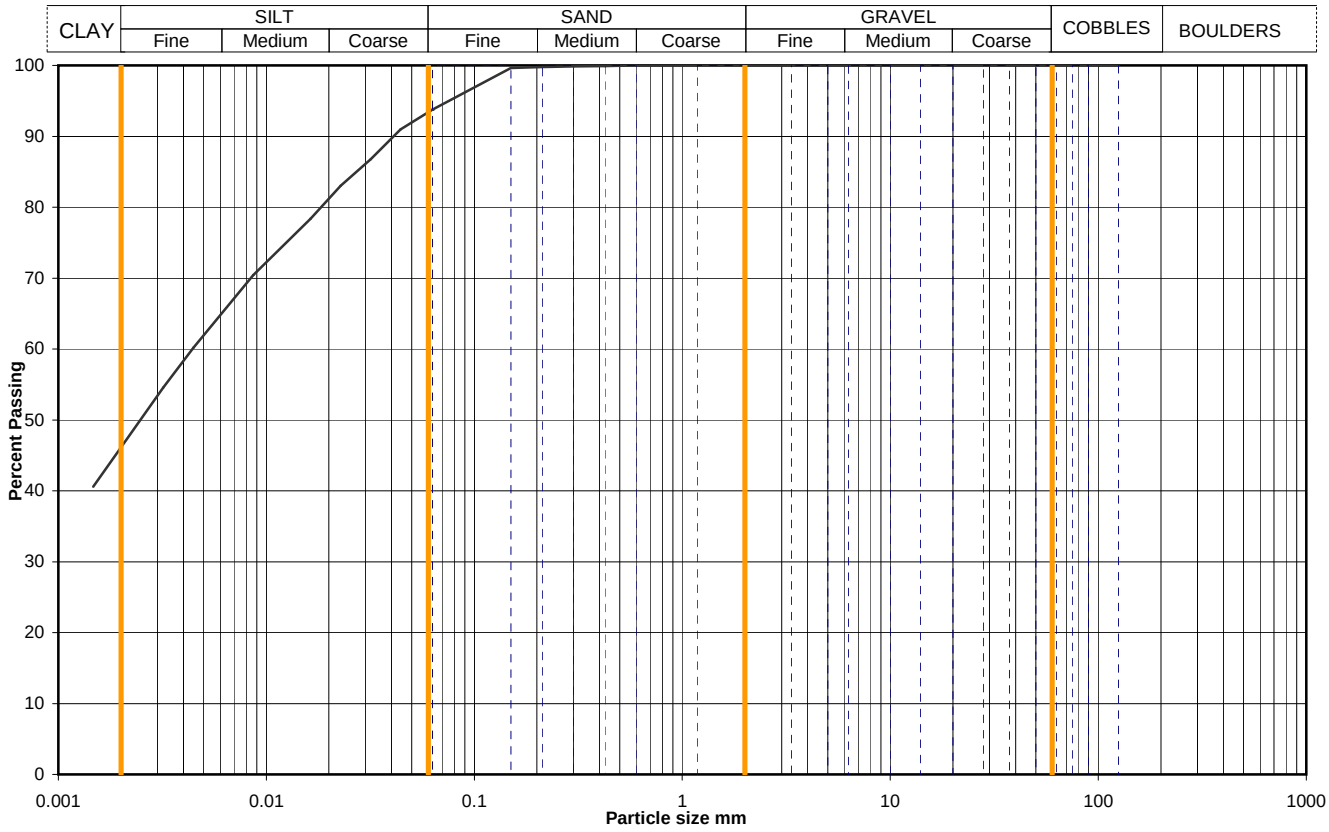
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 8**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	14.40		
			Samp No	51	Type	U
			ID	ESGD0050-10201103030000000087		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	94
90	100	0.0442	91
75	100	0.0317	87
63	100	0.0227	83
50	100	0.0163	78
37.5	100	0.0086	70
28	100	0.0045	60
20	100	0.0032	55
14	100	0.0015	41
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	100	4.8	
0.063	94		

Soil description	Stiff friable greyish brown slightly sandy CLAY with silt partings.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	7	7
	Silt	47	47
	Clay	46	46

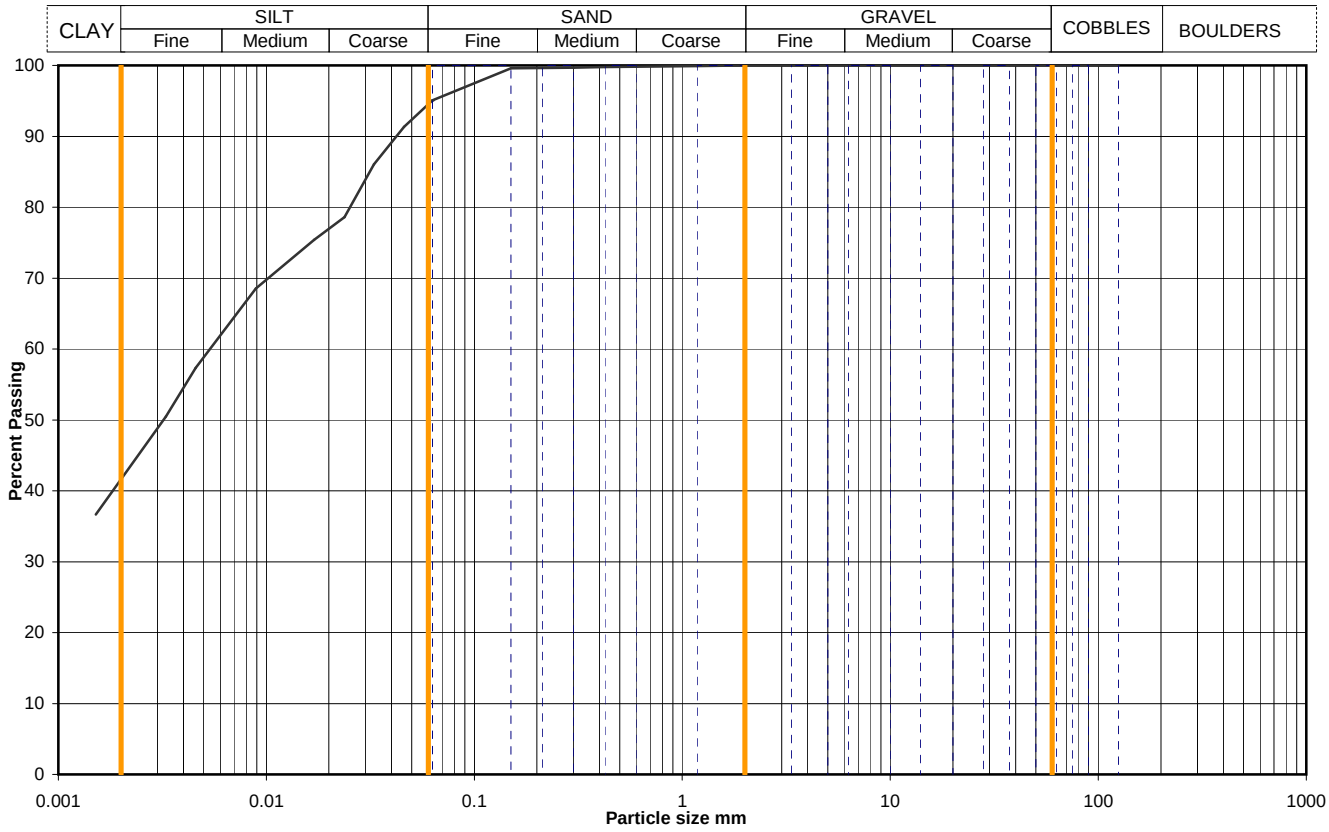
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 9**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	20.40		
			Samp No	67	Type	U
			ID	ESGD0050-10201103030000000103		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	95
90	100	0.0459	91
75	100	0.0329	86
63	100	0.0238	79
50	100	0.0169	75
37.5	100	0.0089	69
28	100	0.0046	57
20	100	0.0033	50
14	100	0.0015	37
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	100	3.0	
0.063	95		

Soil description	Stiff greyish brown slightly sandy CLAY with silt partings.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	5	5
	Silt	53	53
	Clay	42	42

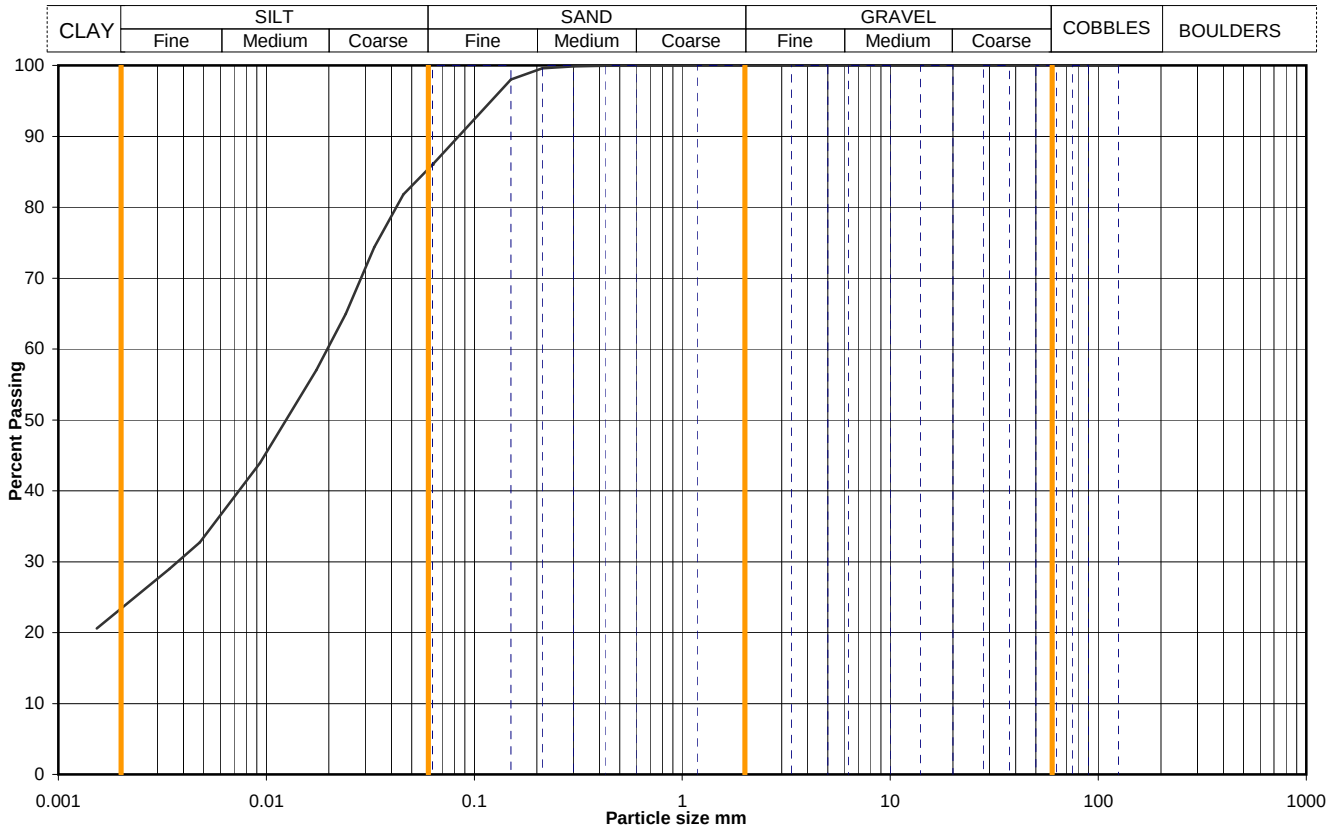
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 10**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	26.40		
			Samp No	83	Type	U
			ID	ESGD0050-10201103030000000119		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	86
90	100	0.0457	82
75	100	0.0331	74
63	100	0.0241	65
50	100	0.0174	57
37.5	100	0.0093	44
28	100	0.0048	33
20	100	0.0034	29
14	100	0.0015	21
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	98	3.0	
0.063	86		

Soil description	Stiff to very stiff light brown mottled grey slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	15	15
	Silt	62	62
	Clay	23	23

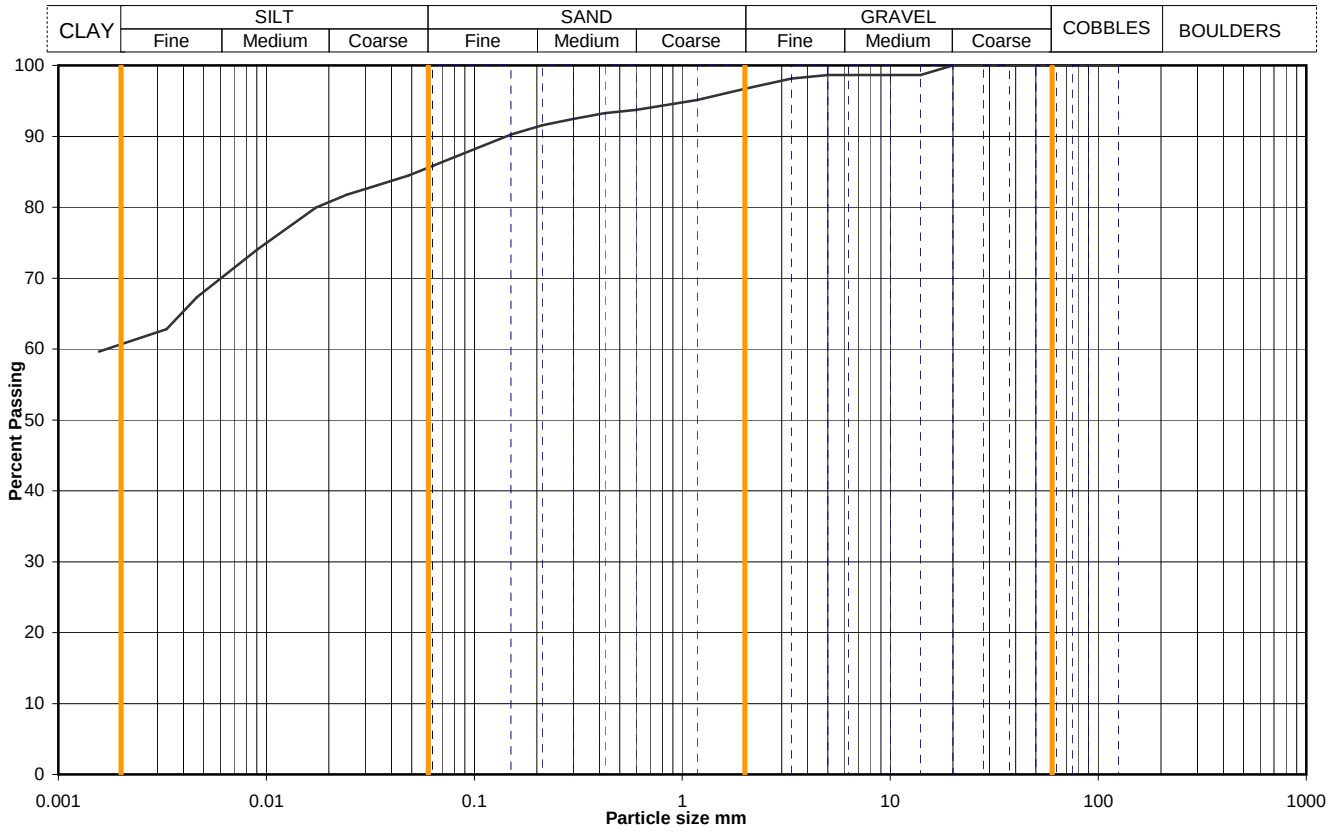
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 11**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	32.40		
			Samp No	99	Type	U
			ID	ESGD0050-10201103030000000135		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	86
90	100	0.0483	84
75	100	0.0343	83
63	100	0.0244	82
50	100	0.0173	80
37.5	100	0.0091	74
28	100	0.0046	67
20	100	0.0033	63
14	99	0.0016	60
10	99		
6.3	99		
5.0	99		
3.35	98		
2.00	97		
1.18	95	Particle density, Mg/m3	
0.600	94		
0.425	93	2.65 assumed	
0.300	92	Dry mass of sample, kg	
0.212	92		
0.150	90	3.5	
0.063	86		

Soil description	Stiff friable grey mottled light brown slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	11	11
	Silt	25	25
	Clay	61	61

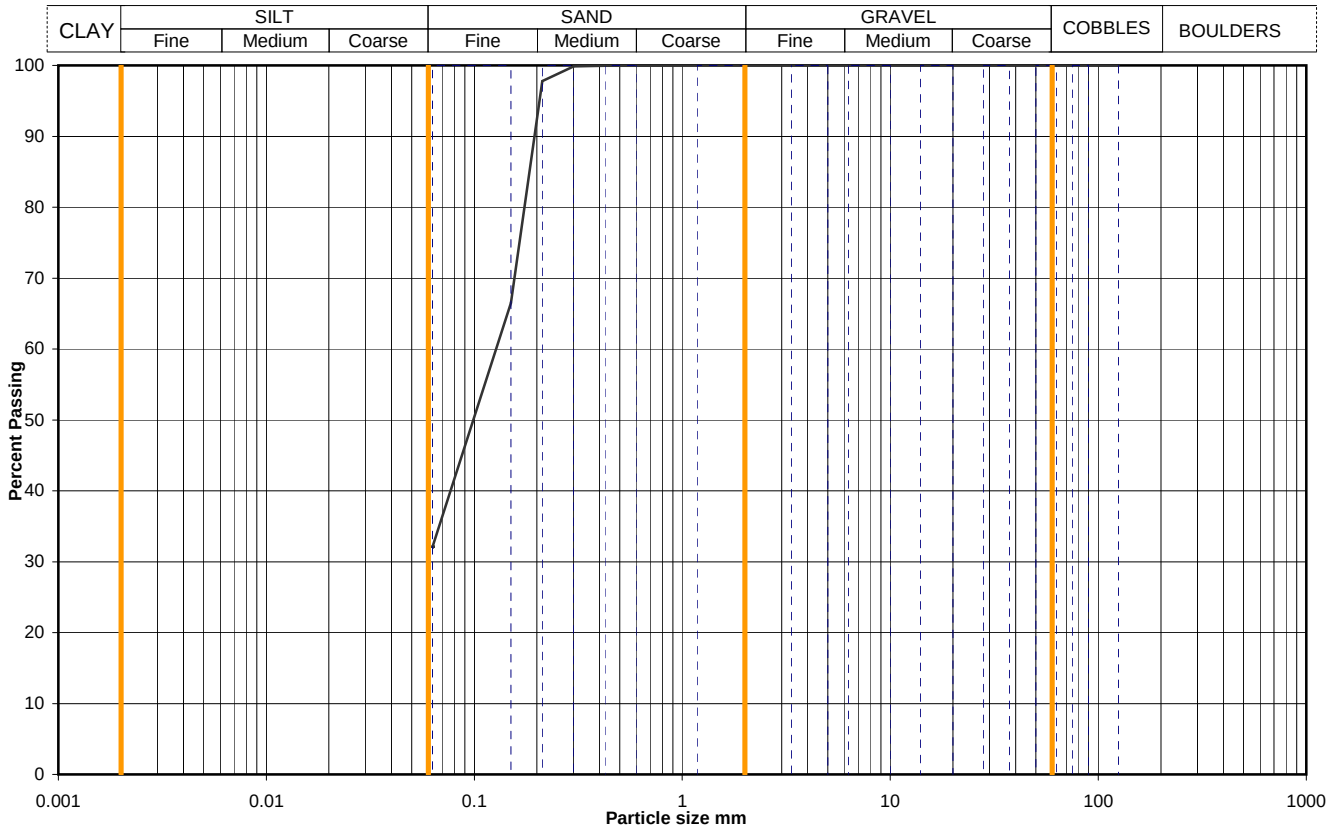
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 12**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	35.65		
			Samp No	108	Type	D
			ID	ESGD0050-10201103030000000144		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100		
0.600	100		
0.425	100		
0.300	100	Dry mass of sample, kg	
0.212	98		
0.150	66	0.3	
0.063	32		

Soil description	Light brown very sandy CLAY.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks	Sieve: Insufficient material for sedimentation.		
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	68	68
	Silt	silt+clay =	
	Clay	32	32

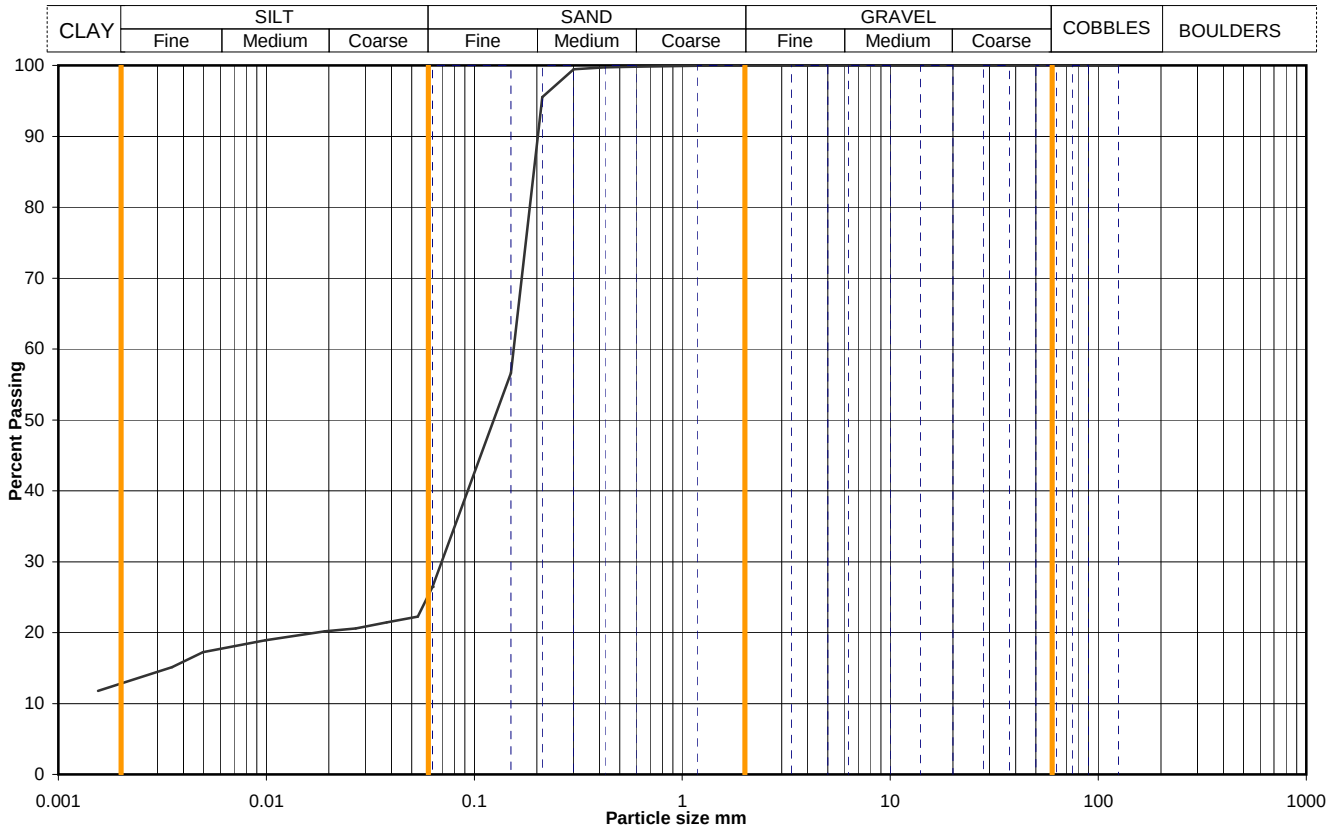
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 13**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	37.15		
			Samp No	112	Type	D
			ID	ESGD0050-10201103030000000148		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	26
90	100	0.0535	22
75	100	0.0379	21
63	100	0.0269	21
50	100	0.0190	20
37.5	100	0.0099	19
28	100	0.0050	17
20	100	0.0035	15
14	100	0.0016	12
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	96		
0.150	57	0.6	
0.063	26		

Soil description	Light brown very sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	75	75
	Silt	12	12
	Clay	13	13

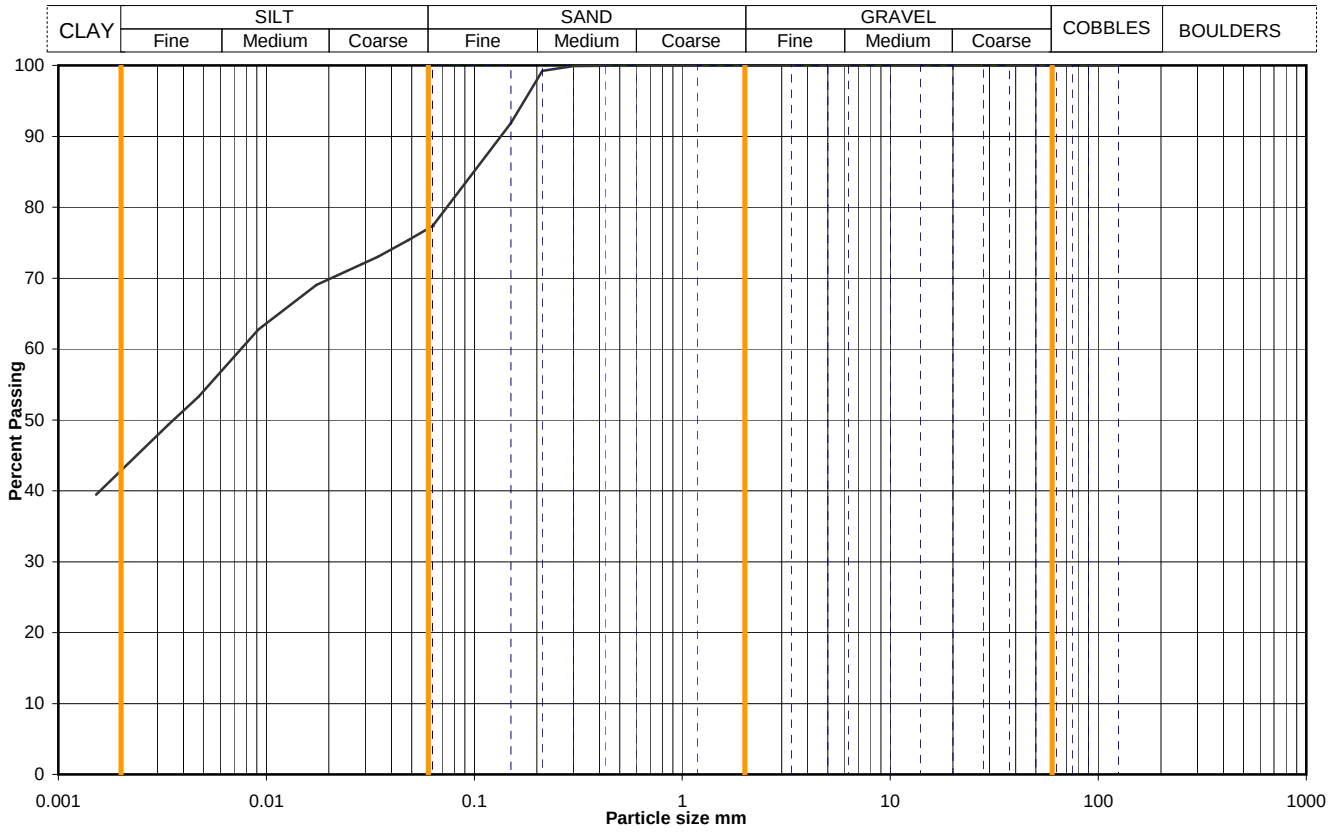
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 14**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	38.40		
			Samp No	115	Type	U
			ID	ESGD0050-10201103030000000151		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	77
90	100	0.0481	75
75	100	0.0343	73
63	100	0.0244	71
50	100	0.0174	69
37.5	100	0.0092	63
28	100	0.0047	53
20	100	0.0034	49
14	100	0.0015	39
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	99		
0.150	92	1.7	
0.063	77		

Soil description	Stiff greyish brown slightly sandy CLAY becoming firm brown slightly sandy CLAY with localised softening towards base.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	23	23
	Silt	34	34
	Clay	43	43

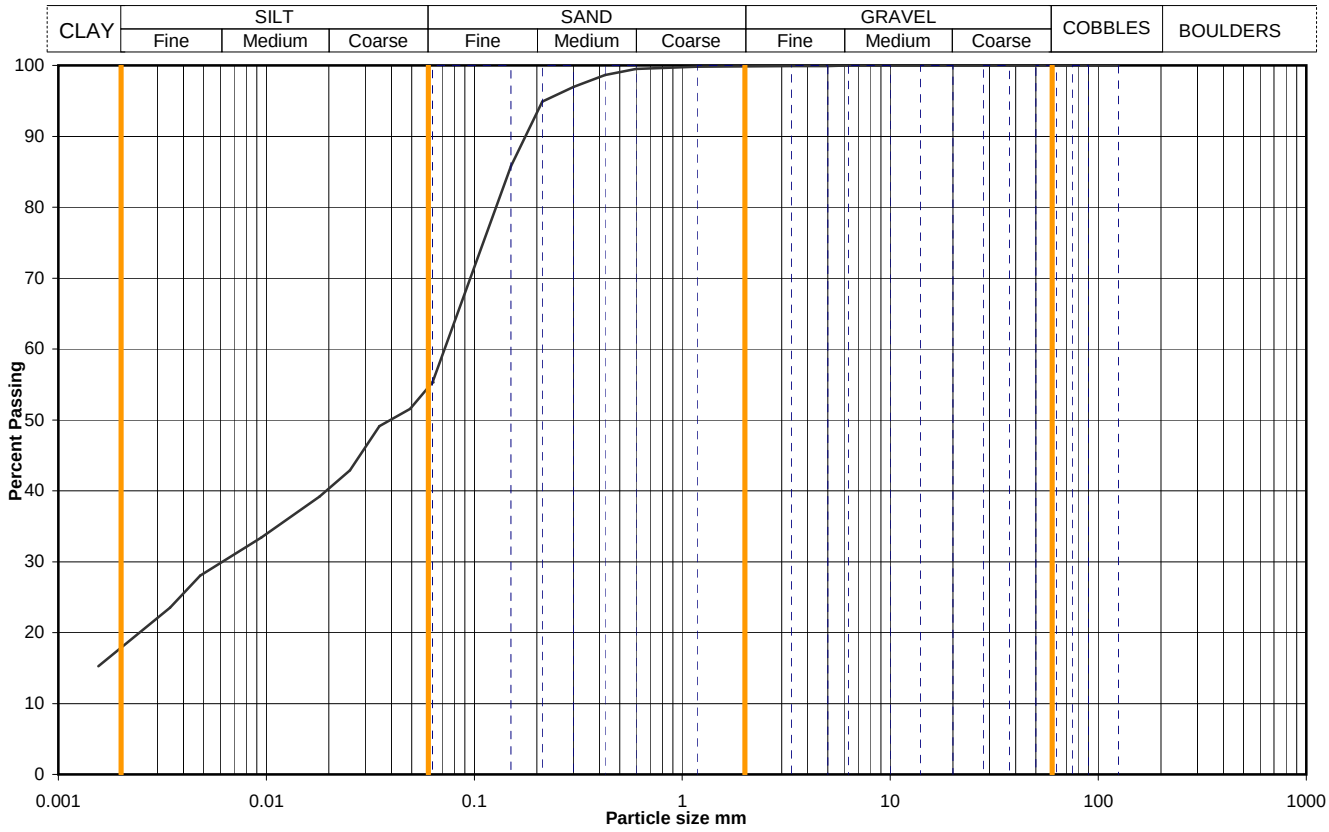
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 15**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	40.35		
			Samp No	120	Type	D
			ID	ESGD0050-10201103030000000156		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	55
90	100	0.0490	52
75	100	0.0350	49
63	100	0.0252	43
50	100	0.0180	39
37.5	100	0.0095	33
28	100	0.0048	28
20	100	0.0034	24
14	100	0.0016	15
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	99	2.65 assumed	
0.300	97	Dry mass of sample, kg	
0.212	95		
0.150	86	0.8	
0.063	55		

Soil description	Brown sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	45	45
	Silt	37	37
	Clay	18	18

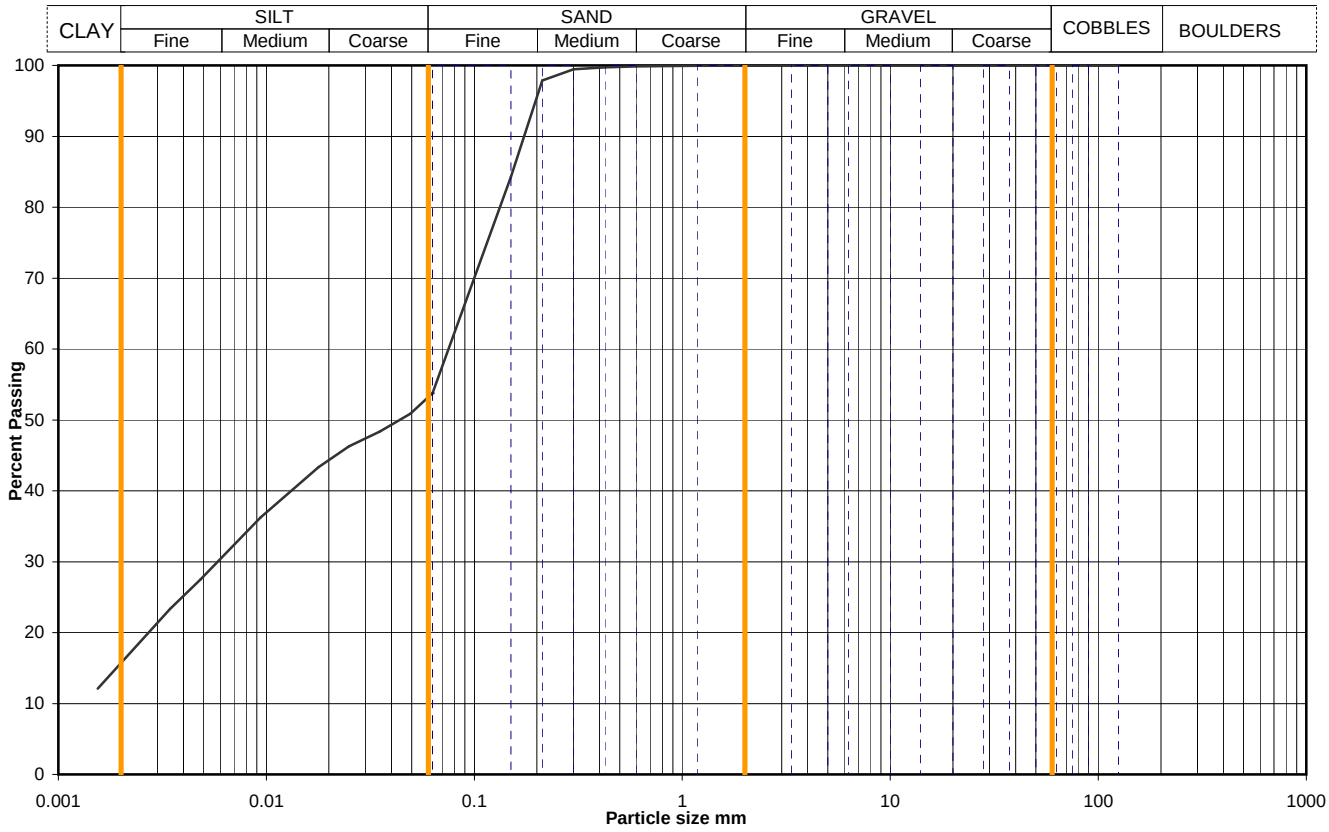
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 16**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	41.85		
			Samp No	124	Type	D
			ID	ESGD0050-10201103030000000160		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	54
90	100	0.0492	51
75	100	0.0351	48
63	100	0.0250	46
50	100	0.0178	43
37.5	100	0.0094	36
28	100	0.0048	28
20	100	0.0034	23
14	100	0.0015	12
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	84	0.8	
0.063	54		

Soil description	Grey sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	47	47
	Silt	37	37
	Clay	16	16

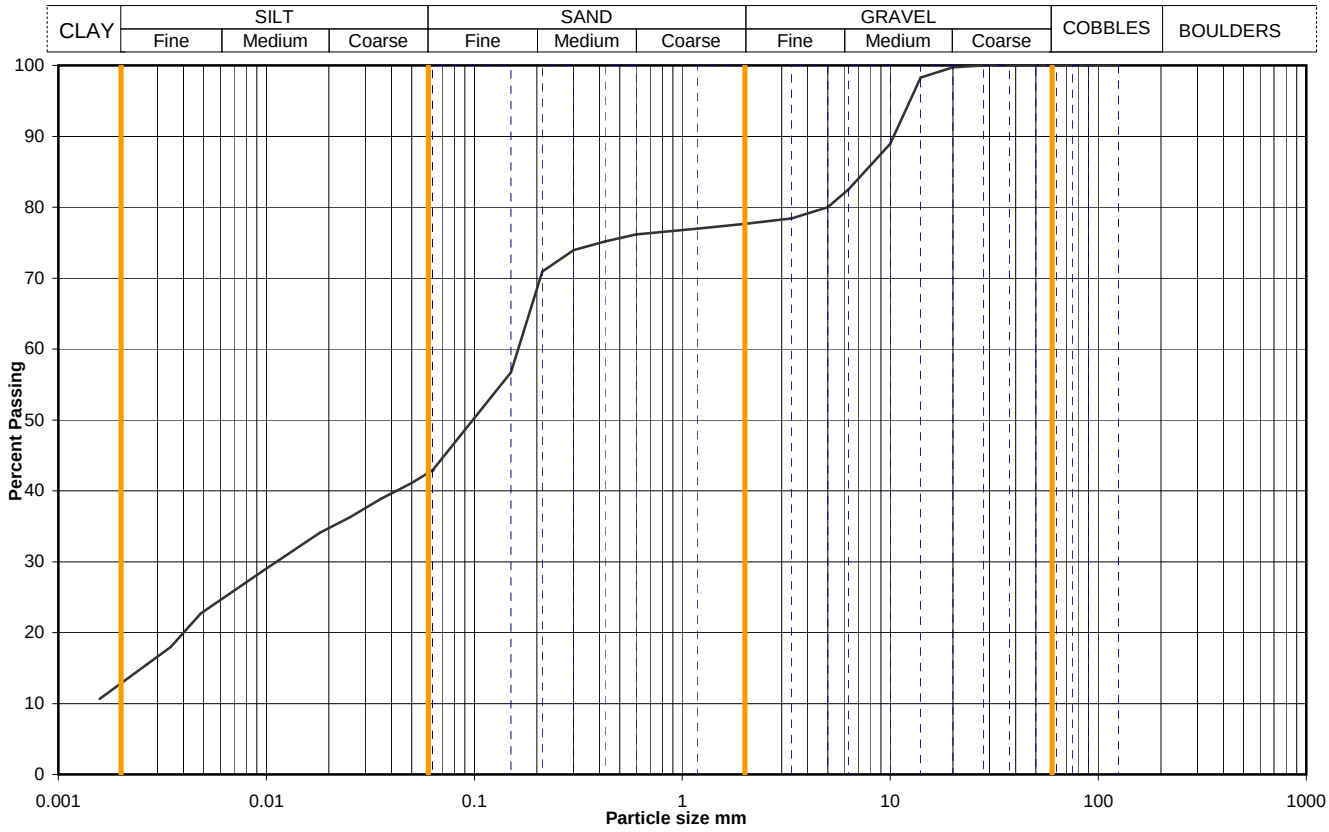
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:22	**Figure** **PSD 17**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	42.90		
			Samp No	127	Type	D
			ID	ESGD0050-10201103030000000163		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	43
90	100	0.0499	41
75	100	0.0355	39
63	100	0.0254	36
50	100	0.0181	34
37.5	100	0.0095	29
28	100	0.0048	23
20	100	0.0035	18
14	98	0.0016	11
10	89		
6.3	83		
5.0	80		
3.35	78		
2.00	78		
1.18	77	Particle density, Mg/m3	
0.600	76		
0.425	75	2.65 assumed	
0.300	74	Dry mass of sample, kg	
0.212	71		
0.150	57	10.8	
0.063	43		

Soil description	Greyish brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	22	22
	Sand	35	35
	Silt	30	30
	Clay	13	13

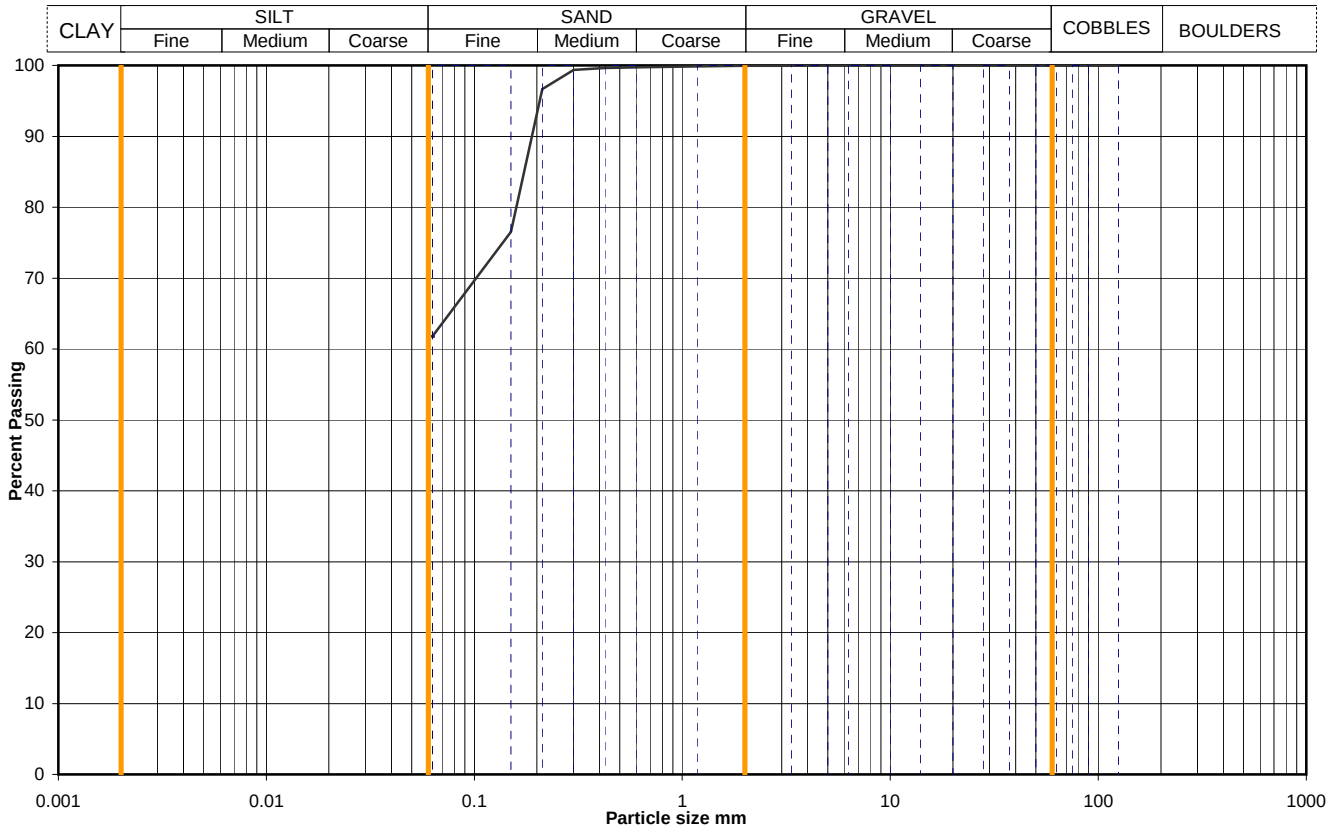
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:23	**Figure** **PSD 18**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	43.90		
			Samp No	129	Type	D
			ID	ESGD0050-10201103030000000166		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100		
0.600	100		
0.425	100		
0.300	99	Dry mass of sample, kg	
0.212	97		
0.150	77	0.2	
0.063	62		

Soil description	Grey sandy CLAY.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks	Sieve: Insufficient material for sedimentation.		
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	38	38
	Silt	silt+clay =	
	Clay	62	62

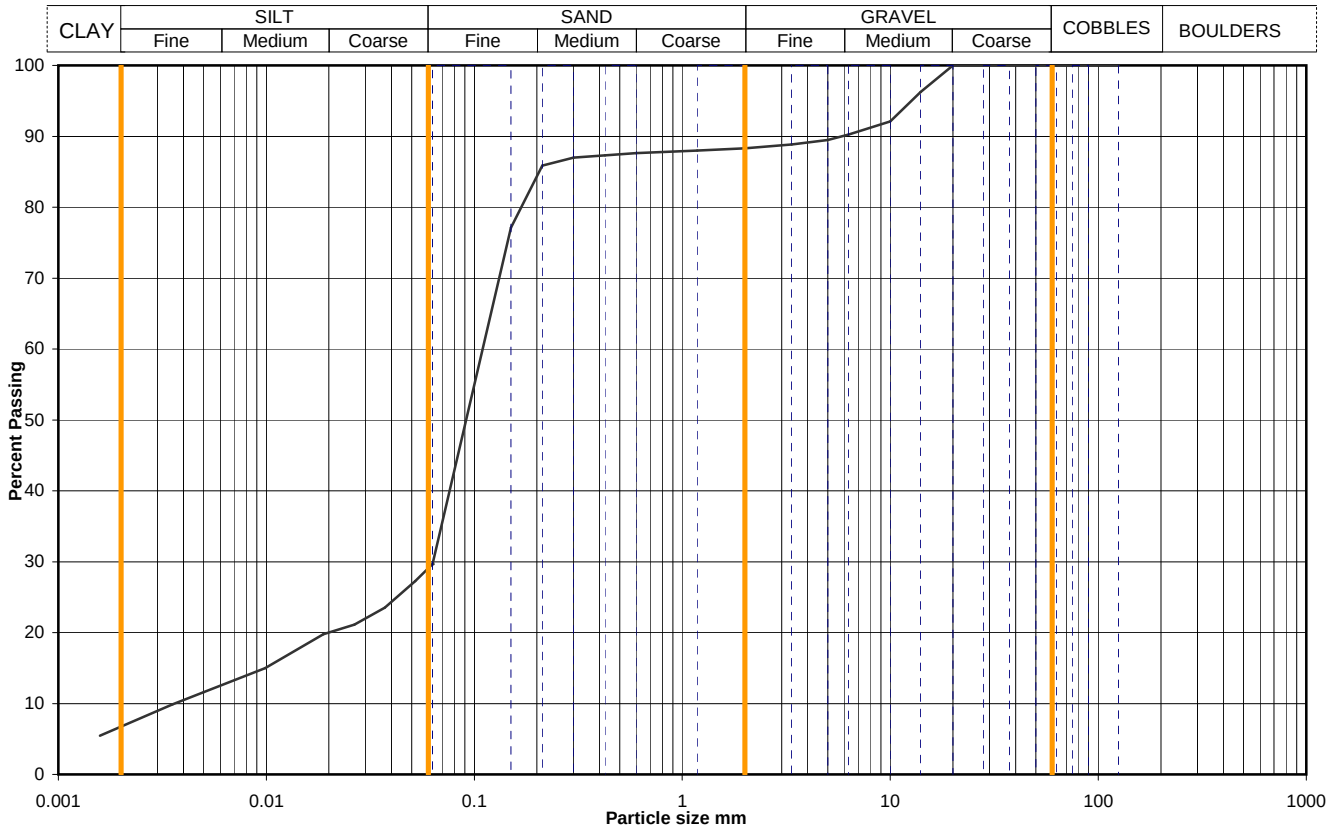
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref			Figure
SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:23	**PSD 19**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	45.40		
			Samp No	132	Type	D
			ID	ESGD0050-10201103030000000168		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	30
90	100	0.0519	27
75	100	0.0372	24
63	100	0.0265	21
50	100	0.0188	20
37.5	100	0.0099	15
28	100	0.0050	12
20	100	0.0035	10
14	96	0.0016	5
10	92		
6.3	90		
5.0	89		
3.35	89		
2.00	88		
1.18	88	Particle density, Mg/m3	
0.600	88		
0.425	87	2.65 assumed	
0.300	87	Dry mass of sample, kg	
0.212	86		
0.150	77	0.8	
0.063	30		

Soil description	Greyish brown slightly gravelly sandy SILT.		
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	12	12
	Sand	59	59
	Silt	22	22
	Clay	7	7

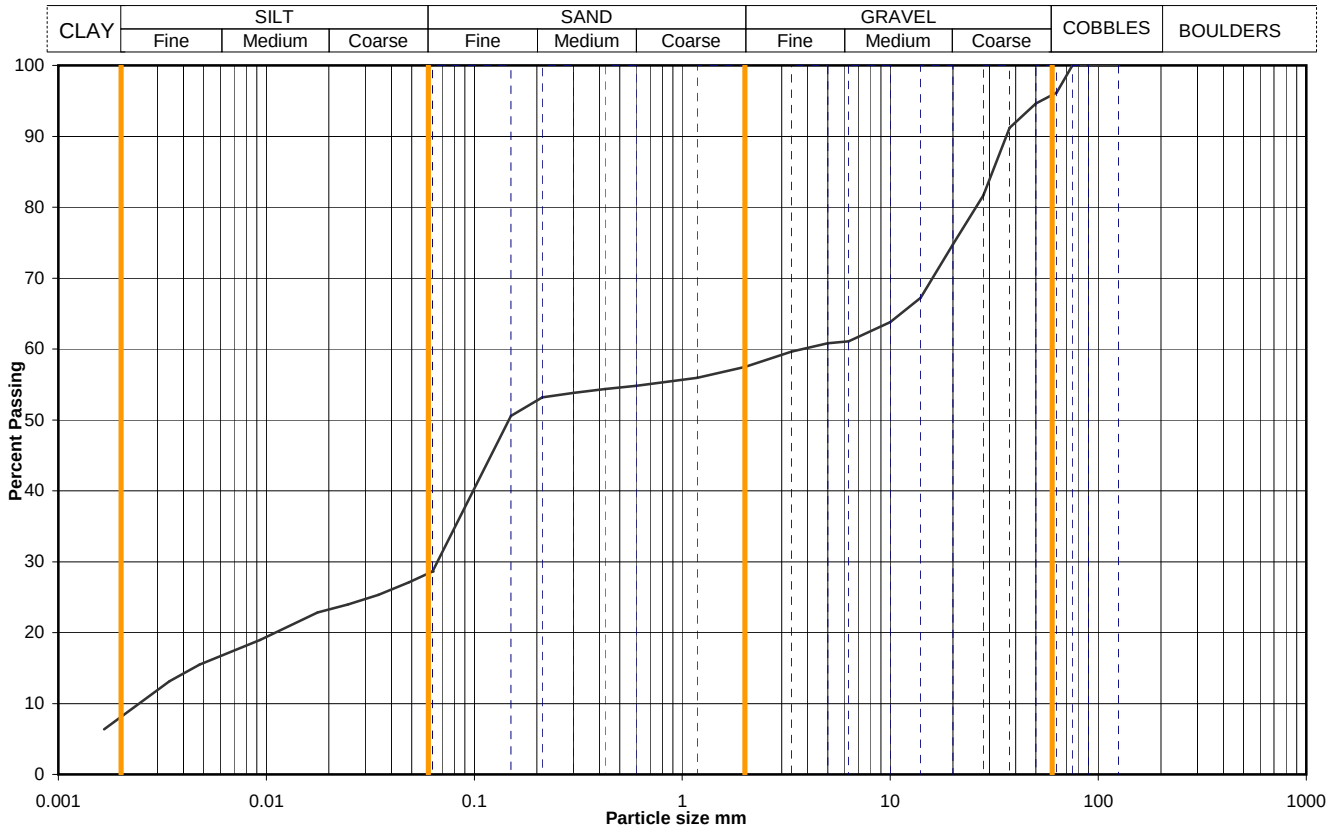
Uniformity Coefficient	D_{60} / D_{10}	30

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:23	**Figure** **PSD 20**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH1		
Project Name	UCL Project UCL HS		Depth (m BGL)	45.90		
			Samp No	134	Type	B
			ID	ESGD0050-10201103030000000170		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	29
90	100	0.0484	27
75	100	0.0346	25
63	96	0.0247	24
50	95	0.0176	23
37.5	91	0.0093	19
28	82	0.0048	15
20	75	0.0034	13
14	67	0.0017	6
10	64		
6.3	61		
5.0	61		
3.35	60		
2.00	57		
1.18	56	Particle density, Mg/m3	
0.600	55		
0.425	54	2.65 assumed	
0.300	54	Dry mass of sample, kg	
0.212	53		
0.150	51	16.7	
0.063	29		

Soil description	Grey slightly sandy gravelly clayey SILT with one cobble.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	4	0
	Gravel	39	41
	Sand	29	30
	Silt	20	21
	Clay	8	8

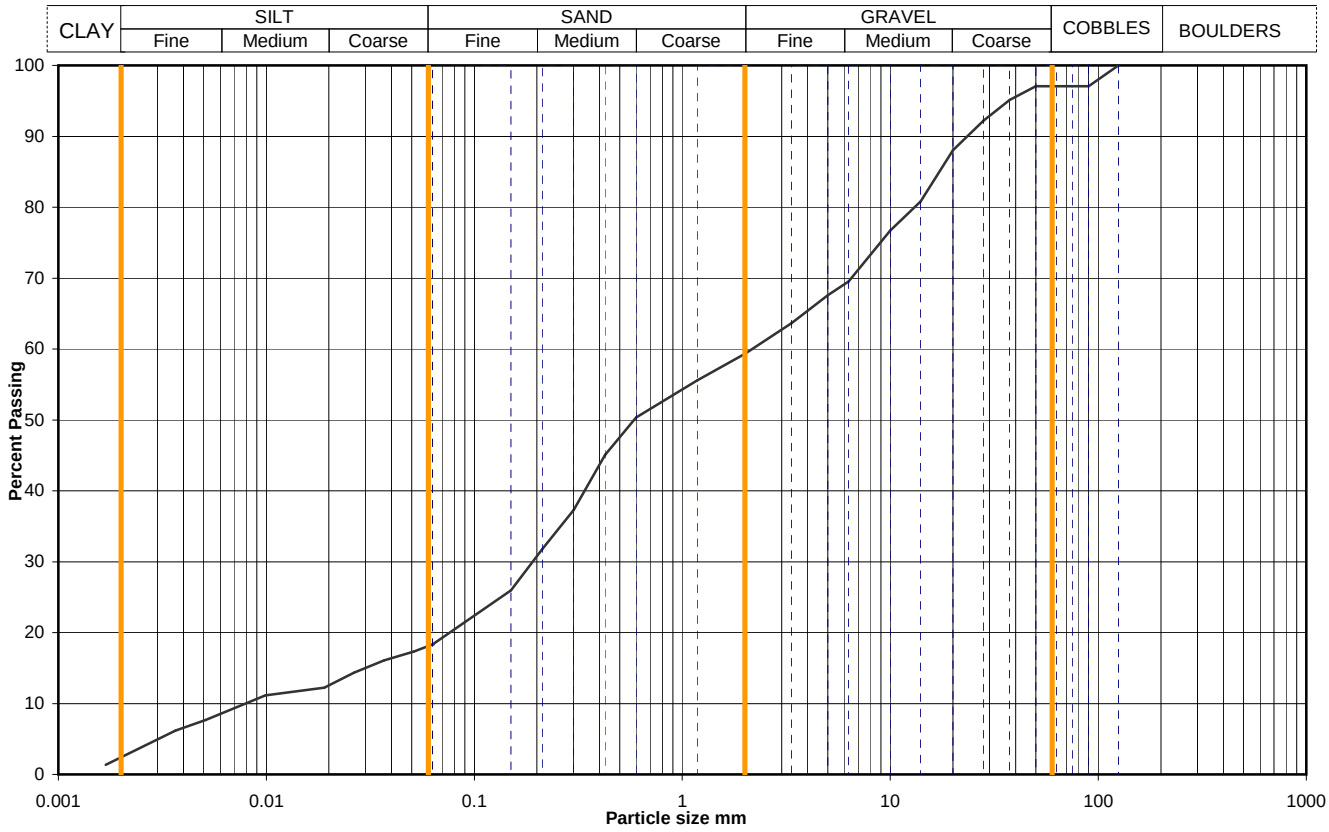
Uniformity Coefficient	D_{60} / D_{10}	1557

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	Printed:05/04/2011 09:23	**Figure** **PSD 21**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	0.30		
			Samp No	2	Type	B
			ID	ESGD0050-10201101260000000035		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	18
90	97	0.0513	17
75	97	0.0367	16
63	97	0.0264	14
50	97	0.0190	12
37.5	95	0.0099	11
28	92	0.0051	8
20	88	0.0037	6
14	81	0.0017	1
10	77		
6.3	70		
5.0	68		
3.35	64		
2.00	59		
1.18	56	Particle density, Mg/m3	
0.600	50		
0.425	45	2.65 assumed	
0.300	37	Dry mass of sample, kg	
0.212	32		
0.150	26	9.6	
0.063	18		

Soil description	Brownish grey sandy gravelly SILT with one cobble.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	3	0
	Gravel	38	39
	Sand	41	42
	Silt	16	16
	Clay	2	2

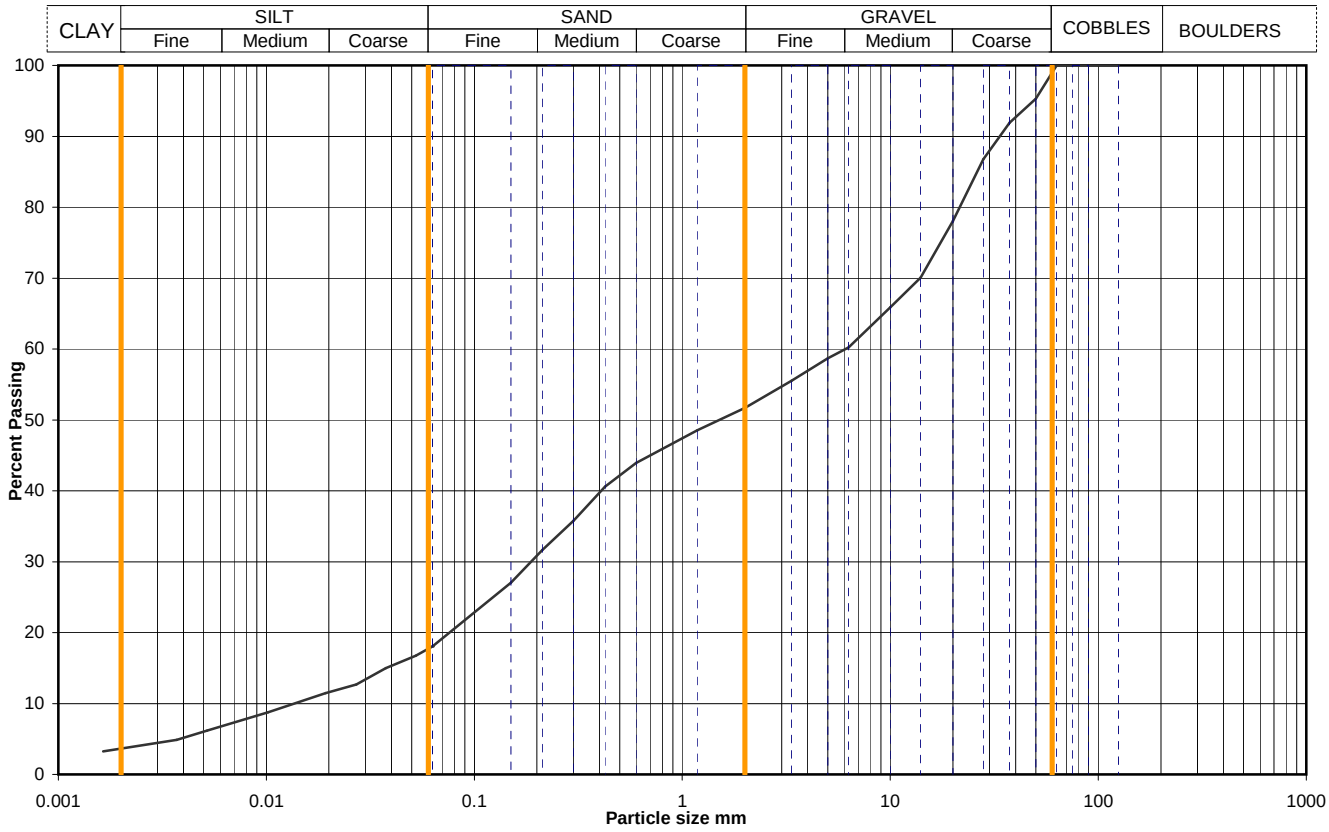
Uniformity Coefficient	D_{60} / D_{10}	271

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 22**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	1.00		
			Samp No	6	Type	B
			ID	ESGD0050-10201101260000000039		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	18
90	100	0.0523	17
75	100	0.0375	15
63	100	0.0270	13
50	95	0.0193	11
37.5	92	0.0102	9
28	87	0.0052	6
20	78	0.0037	5
14	70	0.0016	3
10	66		
6.3	60		
5.0	59		
3.35	56		
2.00	52		
1.18	49	Particle density, Mg/m3	
0.600	44		
0.425	41	2.65 assumed	
0.300	36	Dry mass of sample, kg	
0.212	32		
0.150	27	7.3	
0.063	18		

Soil description	Greyish brown slightly sandy gravelly clayey SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	1	0
	Gravel	47	47
	Sand	34	34
	Silt	14	14
	Clay	4	4

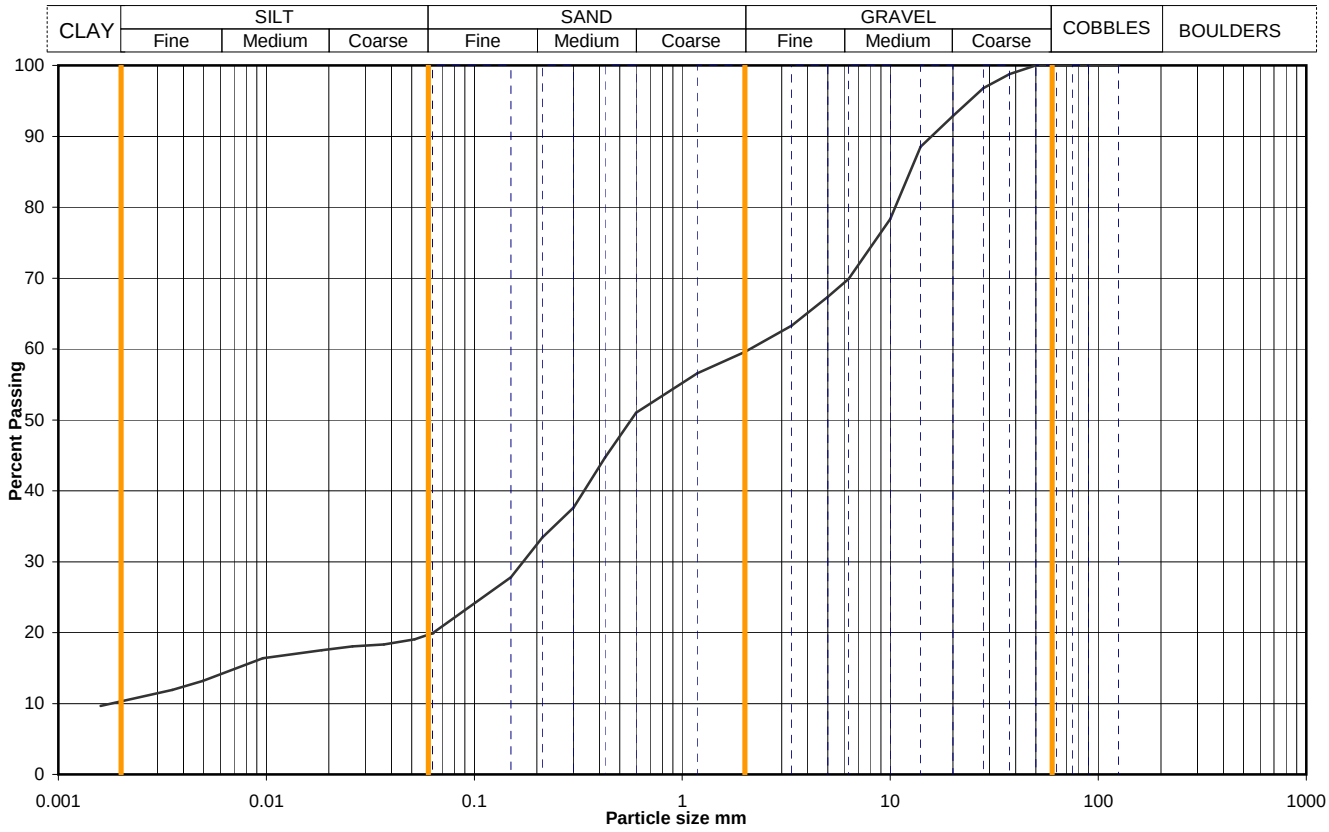
Uniformity Coefficient	D_{60} / D_{10}	448

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 23**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	2.20		
			Samp No	10	Type	B
			ID	ESGD0050-10201101260000000043		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0516	19
75	100	0.0367	18
63	100	0.0260	18
50	100	0.0185	18
37.5	99	0.0096	16
28	97	0.0049	13
20	93	0.0035	12
14	89	0.0016	10
10	78		
6.3	70		
5.0	67		
3.35	63		
2.00	60		
1.18	57	Particle density, Mg/m3	
0.600	51		
0.425	45	2.65 assumed	
0.300	38	Dry mass of sample, kg	
0.212	33		
0.150	28	10.8	
0.063	20		

Soil description	Yellowish brown sandy gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	40	40
	Sand	40	40
	Silt	10	10
	Clay	10	10

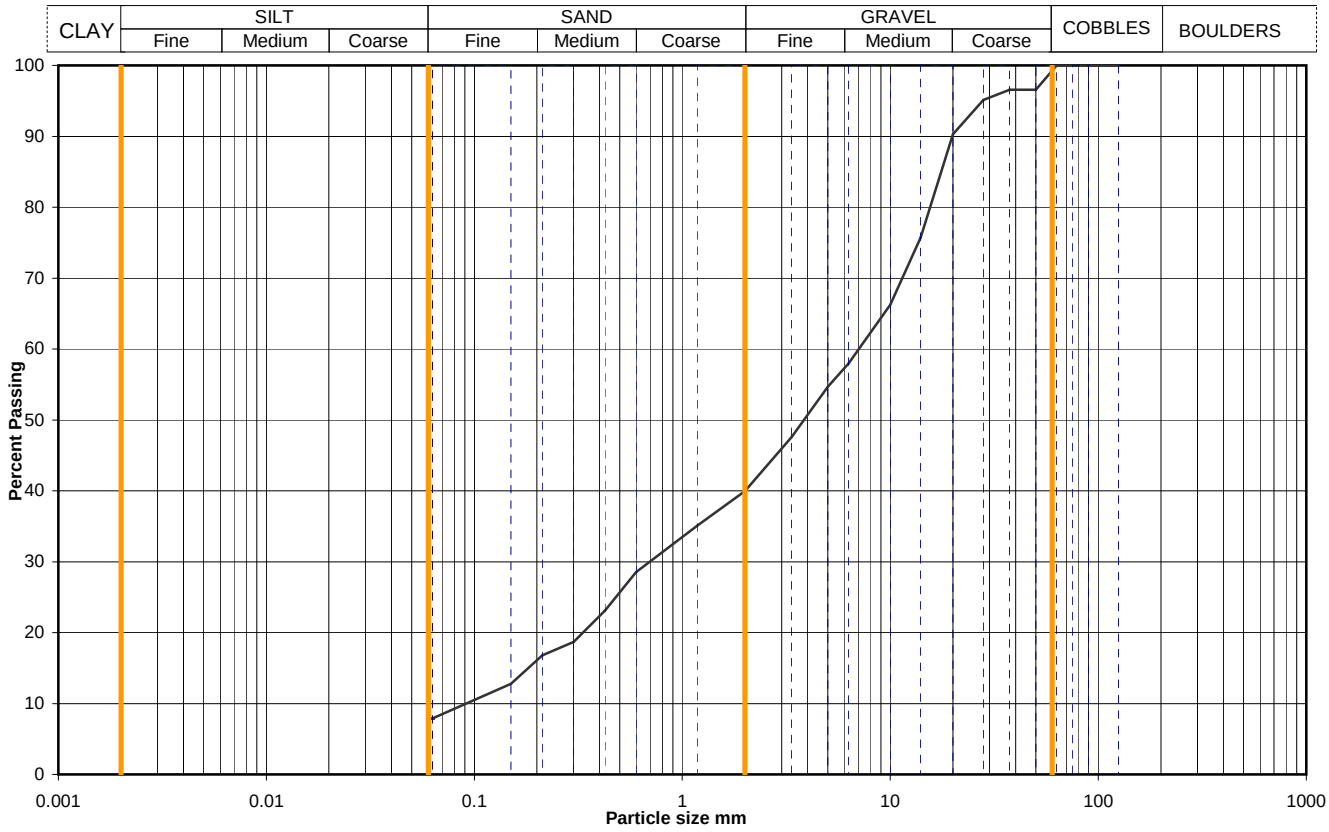
Uniformity Coefficient	D_{60} / D_{10}	1177

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 24**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	3.20		
			Samp No	13	Type	B
			ID	ESGD0050-10201101260000000046		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	97		
28	95		
20	90		
14	76		
10	66		
6.3	58		
5.0	55		
3.35	48		
2.00	40		
1.18	35		
0.600	29		
0.425	23		
0.300	19	Dry mass of sample, kg	
0.212	17		
0.150	13	14.2	
0.063	8		

Soil description	Yellowish brown very sandy GRAVEL with occasional clay pockets.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	1	0
	Gravel	59	60
	Sand	32	32
	Silt	silt+clay =	
	Clay	8	8

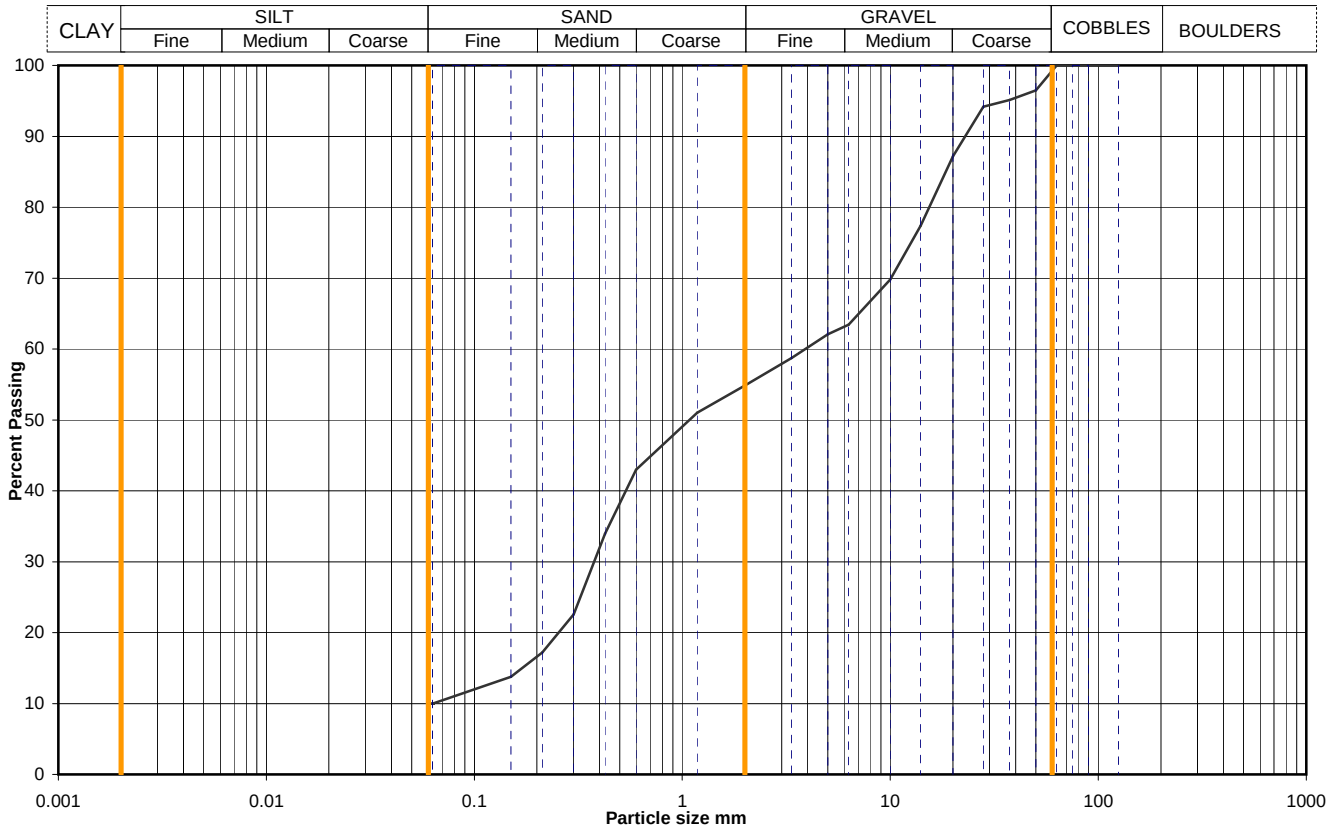
Uniformity Coefficient	D_{60} / D_{10}	77

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 25**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	4.20		
			Samp No	16	Type	B
			ID	ESGD0050-10201101260000000049		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	95		
28	94		
20	87		
14	77		
10	70		
6.3	63		
5.0	62		
3.35	59		
2.00	55		
1.18	51		
0.600	43		
0.425	34		
0.300	23	Dry mass of sample, kg	
0.212	17		
0.150	14	8.1	
0.063	10		

Soil description	Yellowish brown clayey SAND AND GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	1	0
	Gravel	44	44
	Sand	45	45
	Silt	silt+clay =	
	Clay	10	10

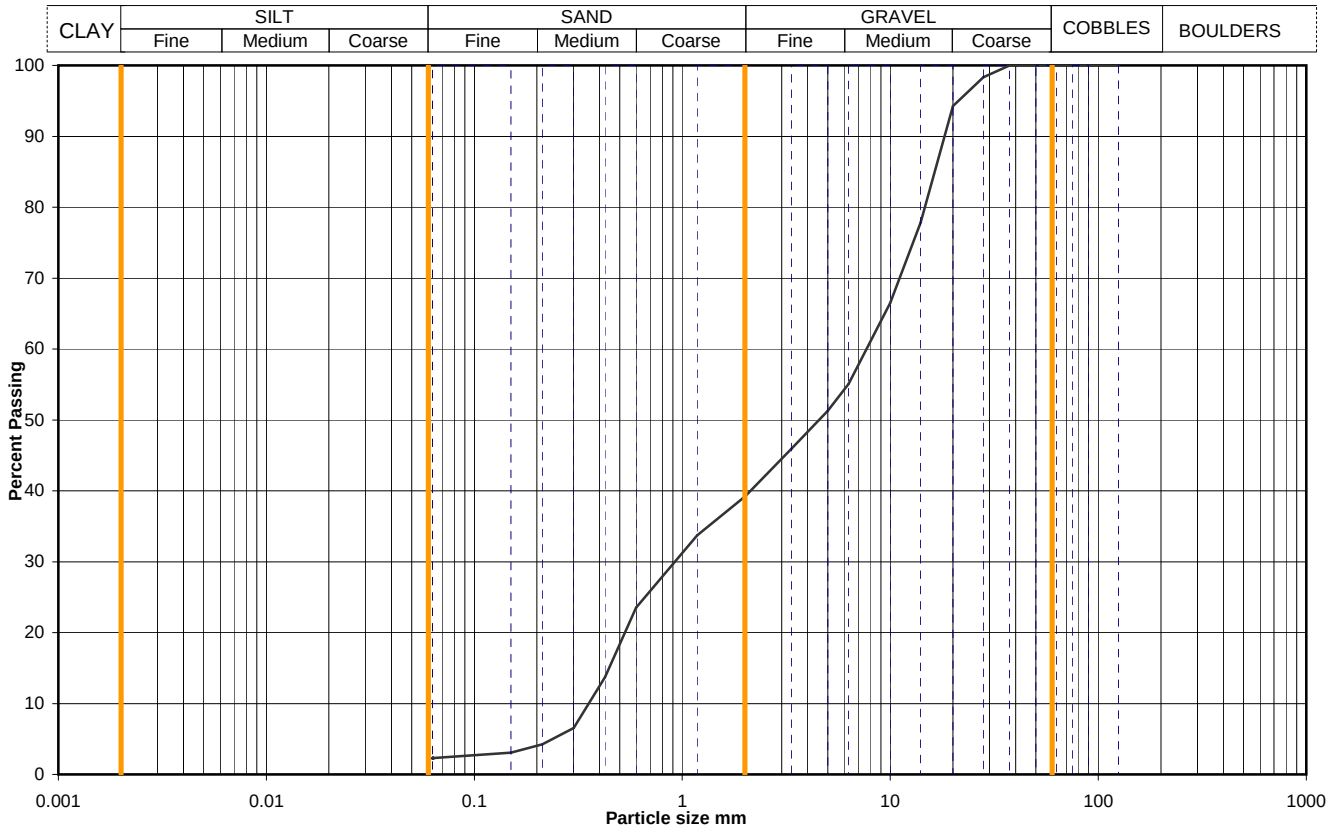
Uniformity Coefficient	D_{60} / D_{10}	62

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 26**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3	
Project Name	UCL Project UCL HS		Depth (m BGL)	5.20	
			Samp No	19	Type B
			ID	ESGD0050-10201101260000000052	
			Spec Ref		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	78		
10	66		
6.3	55		
5.0	51		
3.35	46		
2.00	39		
1.18	34		
0.600	24		
0.425	14		
0.300	7	Dry mass of sample, kg	
0.212	4		
0.150	3	14.4	
0.063	2		

Soil description	Yellowish brown very sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	61	61
	Sand	37	37
	Silt	silt+clay =	
	Clay	2	2

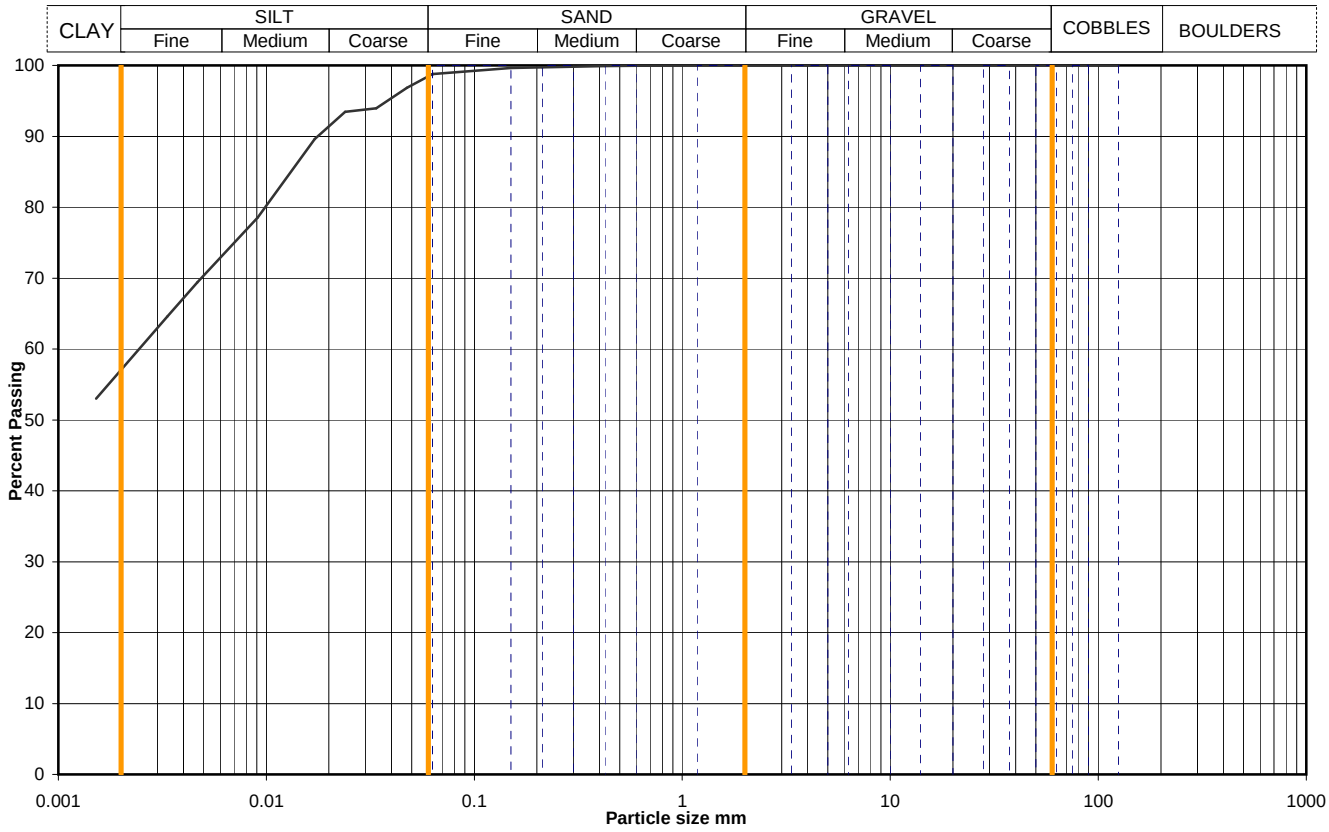
Uniformity Coefficient	D_{60} / D_{10}	22

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 27**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	7.00		
			Samp No	24	Type	D
			ID	ESGD0050-10201101260000000057		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0474	97
75	100	0.0338	94
63	100	0.0239	93
50	100	0.0171	90
37.5	100	0.0091	79
28	100	0.0047	69
20	100	0.0033	65
14	100	0.0015	53
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	100	0.2	
0.063	99		

Soil description	Greyish brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	2	2
	Silt	41	41
	Clay	57	57

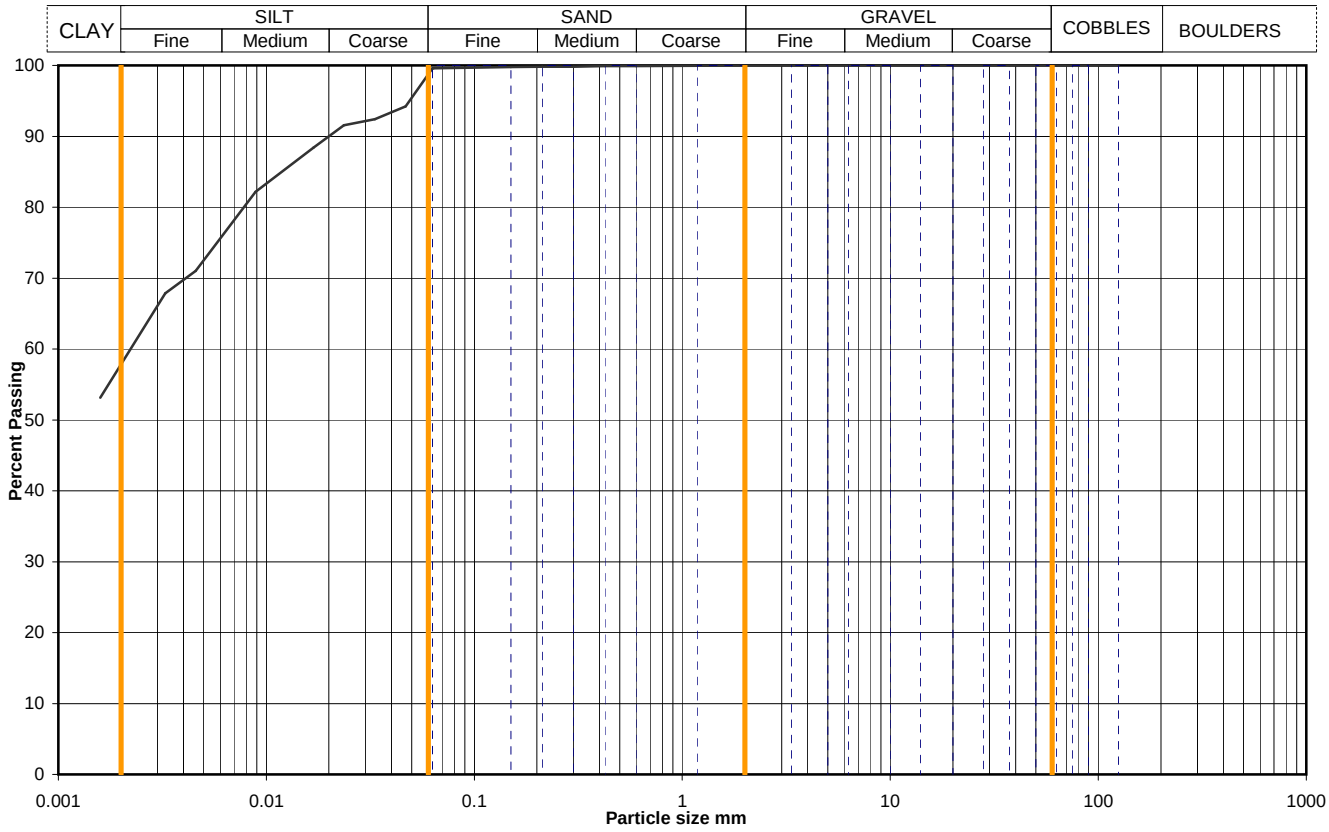
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 28**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	8.50		
			Samp No	28	Type	D
			ID	ESGD0050-10201101260000000061		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	100
90	100	0.0467	94
75	100	0.0332	92
63	100	0.0236	92
50	100	0.0168	88
37.5	100	0.0089	82
28	100	0.0046	71
20	100	0.0033	68
14	100	0.0016	53
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	100	0.3	
0.063	100		

Soil description	Brown CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	1	1
	Silt	41	41
	Clay	58	58

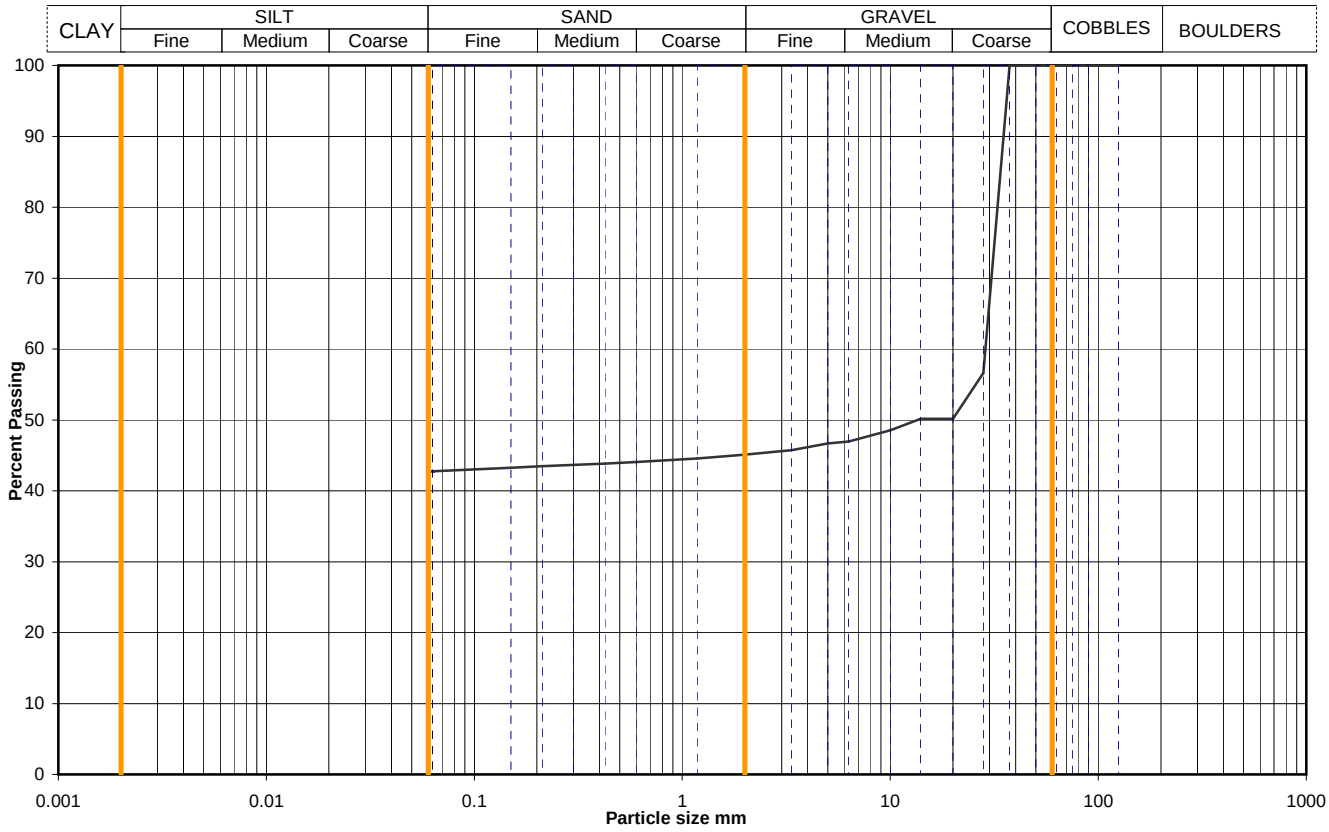
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 29**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	10.00		
			Samp No	32	Type	D
			ID	ESGD0050-10201101260000000065		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	57		
20	50		
14	50		
10	49		
6.3	47		
5.0	47		
3.35	46		
2.00	45		
1.18	45		
0.600	44		
0.425	44		
0.300	44	Dry mass of sample, kg	
0.212	43		
0.150	43	0.1	
0.063	43		

Soil description	Brown slightly sandy gravelly CLAY with mudstone.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks	Sieve: Insufficient material for sedimentation.		
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	55	55
	Sand	2	2
	Silt	silt+clay =	
	Clay	43	43

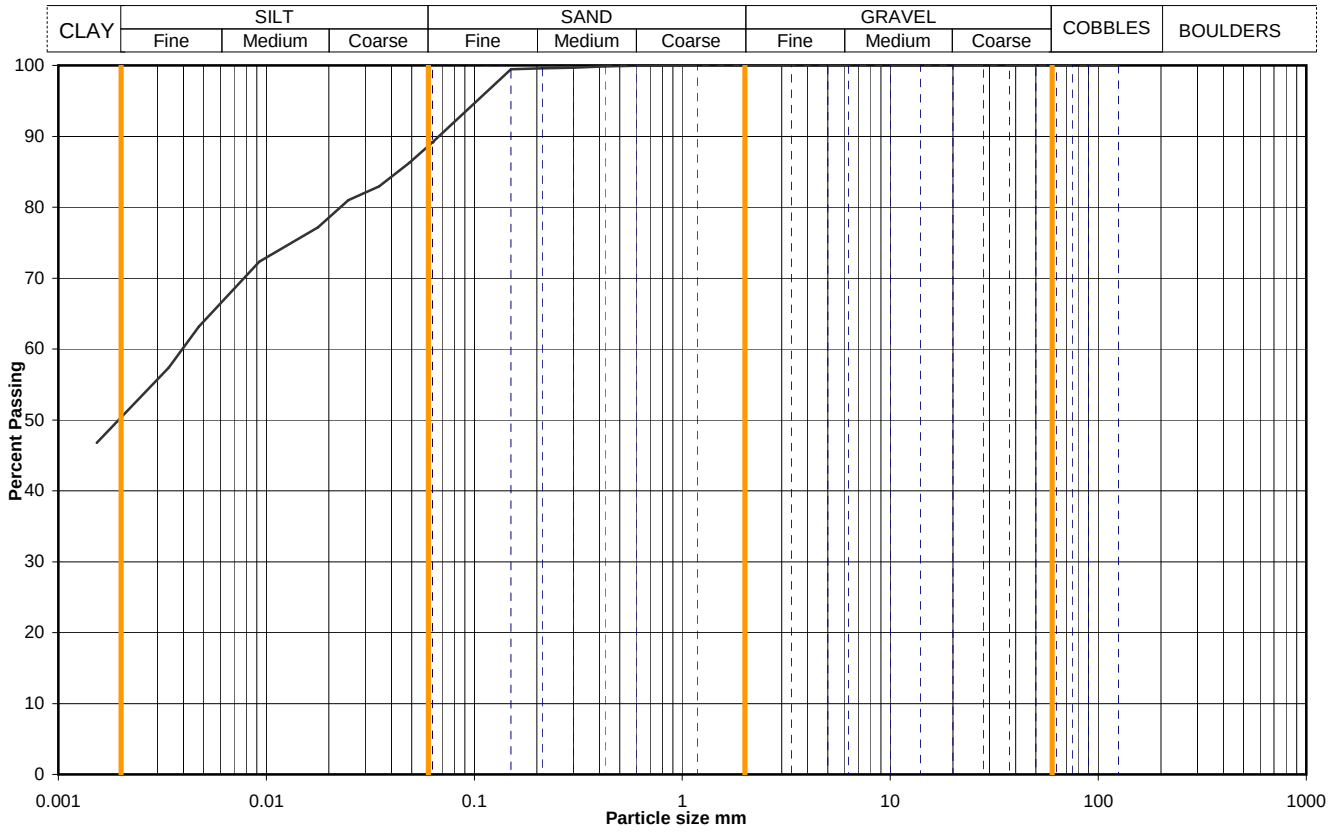
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 30**

Particle Size Distribution Analysis

Project No	D0050-10	Sample Details:	Hole No	BH3		
Project Name	UCL Project UCL HS		Depth (m BGL)	11.50		
			Samp No	35	Type	D
			ID	ESGD0050-10201101260000000068		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	89
90	100	0.0488	86
75	100	0.0349	83
63	100	0.0248	81
50	100	0.0177	77
37.5	100	0.0093	72
28	100	0.0047	63
20	100	0.0034	57
14	100	0.0015	47
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	100		
0.425	100	2.65 assumed	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	99	0.7	
0.063	89		

Soil description	Greyish brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<60mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	11	11
	Silt	38	38
	Clay	51	51

Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 84 Sept 08	Soil Mechanics	UKAS TESTING 1157	Printed:05/04/2011 09:23	**Figure** **PSD 31**

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS WITHOUT MEASUREMENT OF PORE PRESSURE - SUMMARY OF RESULTS

Project No	Project Name
D0050-10	UCL Project UCL HS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	Density bulk Mg/m³	Density dry Mg/m³	*w* %	Test type	Dia. mm	σ_3 kPa	At failure / end of stage: Axial strain %	$\sigma_1 - \sigma_3$ kPa	c_u kPa	MODE	Remarks
BH1	31	6.90	7.35	U	Stiff greyish brown slightly sandy CLAY.	2.02	1.60	26	UU	105.0	190	6.4	262	131	B	
BH1	35	8.40	8.85	U	Stiff greyish brown slightly sandy CLAY.	2.01	1.59	26	UU	105.2	250	6.9	232	116	B	
BH1	39	9.90	10.35	U	Stiff greyish brown CLAY.	2.00	1.59	26	UU	105.0	300	4.9	295	147	B	
BH1	43	11.40	11.85	U	Stiff greyish brown CLAY.	1.97	1.53	29	UU	105.1	340	4.9	239	120	B	
BH1	47	12.90	13.35	U	Stiff greyish brown CLAY.	1.98	1.57	27	UU	105.9	380	4.4	430	215	B	
BH1	51	14.40	14.85	U	Stiff friable greyish brown slightly sandy CLAY with silt partings.	1.99	1.58	26	UU	105.1	425	4.0	579	289	B	
BH1	55	15.90	16.35	U	Stiff greyish brown slightly sandy CLAY with silt partings.	1.95	1.59	23	UU	104.5	470	4.9	462	231	B	
BH1	59	17.40	17.85	U	Stiff greyish brown CLAY with sand partings.	1.99	1.59	25	UU	104.8	510	2.5	270	135	B	
BH1	63	18.90	19.35	U	Stiff greyish brown CLAY with sand partings.	2.05	1.71	20	UU	105.1	550	5.4	625	312	B	
BH1	67	20.40	20.85	U	Stiff greyish brown slightly sandy CLAY with silt partings.	2.04	1.64	24	UU	105.1	600	4.9	485	242	B	
BH1	71	21.90	22.35	U	Stiff greyish brown CLAY with sand partings.	2.04	1.65	23	UU	105.7	640	5.4	610	305	B	
BH1	75	23.40	23.85	U	Stiff brownish grey CLAY with silt pocklets.	2.09	1.74	20	UU	105.1	680	19.3	672	336	B	
BH1	79	24.90	25.35	U	Very stiff light brown mottled grey slightly sandy CLAY.	2.12	1.74	21	UU	104.8	720	14.3	466	233	B	
BH1	83	26.40	26.85	U	Stiff to very stiff light brown mottled grey slightly sandy CLAY.	2.25	1.95	15	UU	104.9	770	12.3	1,121	560	C	
BH1	87	27.90	28.35	U	Very stiff brown mottled grey slightly sandy CLAY.	2.20	1.88	17	UU	105.2	810	10.4	1,050	525	B	
BH1	91	29.40	29.85	U	Very stiff light brown slightly sandy CLAY.	2.17	1.91	14	UU	105.8	855	9.4	1,403	701	C	
BH1	95	30.90	31.35	U	Stiff friable dark grey slightly CLAY.	1.93	1.52	27	UU	103.6	900	9.5	317	158	B	
BH1	99	32.40	32.85	U	Stiff friable grey mottled light brown slightly sandy slightly gravelly CLAY.	2.01	1.60	26	UU	105.5	940	17.3	433	216	B	
BH1	103	33.90	34.35	U	Stiff to very stiff fissured light grey mottled purple slightly sandy CLAY.	2.13	1.79	19	UU	104.5	980	7.5	465	232	B	
BH1	119	39.90	40.35	U	Stiff brown mottled grey and purple slightly sandy CLAY.	2.06	1.78	16	UU	104.4	1,150	11.3	434	217	P	
BH1	123	41.40	41.85	U	Stiff brownish grey slightly sandy silty CLAY.	2.14	1.88	14	UU	105.3	1,200	4.4	1,815	908	C	
BH3	22	6.50	6.95	U	Stiff greyish brown CLAY with rare sand partings.	2.01	1.60	26	UU	105.0	185	7.9	242	121	B	

General notes: Tests carried out in accordance with BS1377: Part 7: 1990, clause 8 for single stage, clause 9 for multistage tests. Specimens nominally 2:1 height diameter ratio and tested at a rate of strain of 2%/minute, unless annotated otherwise. See individual test reports for further details.

Legend

UU - single stage test (may be in sets of specimens)
UUM - multistage test on a single specimen
suffix R - remoulded or recompacted

σ_3 cell pressure
$\sigma_1 - \sigma_3$ deviator stress
c_u undrained shear strength

Mode of failure
P plastic
B brittle
C compound

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS WITHOUT MEASUREMENT OF PORE PRESSURE - SUMMARY OF RESULTS

Project No	Project Name
D0050-10	UCL Project UCL HS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	Density bulk Mg/m³	Density dry Mg/m³	w %	Test type	Dia. mm	σ_3 kPa	At failure / end of stage: Axial strain %	$\sigma_1 - \sigma_3$ kPa	c_u kPa	MODE	Remarks
BH3	26	8.00	8.45	U	Stiff greyish brown slightly sandy CLAY.	2.02	1.58	27	UU	104.1	230	3.5	185	92	B	
BH3	30	9.50	9.95	U	Stiff greyish brown CLAY with occasional sand partings.	1.98	1.54	28	UU	104.8	275	2.0	214	107	B	
BH3	34	11.00	11.45	U	Stiff greyish brown slightly sandy CLAY.	2.01	1.58	27	UU	104.7	320	4.4	258	129	B	

General notes: Tests carried out in accordance with BS1377: Part 7: 1990, clause 8 for single stage, clause 9 for multistage tests. Specimens nominally 2:1 height diameter ratio and tested at a rate of strain of 2%/minute, unless annotated otherwise. See individual test reports for further details.

Legend

UU - single stage test (may be in sets of specimens)	σ_3	cell pressure	Mode of failure	P	plastic
UUM - multistage test on a single specimen	$\sigma_1 - \sigma_3$	deviator stress		B	brittle
suffix R - remoulded or recompacted	c_u	undrained shear strength		C	compound

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK - SUMMARY OF RESULTS

Project No	Project Name
D0050-10	UCL Project UCL HS

Hole No.	Sample				Rock Type	Specimen Dimensions[2]			Bulk Density[2]	Water Content[1]	Uniaxial Compression[3]				Remarks
	No.	Depth (m)		type		Dia.	Height	H/D			Load Rate	Time to failure	Mode of failure	UCS	
		from	to			mm	mm		Mg/m^3	%	kN/min	secs		MPa	
MSA 1	2	0.16	0.48	CS	CONGLOMERATE	98.2	303.1	3.1	2.36	5.0	40	371	S	34.7	Reinforced concrete.
MSA 2	2	0.16	0.42	CS	CONGLOMERATE	98.4	230.7	2.3	2.24	5.1	40	302	MS	27.4	Outside ISRM spec'n. Contains vertical void.
MSA 3	2	0.16	0.42	CS	CONGLOMERATE	98.1	215.3	2.2	2.17	4.2	40	272	S	25.0	Outside ISRM spec'n. Contains vertical void.
MSA 4	2	0.15	0.41	CS	CONGLOMERATE	98.4	228.3	2.3	2.28	2.6	40	232	S	20.9	Outside ISRM spec'n. Contains vertical void.
MSA 5	2	0.17	0.49	CS	CONGLOMERATE	98.0	298.7	3.0	2.33	3.0	40	363	S	32.7	Reinforced concrete with vertical void.

Notes :

Test Specification : International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

1 ISRM p87 test 1, water content at 105 ± 3 ^{o}C, specimen as received at the laboratory

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

CHEMICAL TESTS - SUMMARY OF RESULTS

Project No	Project Name
D0050-10	UCL Project UCL HS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	Org %	LOI %	pH	Sulphate as SO_4 Preparation/test *	Sulphate as SO_4 2:1 water sol. g/L	Sulphate as SO_4 ground water g/L	Sulphate as SO_4 acid sol. %	SD1 options TS %	SD1 options Mg mg/L NO_3 mg/L NH_4	CO_2 %	Chloride, Cl water sol. %	Chloride, Cl acid sol. %	<2 mm %	Remarks
BH1	12	2.20		D	Grey slightly gravelly SAND.			7.3	1+3	0.07								79	
BH1	17	3.20		D	Greyish brown slightly gravelly SAND.			7.5	1+3	0.38								81	
BH1	27	5.80		D	Light brown slightly sandy slightly gravelly CLAY.			7.4	1+3	0.06								82	
BH1	32	7.40		D	Greyish brown slightly sandy CLAY.			7.3	1+3	0.49								100	
BH3	3	0.50		D	Brown gravelly SAND.			8.4	1+3	0.57								60	
BH3	8	1.70		D	Brown slightly gravelly SAND with clay pockets.			7.6	1+3	1.35								68	
BH3	11	2.70		D	Brown sandy gravelly CLAY.			7.0	1+3	0.70								64	
BH3	21	6.00		D	Brown slightly gravelly CLAY.			7.3	1+3	0.06								98	
BH3	25	7.50		D	Brownish grey CLAY.			7.5	1+3	0.54								100	
BH3	29	9.00		D	Greyish brown silty CLAY.			7.2	1+3	0.53								100	
BH3	36	11.50		D	Greyish brown CLAY.			7.6	1+3	0.62								100	

BS 1377 : definitive method unless stated :

Org Organic matter content (s-sulphides, c-chlorides identified)

LOI Mass loss on ignition at 440°C

CO_2 Carbonate content (rapid titration)

Cl Chloride content

* Sulphate tests preparation / test methods :

1. BS 1377:Part 3:1990:clause 5.3
2. BS 1377:Part 3:1990:clause 5.4
3. BS 1377:Part 3:1990:clause 5.5
4. TRL447 - 1 water soluble sulphate
5. TRL447 - 2 acid soluble sulphate
6. BR279 - groundwater sulphate

< 2mm material passing 2mm sieve

BRE Special Digest SD1, dependent options :

TS Total Sulphur to BR279 / EN ISO15178

Mg Soluble Magnesium to BR279, colorimetric

NO3 Soluble Nitrate to BR279, colorimetric

NH_4 qualitative

ENCLOSURE E
GEOENVIRONMENTAL LABORATORY TEST RESULTS

Scientifics Report – Soil	EFS/110800
Scientifics Report – Water	EXR/117239

TEST REPORT
SOIL SAMPLE ANALYSIS

1252

Report No. EFS/110800 (Ver. 1)

Soil Mechanics
Glossop House
Hogwood Lane
Finchampstead
Wokingham
Berkshire
RG40 4QW

Site: Project UCL HS

The 7 samples described in this report were logged for analysis by Scientifics on 04-Feb-2011. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 21-Feb-2011

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by Scientifics.

The following tables are contained in this report:

On behalf of
Scientifics :
Andrew Timms Operations Manager

Date of Issue: 21-Feb-2011

Tests marked '^' have been subcontracted to another laboratory.

Scientifics accepts no responsibility for any sampling not carried out by our personnel.

Units :		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units	mg/kg	mg/kg		mg/kg	ug/kg
Method Codes :		ICPACIDS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	PHSOIL	SFAPI	SFAPI	Sub02a	TPHUSSI	VOCHSAS
Method Reporting Limits :		20	0.3	0.1	0.5	0.5	0.5	0.10	0.5	0.5	3.0		0.5	0.5		10.0	1
UKAS Accredited :		yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Laboratory ID Number CL/	**Client Sample Description**	**SO4-- (acid sol)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Mercury (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**pH units (AR)**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos Screen**	**TPH by GCFID (AR/Si)**	**VOC HSA-MS**
1103767	BH3 ES 1 0.30	1970	9.2	0.11	14.3	57.8	544	2.02	14.2	<0.5	53.1	8.7	<0.5	<0.5	NAIIS	Req	Req
1103768	BH3 ES 4 1.00	2630	16.5	0.16	15.4	119.9	645.4	1.57	18.8	0.6	82.6	8.6	<0.5	<0.5	NAIIS	Req	Req
1103769	BH3 ES 9 2.00	2550	7.2	<0.1	12.9	19.4	74.9	0.29	12.6	<0.5	26.4	8.7	<0.5	<0.5	NAIIS	Req	Req
1103770	BH3 ES 12 3.00	167	3.8	<0.1	11.3	6.9	7.4	<0.1	11.2	<0.5	14.9	9.2	<0.5	<0.5	NAIIS	Req	Req
1103771	BH3 ES 15 4.00	791	5.3	<0.1	12.2	10.9	25.2	<0.1	12.3	<0.5	24.4	8.6	<0.5	<0.5	NAIIS	Req	Req
1103772	BH3 ES 18 5.00	117	4.9	<0.1	10.4	5.8	4.8	<0.1	12.5	<0.5	14.8	9.4	<0.5	<0.5	NAIIS	Req	Req
1103773	BH3 ES 20 6.00	144	12.5	<0.1	42.8	24.7	16.6	<0.1	35.5	0.8	73.6	8.1	<0.5	<0.5	NAIIS	Req	Req

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Client Name **Soil Mechanics**

Contact Mr P Mercer

Project UCL HS

Soils Sample Analysis

Date Printed	21-Feb-11
Report Number	**EFS/110800**
Table Number	**1**

Units :		mg/kg	%	mg/kg														
Method Codes :		SFAS	Sub20	SVOCMSUS														
Method Reporting Limits :		0.5	0.001	0.2-10.0														
UKAS Accredited :		no	no	no														
Laboratory ID Number CL/	**Client Sample Description**	**Sulphide as S (AR)**	**^Asbestos ID & Quan**	**SVOC (AR)**														
1103767	BH3 ES 1 0.30	<0.5	<0.001	Req														
1103768	BH3 ES 4 1.00	17.8	<0.001	Req														
1103769	BH3 ES 9 2.00	2.7	<0.001	Req														
1103770	BH3 ES 12 3.00	<0.5	<0.001	Req														
1103771	BH3 ES 15 4.00	<0.5	<0.001	Req														
1103772	BH3 ES 18 5.00	<0.5	<0.001	Req														
1103773	BH3 ES 20 6.00	<0.5	<0.001	Req														

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Client Name **Soil Mechanics**

Contact Mr P Mercer

Project UCL HS

Soils Sample Analysis

Date Printed	21-Feb-11
Report Number	**EFS/110800**
Table Number	**1**

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 1 0.30	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103767	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	90
Naphthalene-d8	91
Acenaphthene-d10	96
Phenanthrene-d10	99
Chrysene-d12	92
Perylene-d12	89

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	94
Nitrobenzene-d5	92
2-Fluorobiphenyl	86
2,4,6-Tribromophenol	78
Terphenyl-d14	94

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 4 1.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103768	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	95
Naphthalene-d8	96
Acenaphthene-d10	101
Phenanthrene-d10	103
Chrysene-d12	91
Perylene-d12	88

Surrogates	% Rec
2-Fluorophenol	99
Phenol-d5	94
Nitrobenzene-d5	90
2-Fluorobiphenyl	85
2,4,6-Tribromophenol	86
Terphenyl-d14	93

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 9 2.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103769	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	88
Naphthalene-d8	88
Acenaphthene-d10	92
Phenanthrene-d10	95
Chrysene-d12	86
Perylene-d12	84

Surrogates	% Rec
2-Fluorophenol	101
Phenol-d5	94
Nitrobenzene-d5	93
2-Fluorobiphenyl	88
2,4,6-Tribromophenol	88
Terphenyl-d14	95

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 12 3.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103770	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	95
Naphthalene-d8	96
Acenaphthene-d10	100
Phenanthrene-d10	104
Chrysene-d12	98
Perylene-d12	94

Surrogates	% Rec
2-Fluorophenol	95
Phenol-d5	90
Nitrobenzene-d5	87
2-Fluorobiphenyl	85
2,4,6-Tribromophenol	78
Terphenyl-d14	91

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 15 4.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103771	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	94
Naphthalene-d8	95
Acenaphthene-d10	99
Phenanthrene-d10	101
Chrysene-d12	94
Perylene-d12	90

Surrogates	% Rec
2-Fluorophenol	99
Phenol-d5	93
Nitrobenzene-d5	89
2-Fluorobiphenyl	87
2,4,6-Tribromophenol	80
Terphenyl-d14	95

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 18 5.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103772	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	104
Naphthalene-d8	104
Acenaphthene-d10	108
Phenanthrene-d10	111
Chrysene-d12	106
Perylene-d12	102

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	94
Nitrobenzene-d5	87
2-Fluorobiphenyl	84
2,4,6-Tribromophenol	74
Terphenyl-d14	91

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Soil	**QC Batch Number:**	305
Sample Details:	BH3 ES 20 6.00	**Date Booked in:**	04-Feb-11	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1103773	**Date Extracted:**	17-Feb-11	**Operator:**	SO/DMB	**Dilution Factor:**	1
Job Number:	S11_0800	**Date Analysed:**	18-Feb-11	**Directory/Quant File:**	17SVOC.MS16\ 0217_CCC4.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 2.0	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.5	-
2-Chlorophenol	95-57-8	-	< 2.0	-
1,3-Dichlorobenzene	541-73-1	-	< 0.5	-
1,4-Dichlorobenzene	106-46-7	-	< 0.5	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.5	-
2-Methylphenol	95-48-7	-	< 0.5	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.5	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.5	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 2.0	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1	-	< 0.5	-
2-Nitrophenol	88-75-5	-	< 2.0	-
2,4-Dimethylphenol	105-67-9	-	< 2.0	-
Benzoic Acid	65-85-0 *	-	< 10.0	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.5	-
2,4-Dichlorophenol	120-83-2	-	< 2.0	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.5	-
Naphthalene	91-20-3	-	< 0.2	-
4-Chlorophenol	106-48-9	-	< 2.0	-
4-Chloroaniline	106-47-8 *	-	< 0.5	-
Hexachlorobutadiene	87-68-3	-	< 0.5	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.5	-
2-Methylnaphthalene	91-57-6	-	< 0.2	-
1-Methylnaphthalene	90-12-0	-	< 0.2	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.5	-
2,4,6-Trichlorophenol	88-06-2	-	< 2.0	-
2,4,5-Trichlorophenol	95-95-4	-	< 2.0	-
2-Chloronaphthalene	91-58-7	-	< 0.2	-
Biphenyl	92-52-4	-	< 0.2	-
Diphenyl ether	101-84-8	-	< 0.2	-
2-Nitroaniline	88-74-4	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.2	-
Dimethylphthalate	131-11-3	-	< 0.5	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.2	-
3-Nitroaniline	99-09-2	-	< 0.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-
Dibenzofuran	132-64-9	-	< 0.5	-
4-Nitrophenol	100-02-7	-	< 5.0	-
2,4-Dinitrotoluene	121-14-2	-	< 0.5	-
Fluorene	86-73-7	-	< 0.2	-
Diethylphthalate	84-66-2	-	< 0.5	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.5	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 5.0	-
4-Nitroaniline	100-01-6	-	< 0.5	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.5	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.5	-
Hexachlorobenzene	118-74-1	-	< 0.5	-
Pentachlorophenol	87-86-5	-	< 5.0	-
Phenanthrene	85-01-8	-	< 0.2	-
Anthracene	120-12-7	-	< 0.2	-
Di-n-butylphthalate	84-74-2	-	< 0.5	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.5	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 2.0	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.5	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	-	< 0.2	-
Benzo[k]fluoranthene	207-08-9	-	< 0.2	-
Benzo[a]pyrene	50-32-8	-	< 0.2	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.2	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.2	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.2	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	97
Naphthalene-d8	98
Acenaphthene-d10	100
Phenanthrene-d10	103
Chrysene-d12	97
Perylene-d12	90

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	93
Nitrobenzene-d5	85
2-Fluorobiphenyl	82
2,4,6-Tribromophenol	74
Terphenyl-d14	90

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: Soil Mechanics : Project UCL HS
Job Number: S11_0800
QC Batch Number: 110307
Directory: D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\042F5401.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

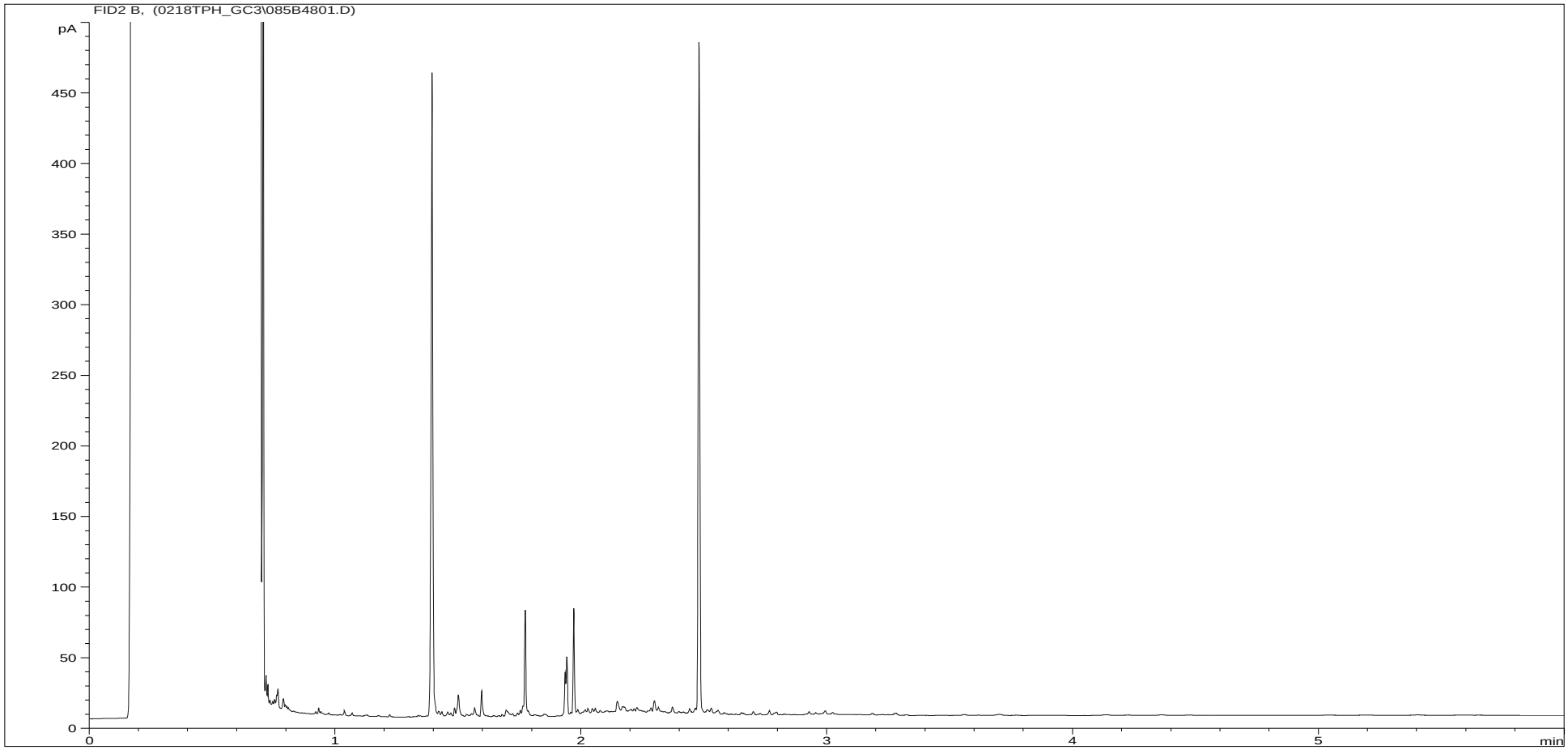
Matrix: Soil
Date Booked in 04-Feb-11
Date Extracted 17-Feb-11
Date Analysed: 18-Feb-11

*** This sample data is not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight											
		>C8 - C10		>C10 - C12		>C12 - C16		>C16 - C21		>C21 - C35		>C8 - C40	
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1103767	BH3 ES 1 0.30	<4	<4	<4	<4	8.27	<4	25.9	<4	33.1	<8.76	71.3	<20
CL1103768	BH3 ES 4 1.00	<4.1	<4	<4.1	<4	<4.1	<4	<4.1	9.4	11.5	31.6	<20.5	45.8
CL1103769	BH3 ES 9 2.00	<4	<4	<4	<4	4.57	<4	10.4	<4	16	9.9	33.1	<20
CL1103770	BH3 ES 12 3.00	<4.3	<4	<4.3	<4	4.85	<4	15.5	<4	30.1	<8.76	52.5	<20
CL1103771	BH3 ES 15 4.00	<4.1	<4	<4.1	<4	7.2	<4	11	<4	<8.98	<8.76	25.9	<20
CL1103772	BH3 ES 18 5.00	<4.3	<4	<4.3	<4	<4.3	<4	<4.3	<4	<9.4	<8.76	<21.5	<20
CL1103773	BH3 ES 20 6.00	<4.41	<4	<4.41	<4	<4.41	<4	<4.41	<4	<9.7	<8.76	<22	<20

Where individual results are flagged see report notes for status.

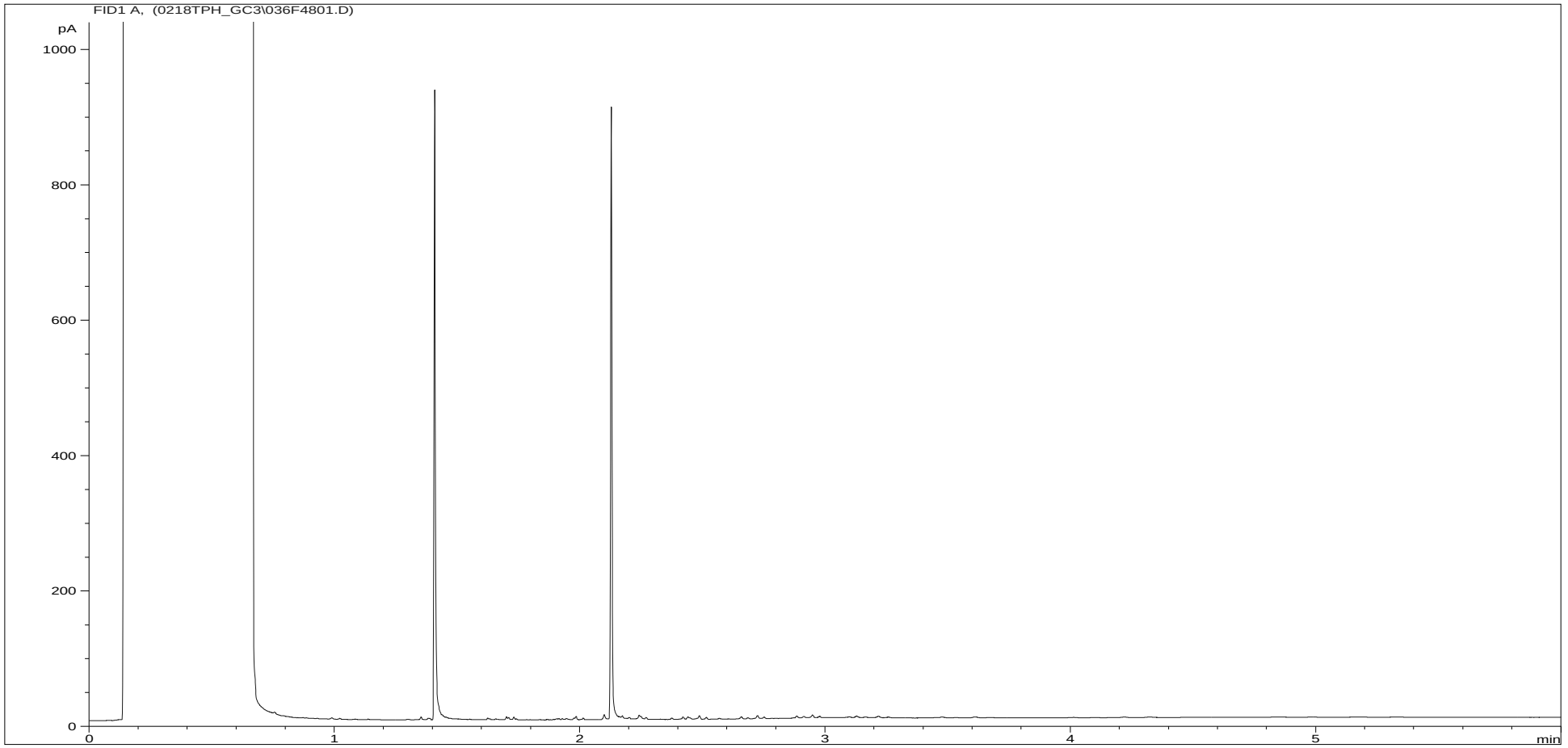
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103767ALI	**Job Number:**	S11_0800
Multiplier:	15.58	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 1 0.30
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\085B4801.D		

Where individual results are flagged see report notes for status.

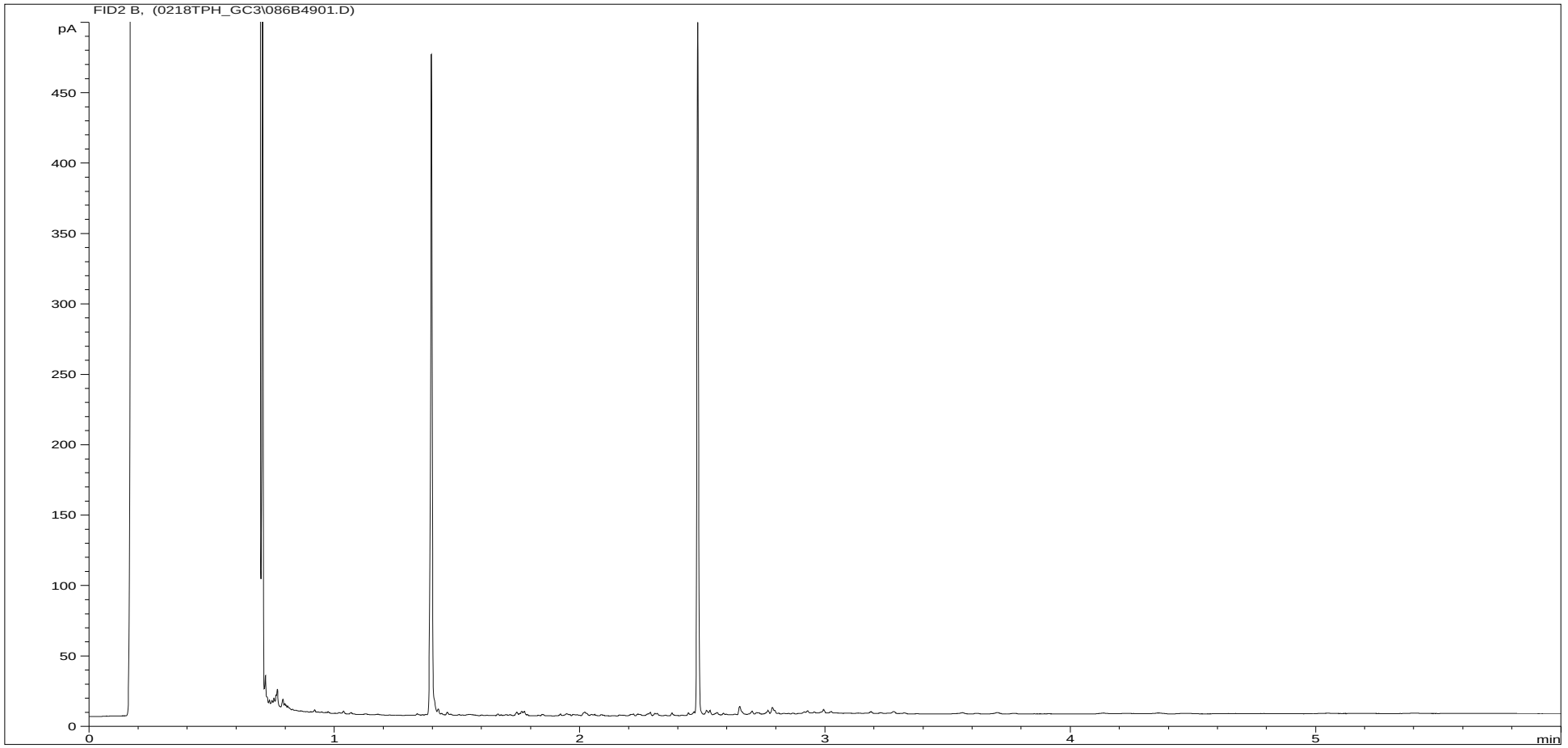
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103767ARO	**Job Number:**	S11_0800
Multiplier:	11.4	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 1 0.30
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\036F4801.D		

Where individual results are flagged see report notes for status.

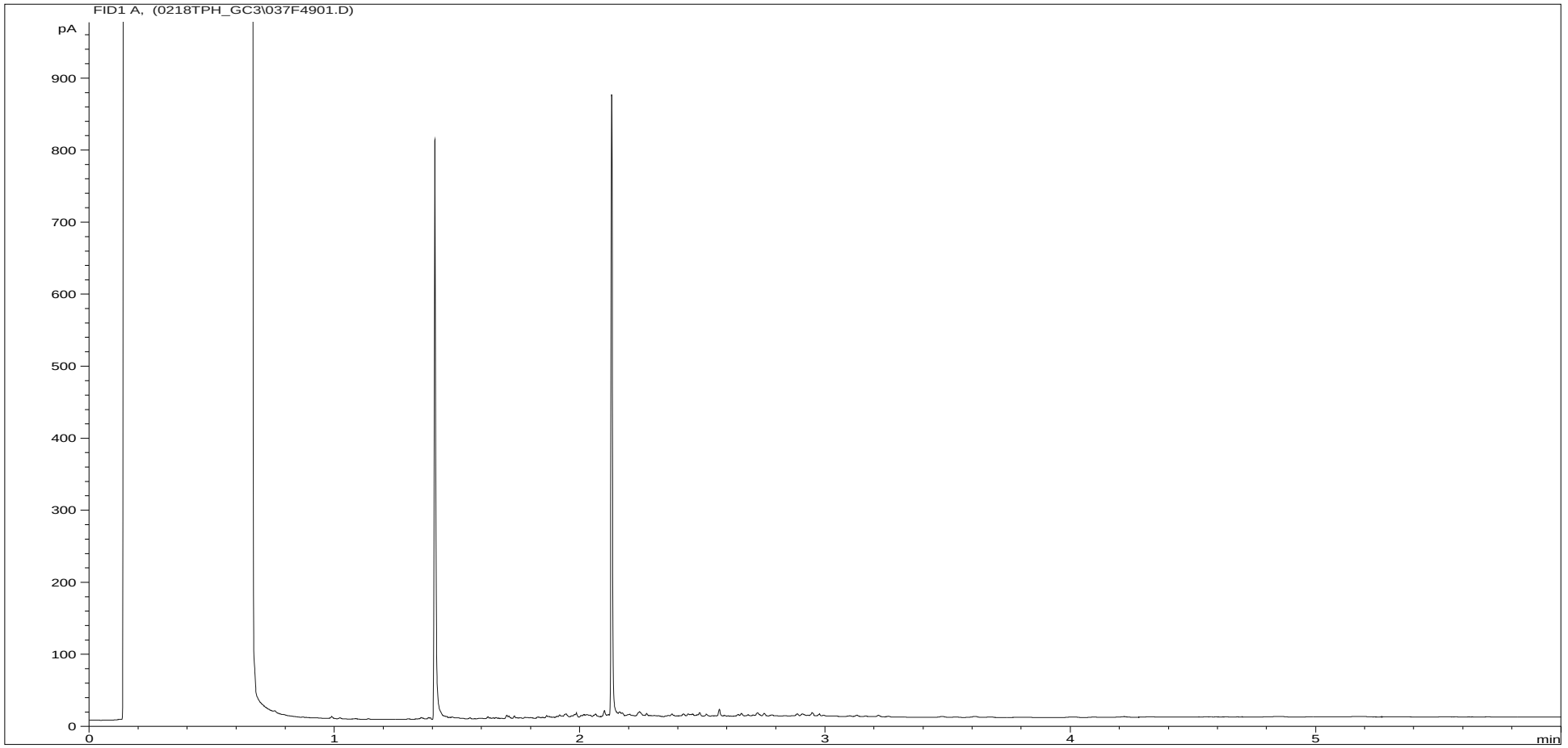
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103768ALI	**Job Number:**	S11_0800
Multiplier:	16.4	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 4 1.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\086B4901.D		

Where individual results are flagged see report notes for status.

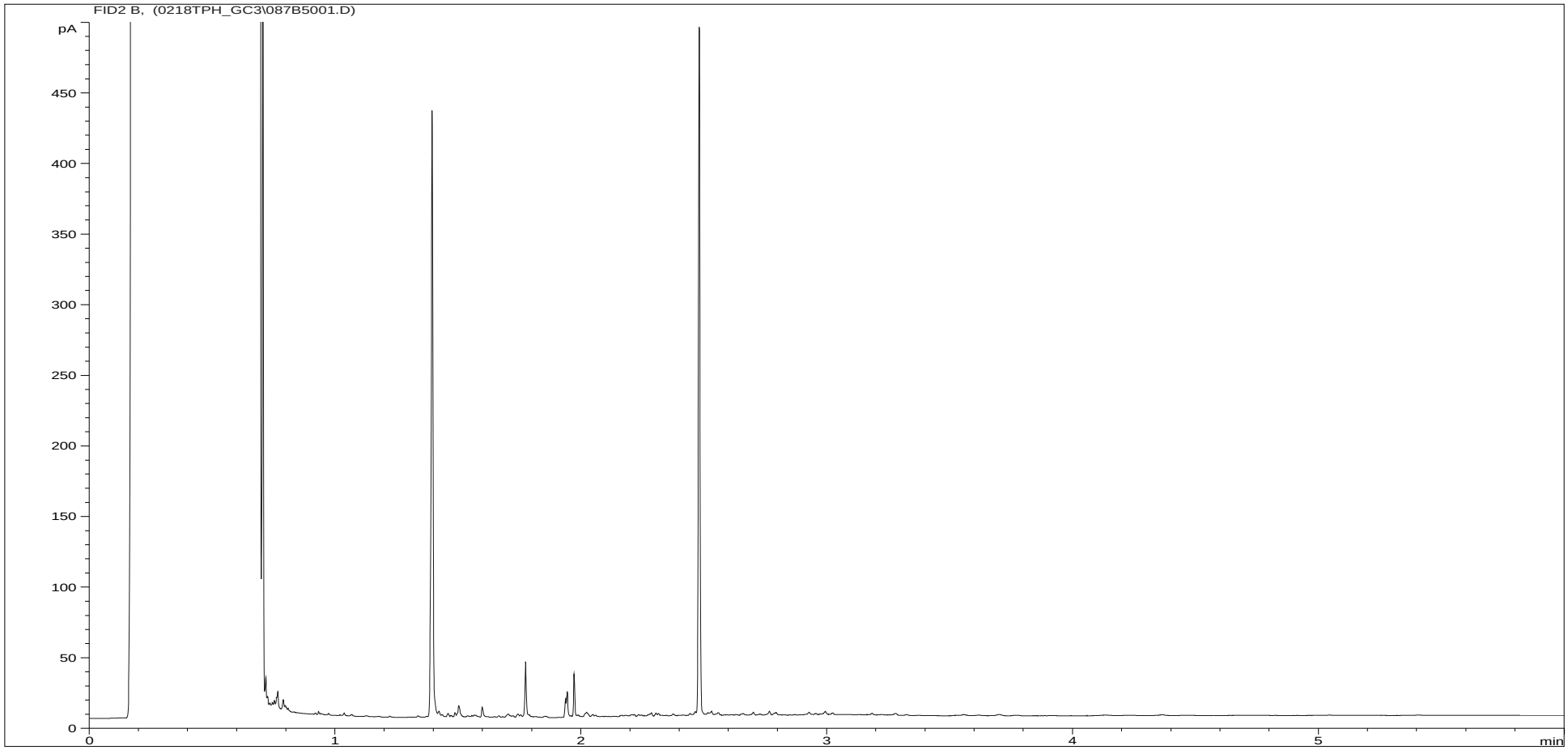
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103768ARO	**Job Number:**	S11_0800
Multiplier:	12.4	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 4 1.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\037F4901.D		

Where individual results are flagged see report notes for status.

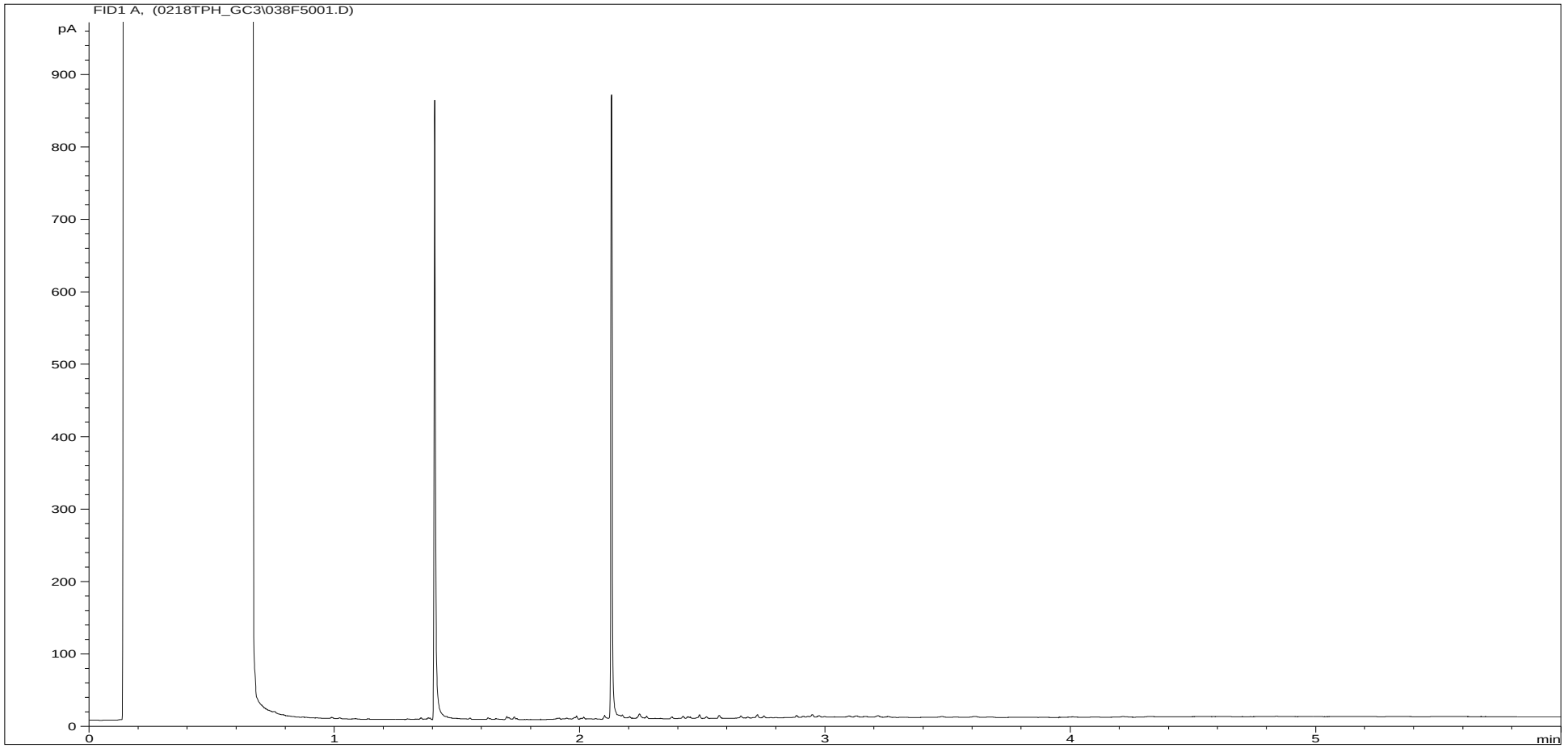
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103769ALI	**Job Number:**	S11_0800
Multiplier:	14.76	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 9 2.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\087B5001.D		

Where individual results are flagged see report notes for status.

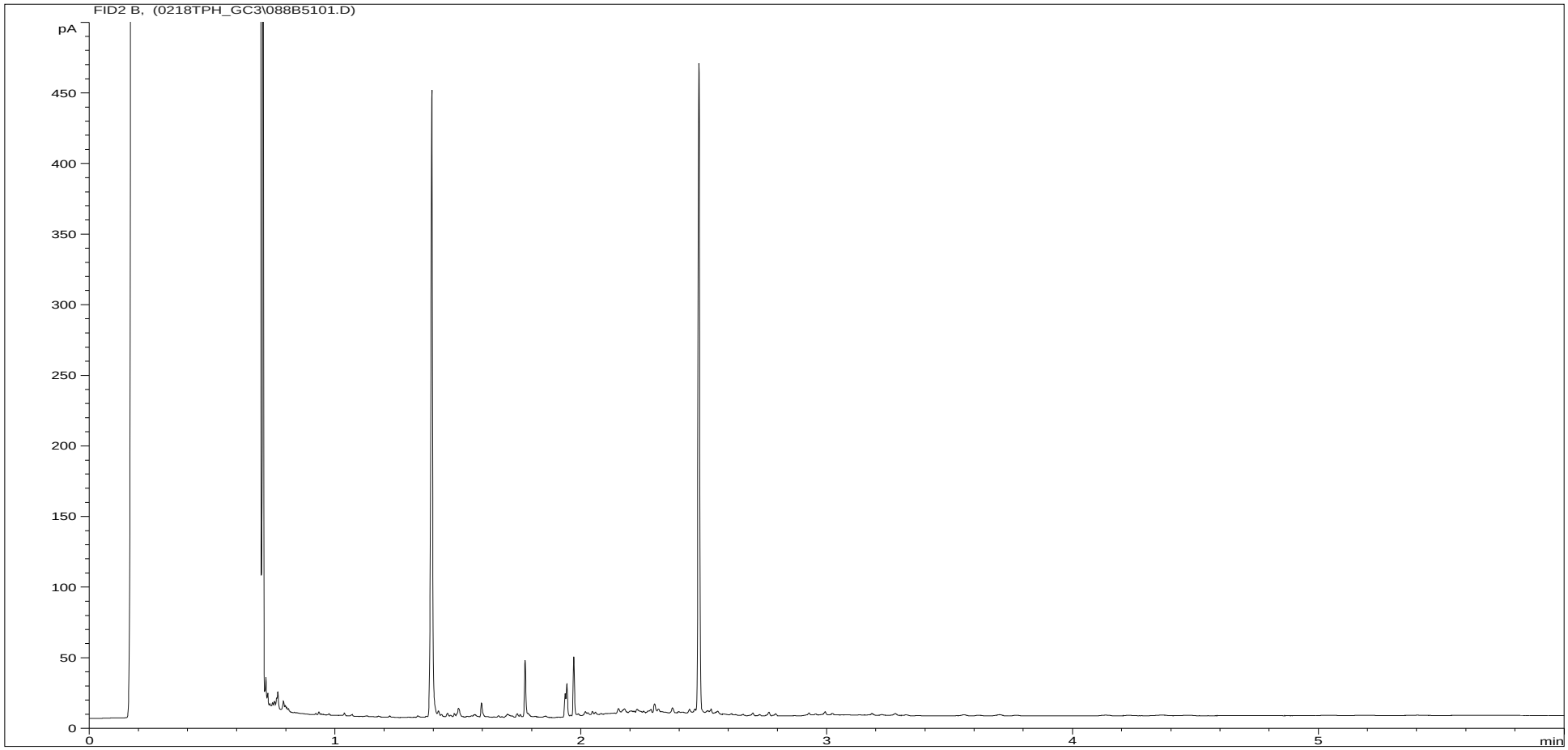
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103769ARO	**Job Number:**	S11_0800
Multiplier:	11.16	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 9 2.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\038F5001.D		

Where individual results are flagged see report notes for status.

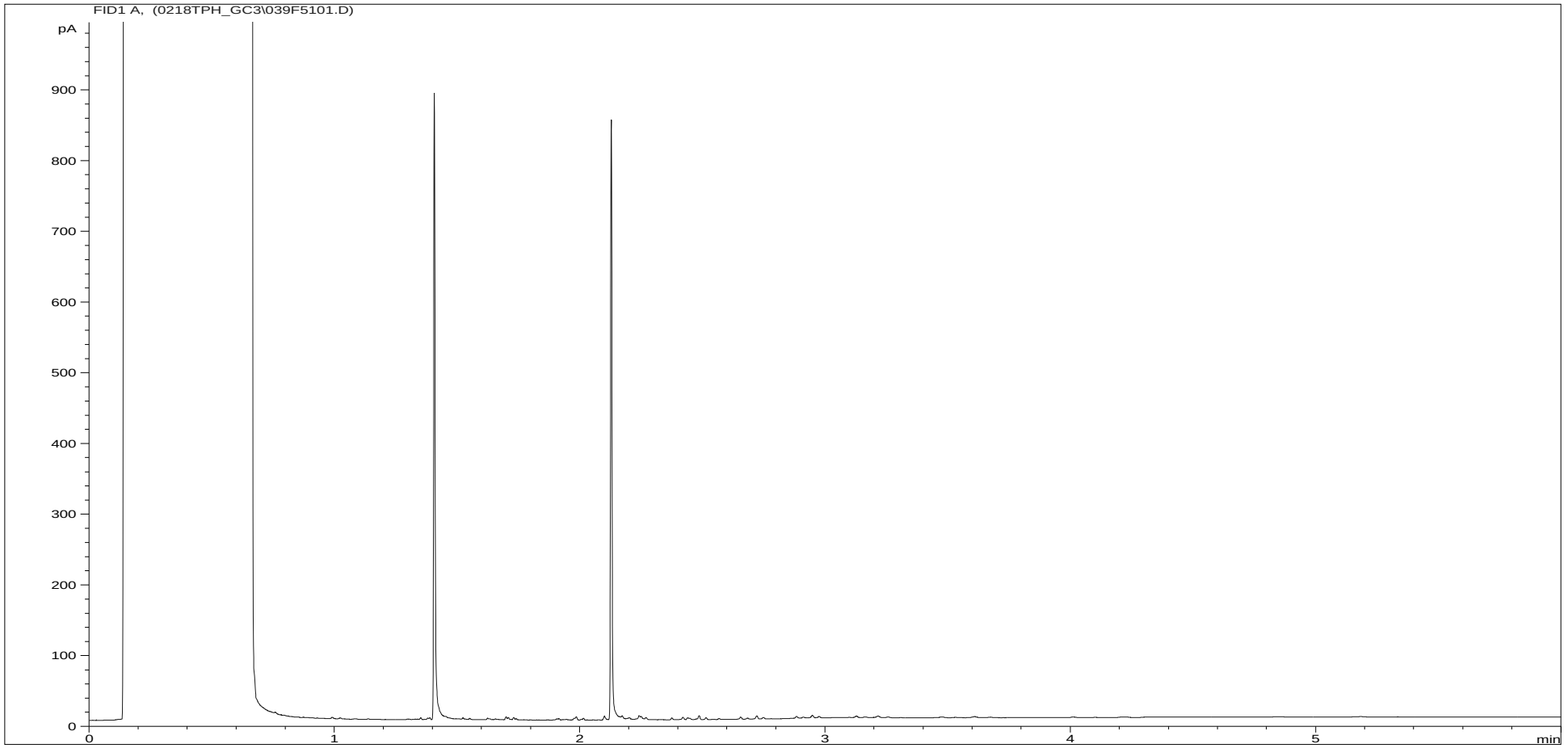
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103770ALI	**Job Number:**	S11_0800
Multiplier:	17.22	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 12 3.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\088B5101.D		

Where individual results are flagged see report notes for status.

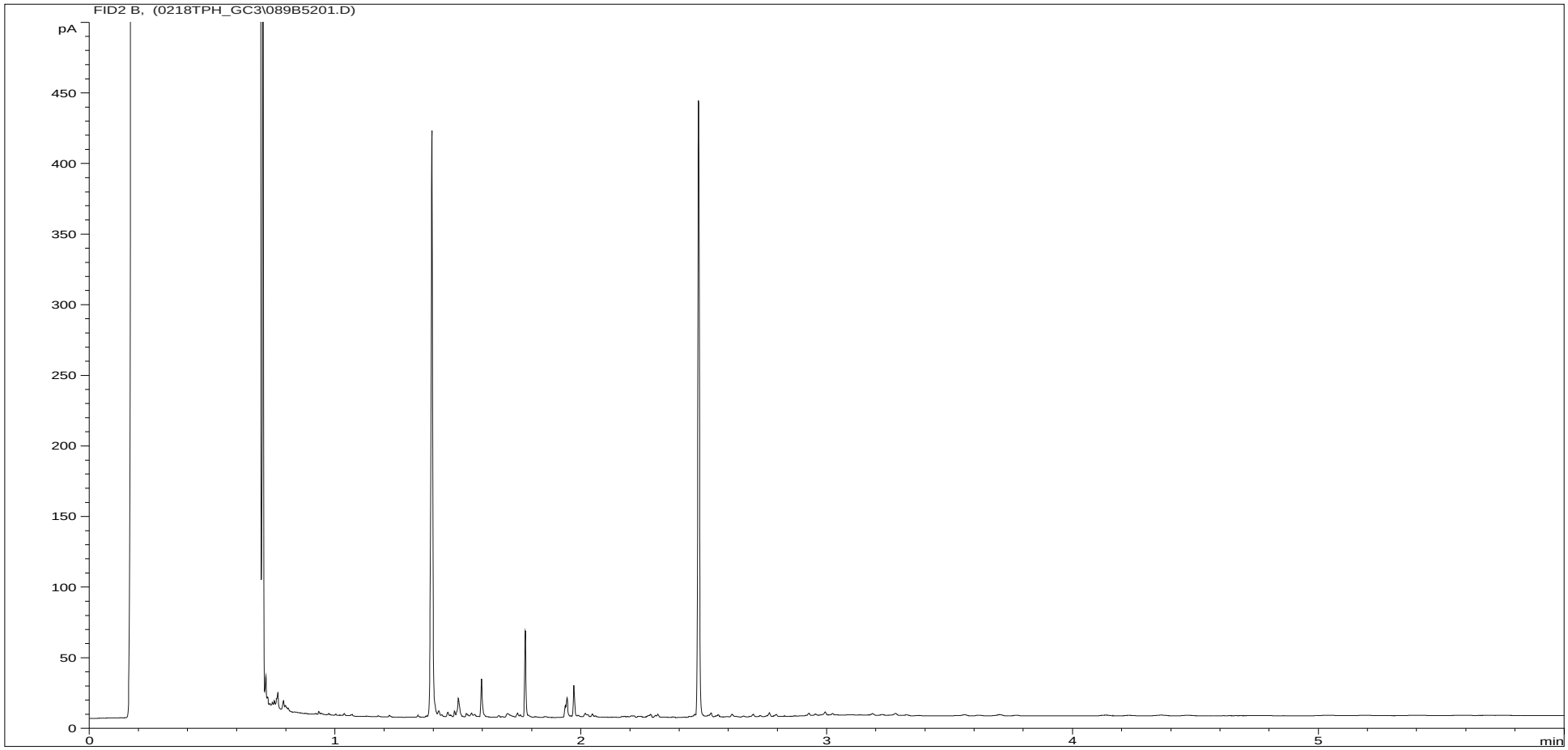
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103770ARO	**Job Number:**	S11_0800
Multiplier:	12.6	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 12 3.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\039F5101.D		

Where individual results are flagged see report notes for status.

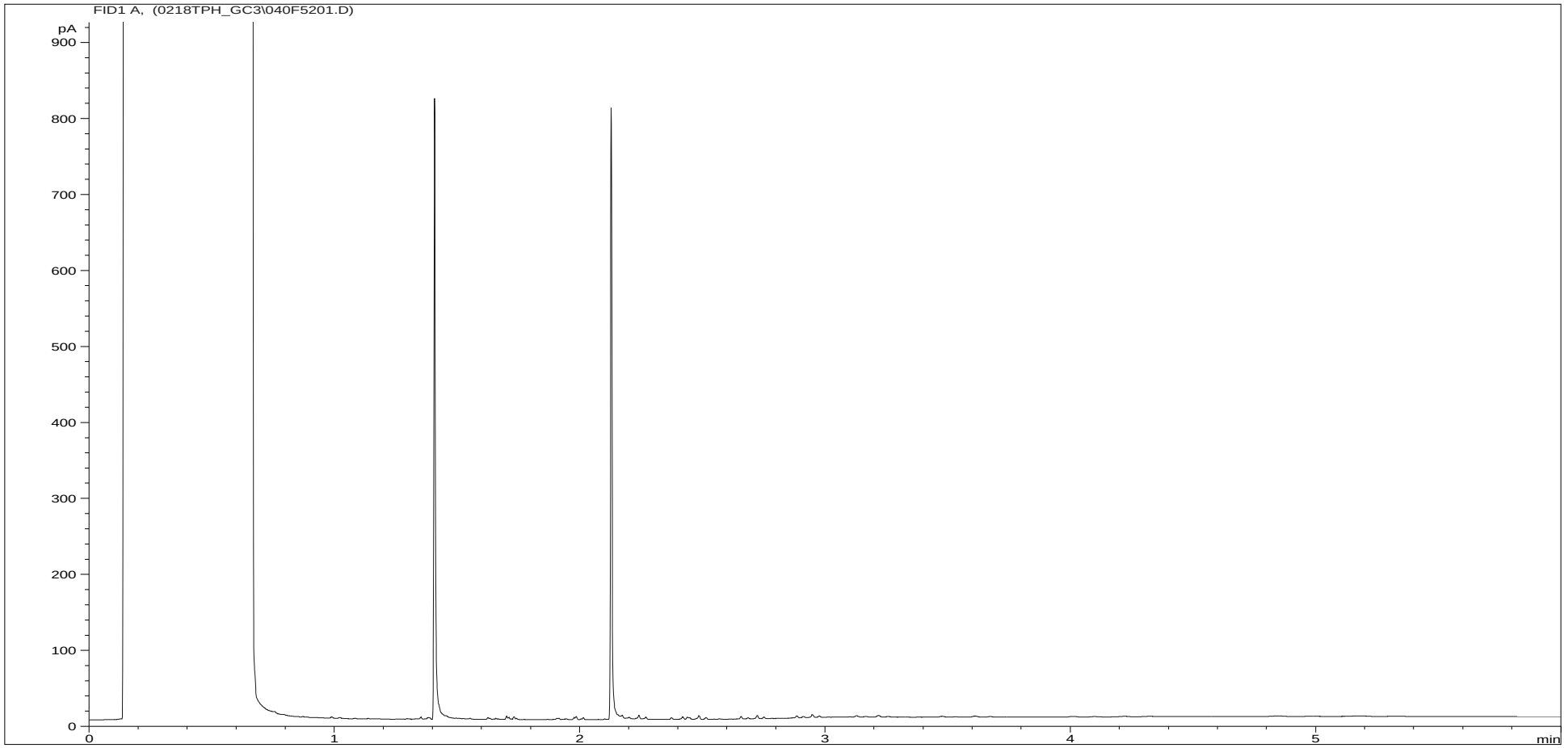
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103771ALI	**Job Number:**	S11_0800
Multiplier:	16.4	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 15 4.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\089B5201.D		

Where individual results are flagged see report notes for status.

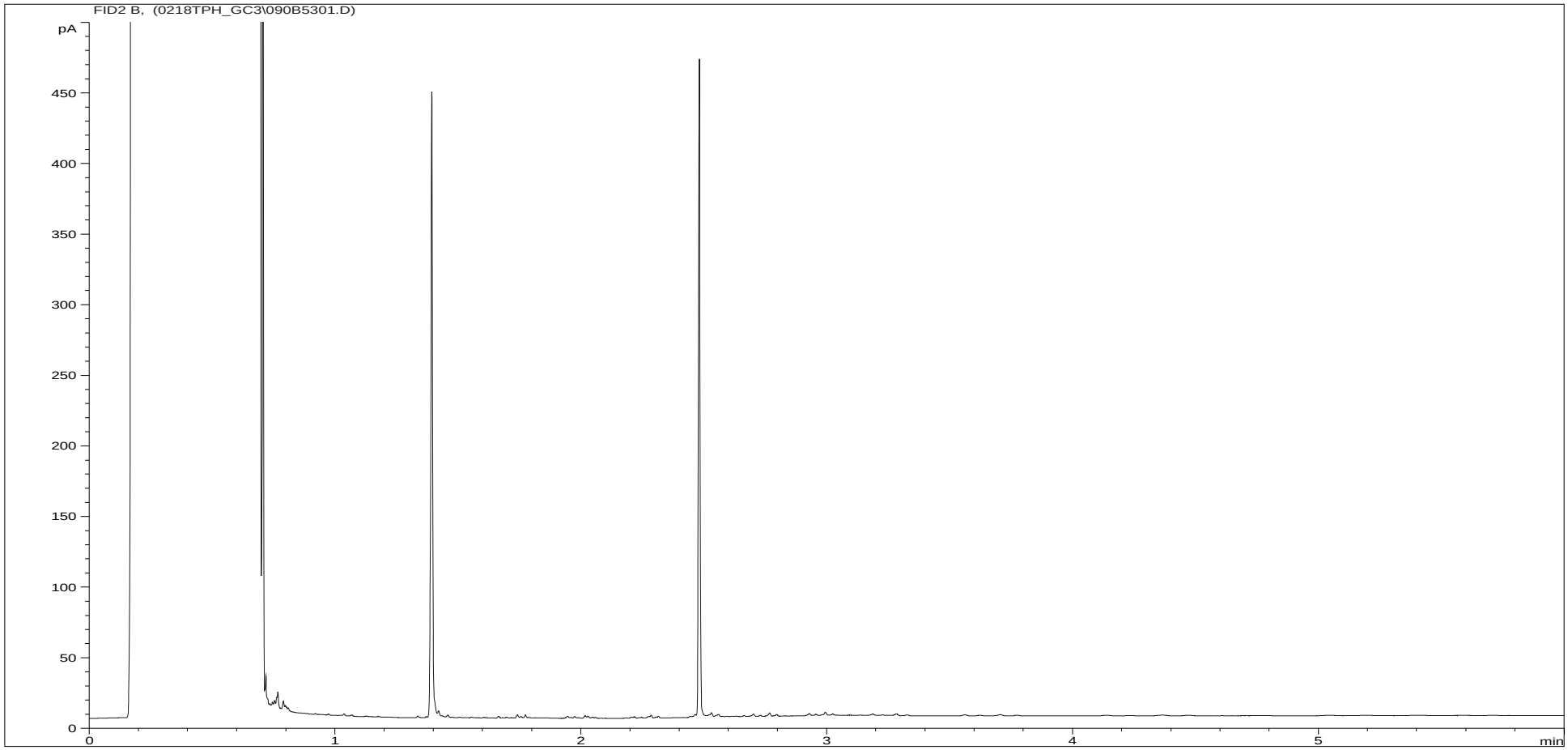
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103771ARO	**Job Number:**	S11_0800
Multiplier:	12.4	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 15 4.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\040F5201.D		

Where individual results are flagged see report notes for status.

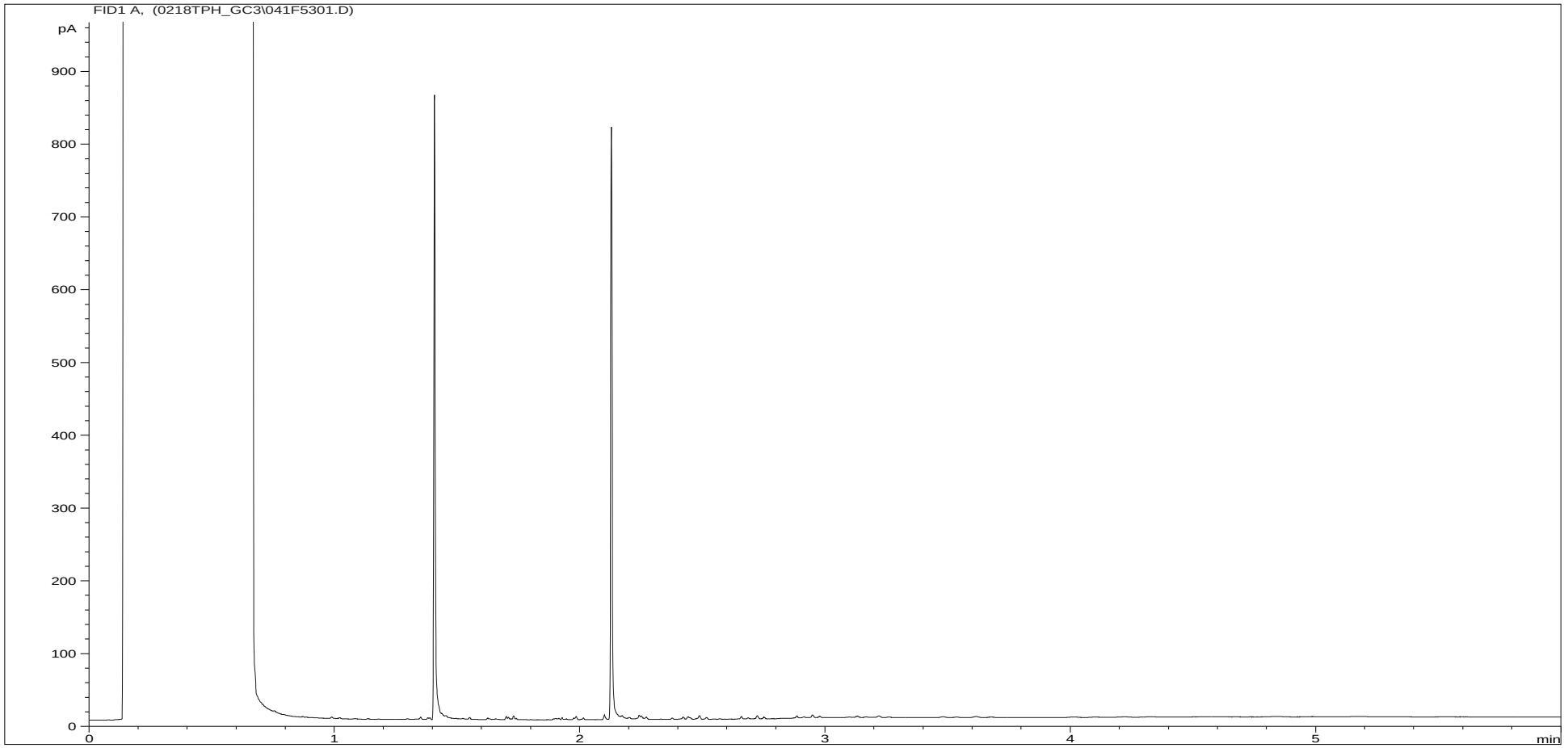
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103772ALI	**Job Number:**	S11_0800
Multiplier:	17.22	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 18 5.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\090B5301.D		

Where individual results are flagged see report notes for status.

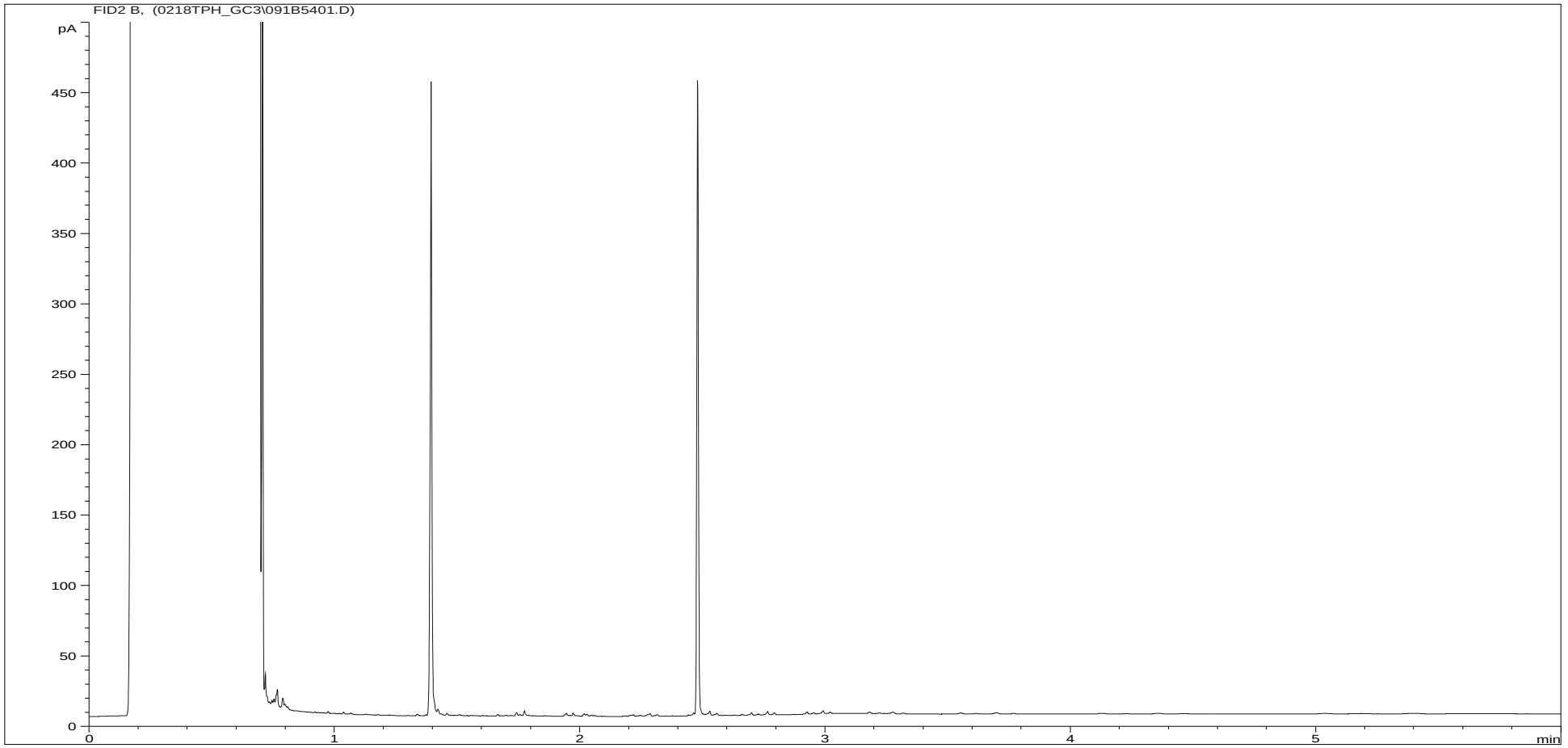
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103772ARO	**Job Number:**	S11_0800
Multiplier:	13.02	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 18 5.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\041F5301.D		

Where individual results are flagged see report notes for status.

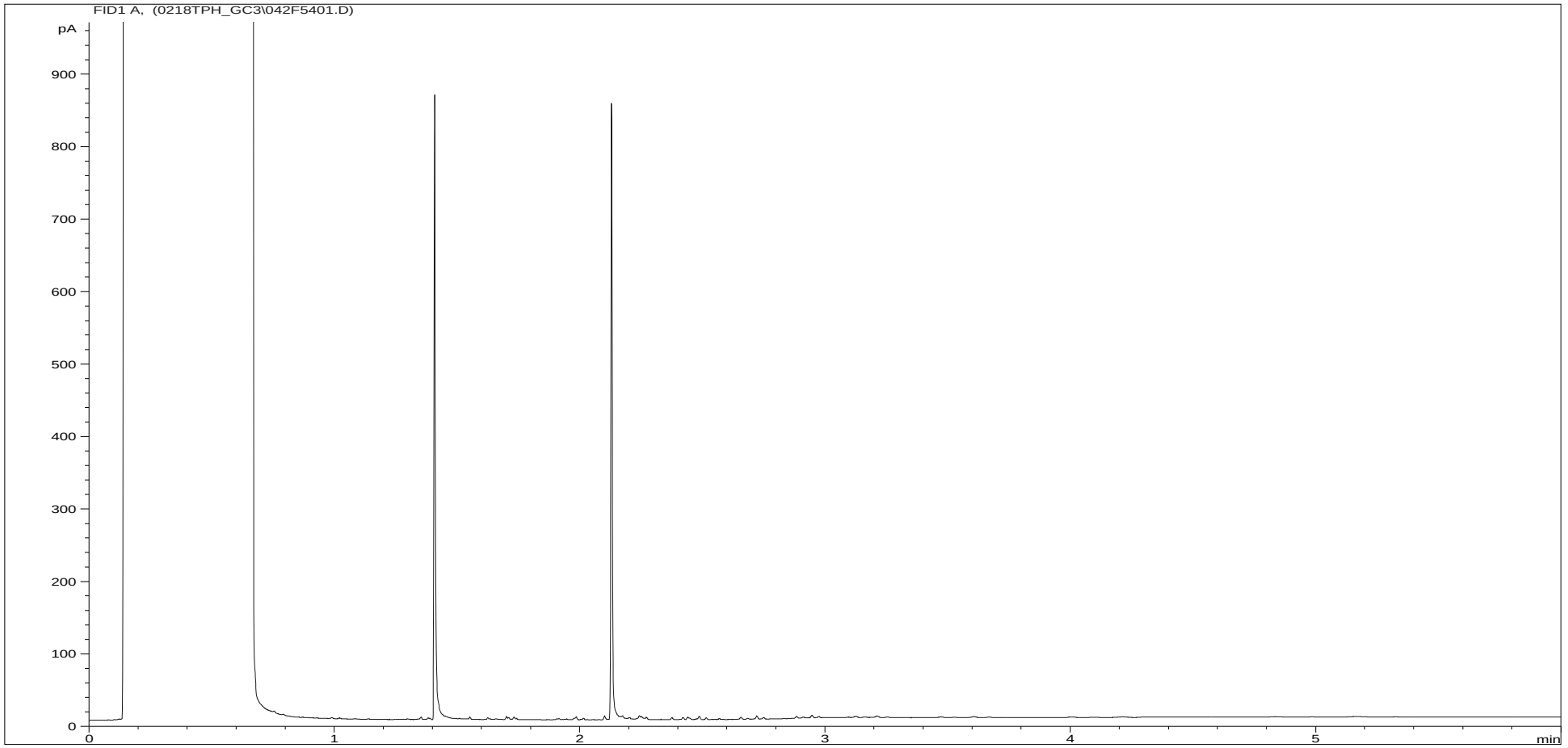
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1103773ALI	**Job Number:**	S11_0800
Multiplier:	17.64	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 20 6.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\091B5401.D		

Where individual results are flagged see report notes for status.

Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1103773ARO	**Job Number:**	S11_0800
Multiplier:	13.02	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH3 ES 20 6.00
Acquisition Date/Time:	18-Feb-11		
Datafile:	D:\TES\DATA\Y2011\FEB2011\0218TPH_GC3\042F5401.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 1 0.30	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103767	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	11

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	4.34	2	M
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	4.61	1	M
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	5.62	3	M
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	5.66	6	M

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	5.80	3	M
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 1	-
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	7.17	4	M
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	7.29	6	M
1,2,3-Trichlorobenzene	87-61-6 **	7.42	4	M

Compounds marked * are not MCERTS accredited

Compounds marked ** are not UKAS or Mcerts accredited

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	95	Dibromofluoromethane	103
1,4-Difluorobenzene	4.49	92	Toluene-d8	98
Chlorobenzene-d5	5.60	80		
Bromofluorobenzene	5.99	68		
1,4-Dichlorobenzene-d4	6.40	54		
Naphthalene-D8	7.28	21		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 4 1.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103768	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	12

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	4.09	1	M
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	4.61	3	M
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	5.62	3	M
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	5.66	6	M

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	5.80	3	M
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	6.24	1	M
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	6.38	1	M
1,4-Dichlorobenzene	106-46-7	6.41	1	M
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	6.55	1	M
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	7.17	6	M
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	7.30	6	M
1,2,3-Trichlorobenzene	87-61-6 **	7.42	5	M

Compounds marked * are not MCERTS accredited

Compounds marked ** are not UKAS or Mcerts accredited

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	80	Dibromofluoromethane	103
1,4-Difluorobenzene	4.49	71	Toluene-d8	95
Chlorobenzene-d5	5.60	53		
Bromofluorobenzene	5.99	39		
1,4-Dichlorobenzene-d4	6.40	28		
Naphthalene-D8	7.28	12		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 9 2.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103769	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	14

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	4.61	2	M
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	5.62	3	M
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	5.66	6	M

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	5.81	3	M
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	6.24	1	M
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	6.38	1	M
1,4-Dichlorobenzene	106-46-7	6.41	2	M
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	6.55	1	M
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	7.16	10	M
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	7.30	12	M
1,2,3-Trichlorobenzene	87-61-6 **	7.42	10	M

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Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	90	Dibromofluoromethane	106
1,4-Difluorobenzene	4.49	88	Toluene-d8	95
Chlorobenzene-d5	5.60	72		
Bromofluorobenzene	5.99	55		
1,4-Dichlorobenzene-d4	6.40	41		
Naphthalene-D8	7.28	16		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 12 3.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103770	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	15

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	-	< 1	-
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	-	< 2	-
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	-	< 4	-

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	-	< 2	-
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 1	-
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	-	< 3	-
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	-	< 5	-
1,2,3-Trichlorobenzene	87-61-6 **	-	< 3	-

Compounds marked * are not MCERTS accredited

Compounds marked ** are not UKAS or Mcerts accredited

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.14	101	Dibromofluoromethane	104
1,4-Difluorobenzene	4.49	101	Toluene-d8	99
Chlorobenzene-d5	5.60	101		
Bromofluorobenzene	6.00	99		
1,4-Dichlorobenzene-d4	6.40	95		
Naphthalene-D8	7.28	97		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 15 4.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103771	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	16

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	-	< 1	-
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	-	< 2	-
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	5.66	4	M

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	5.80	2	M
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 1	-
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	-	< 3	-
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	-	< 5	-
1,2,3-Trichlorobenzene	87-61-6 **	-	< 3	-

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Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	99	Dibromofluoromethane	103
1,4-Difluorobenzene	4.49	98	Toluene-d8	98
Chlorobenzene-d5	5.60	91		
Bromofluorobenzene	5.99	81		
1,4-Dichlorobenzene-d4	6.40	68		
Naphthalene-D8	7.28	41		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 18 5.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103772	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	17

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	-	< 1	-
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	-	< 2	-
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	-	< 4	-

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	-	< 2	-
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 1	-
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	-	< 3	-
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	-	< 5	-
1,2,3-Trichlorobenzene	87-61-6 **	-	< 3	-

Compounds marked * are not MCERTS accredited

Compounds marked ** are not UKAS or Mcerts accredited

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	100	Dibromofluoromethane	103
1,4-Difluorobenzene	4.49	99	Toluene-d8	100
Chlorobenzene-d5	5.60	100		
Bromofluorobenzene	5.99	97		
1,4-Dichlorobenzene-d4	6.40	95		
Naphthalene-D8	7.28	97		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	217VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH3 ES 20 6.00	**Date Booked in:**	04-Feb-11	**Method:**	Headspace
LIMS ID Number:	CL1103773	**Date Analysed:**	17-Feb-11	**Multiplier:**	1
Job Number:	S11_0800	**Operator:**	TP	**Position:**	18

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
Dichlorodifluoromethane	75-71-8 **	-	< 1	-
Chloromethane	74-87-3 *	-	< 3	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9	-	< 1	-
Chloroethane	75-00-3	-	< 2	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-48*	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
MTBE	1634-04-4	-	< 1	-
2,2-Dichloropropane	594-20-7	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 2	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 1	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	-	< 1	-
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4*	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5	-	< 1	-
Toluene	108-88-3	-	< 5	-
trans 1,3-Dichloropropene	10061-02-6	-	< 1	-
1,1,2-Trichloroethane	79-00-5*	-	< 1	-
Tetrachloroethene	127-18-4	-	< 3	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	-	< 2	-
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	-	< 4	-

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	-	< 2	-
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8 *	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 1	-
1,2-Dibromo-3-chloropropane	96-12-8	-	< 1	-
1,2,4-Trichlorobenzene	120-82-1 **	-	< 3	-
Hexachlorobutadiene	87-68-3 **	-	< 2	-
Naphthalene	91-20-3 **	-	< 5	-
1,2,3-Trichlorobenzene	87-61-6 **	-	< 3	-

Compounds marked * are not MCERTS accredited

Compounds marked ** are not UKAS or Mcerts accredited

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.15	100	Dibromofluoromethane	106
1,4-Difluorobenzene	4.49	99	Toluene-d8	99
Chlorobenzene-d5	5.60	98		
Bromofluorobenzene	5.99	97		
1,4-Dichlorobenzene-d4	6.40	92		
Naphthalene-D8	7.28	83		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

WORKING FOR A HEALTHY FUTURE

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Rebecca Clamp
Scientifics
PO Box 100
Burton-on-Trent
Staffordshire
DE15 0XD

CONTRACT NO: 23738

PROJECT NO: 610

DATE OF ISSUE: 15.02.11

DATE SAMPLES RECEIVED: 11.02.11

DATE SAMPLES ANALYSED: 14.02.11

SAMPLE DESCRIPTION: Seven soil/loose aggregate samples each weighing approximately 0.7-1.8kg

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in any of the seven soil samples by stereo-binocular and polarised light microscopy.

A summary of results is given in Table 1.

RESEARCH CONSULTING **SERVICES**
Multi-disciplinary specialists in Occupational and Environmental Health and Hygiene

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UKAS TESTING
0374

CONTRACT NO: 23738
PROJECT NO: 610
DATE OF ISSUE: 15.02.11

RESULTS: (cont.)

Table 1: Qualitative Results

IOM sample number	Client sample number	ACM type detected	PLM result
S8603	CL/1103767	-	No asbestos detected
S8604	CL/1103768	-	No asbestos detected
S8605	CL/1103769	-	No asbestos detected
S8606	CL/1103770	-	No asbestos detected
S8607	CL/1103771	-	No asbestos detected
S8608	CL/1103772	-	No asbestos detected
S8609	CL/1103773	-	No asbestos detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are outwith the scope of our UKAS accreditation.

Steve Clark

Authorised by: .....
S Clark
Mineralogy Section Manager

ESG Asbestos Limited

Certificate of Analysis for Asbestos in Soils

1089

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

Client:	Scientifics Environmental Chemistry	Page 1 of 1
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	Report No:ANO-0488-815
For the attention of :	Soil Mechanics	Report Date:16/02/11
Site Address:	Project UCL HS	Project Number:S110800

SAMPLE NUMBER	SAMPLE DATE	SAMPLE LOCATION	Sample Type	DEPTH (M)	TEST DATE	% asbestos by dry weight**	ASBESTOS FIBRE TYPES IDENTIFIED
CL/1103767	14/01/11	BH3 0.3			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103768	14/01/11	BH3 1.0			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103769	14/01/11	BH3 2.0			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103770	17/01/11	BH3 3.0			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103771	17/01/11	BH3 4.0			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103772	17/01/11	BH3 5.0			16/02/2011	Screen Only	No Asbestos Identified in Sample
CL/1103773	17/01/11	BH3 6.0			16/02/2011	Screen Only	No Asbestos Identified in Sample

*Sampling carried out by client ** Detection limit advised by client

The sample analysis for the above results was carried out using the procedures detailed in ESG Asbestos Limited in house method (SCI-ASB-020) based on HSE document MDHS 90 - Asbestos Contaminated Land - Draft 5 - November 1997 (withdrawn). Fibre identific

Key

NADIS = No Asbestos Detected in Sample

Authorised Signatory:

Name: Kate Lovatt

Position: System Support & Quality Manager

Where individual results are flagged see report notes for status.

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL/1103768	Low internals in sample and repeat of sample suggesting matrix effect as the probable cause.
VOCHSAS	CL/1103769	Low internals in sample and repeat of sample suggesting matrix effect as the probable cause.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Air Dried	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPMSS	Air Dried	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SFAS	As Received	Segmented flow analysis with colorimetric detection
Soil	Subcon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	SVOCMSUS	As Received	Determination of Semi Volatile Organic Compounds in soil samples by hexane / acetone extraction followed by GCMS detection
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on an air dried basis
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Oil analysis specific

Unless stated otherwise,
- Results are expressed as mg/kg
- SG is expressed as g/cm^3@ 15^{o}C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile
CR Denotes Crocidolite
AM Denotes Amosite
NAIIS No Asbestos Identified in Sample

Symbol Reference

^ Sub-contracted analysis. Note: The accreditation status is that assigned by the subcontract laboratory.
$$ Unable to analyse due to the nature of the sample
¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols. This may have resulted in deterioration of the sample(s) during transit to the laboratory. Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling
¥ Results for guidance only due to possible interference
& Blank corrected result
I.S Insufficient sample to complete requested analysis
I.S(g) Insufficient sample to re-analyse, results for guidance only
Intf Unable to analyse due to interferences
N.D Not determined
N.Det Not detected
Req Analysis requested, see attached sheets for results
Þ Raised detection limit due to nature of the sample
***** All accreditation has been removed by the laboratory for this result
‡ MCERTS accreditation has been removed for this result

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

END OF REPORT

Where individual results are flagged see report notes for status.

TEST REPORT
WATER SAMPLE ANALYSIS

1252

Report No. EXR/117239 (Ver. 1)

Soil Mechanics
Glossop House
Hogwood Lane
Finchampstead
Wokingham
RG40 4QW

Site: Project UCL HS

The 1 sample described in this report were logged for analysis by Scientifics on 14-Mar-2011. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 25-Mar-2011

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by Scientifics.

The following tables are contained in this report:

On behalf of
Scientifics :
Andrew Timms Operations Manager

Date of Issue: 25-Mar-2011

Tests marked '^' have been subcontracted to another laboratory.

Scientifics accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :				mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Method Codes :			WSLM3	Calc_HD	VOCHSAW	ICPWATVAR	ICPWATVAR	ICPWATVAR	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW	ICPMSW
Method Reporting Limits :					1	3.0	1.0	1.0	0.001	0.001	0.001	0.0001	0.001	0.001	0.002	0.001	0.0001	0.001
UKAS Accredited :			yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Laboratory ID Number EX/	**Client Sample Description**	**Sample Date**	**pH units**	**Total Hardness as CaCO3**	**Volatile Organic Compounds**	**Total Sulphur as SO4 (Dissolved) a**	**Calcium as Ca (Dissolved) a**	**Magnesium as Mg (Dissolved) a**	**Nickel as Ni (Dissolved)**	**Chromium as Cr (Total)**	**Chromium as Cr (Dissolved)**	**Cadmium as Cd (Dissolved)**	**Copper as Cu (Dissolved)**	**Lead as Pb (Dissolved)**	**Zinc as Zn (Dissolved)**	**Arsenic as As (Dissolved)**	**Mercury as Hg (Dissolved)**	**Selenium as Se (Dissolved)**
1109506	BH3 ESW	09-Mar-11	7.0	402	Req	110	151	6	0.004	0.005	0.005	<0.0001	0.002	<0.001	<0.002	<0.001	<0.0001	0.002

scientifics

Bretby Business Park, Ashby Road

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Client Name **Soil Mechanics**

Contact Mr P Mercer

Project UCL HS

Water Sample Analysis

Date Printed	25-Mar-11
Report Number	**EXR/117239**
Table Number	**1**

Where individual results are flagged see report notes for status.

		Units :	mg/l	mg/l	mg/l	mg/l	mg/l											
		Method Codes :	KONENS	SFAPI	SFAS	TPHFID-Si	SVOCSW											
		Method Reporting Limits :	0.01	0.02	0.05	0.01	0.002											
		UKAS Accredited :	yes	yes	yes	yes	yes											
Laboratory ID Number EX/	**Client Sample Description**	**Sample Date**	**Ammoniacal Nitrogen as N**	**Cyanide (Total) as CN**	**Sulphide as S**	**TPH GC (AA)**	**Semi Volatile Organic Compounds**											
1109506	BH3 ESW	**09-Mar-11**	0.06	<0.02	<0.05	Req	Req											

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Client Name	**Soil Mechanics**
Contact	Mr P Mercer

Project UCL HS

Water Sample Analysis

Date Printed	25-Mar-11
Report Number	**EXR/117239**
Table Number	**1**

Semi-Volatile Organic Compounds

UKAS accredited?: No

Customer and Site Details:	Soil Mechanics: Project UCL HS			**Matrix:**	Water	**QC Batch Number:**	571
Sample Details:	BH3 ESW	**Date Booked in:**	14-Mar-11	**Ext Method:**	Sep. Funnel	**Multiplier:**	0.005
LIMS ID Number:	EX1109506	**Date Extracted:**	18-Mar-11	**Operator:**	DMB	**Dilution Factor:**	2.5
Job Number:	W11_7239	**Date Analysed:**	19-Mar-11	**Directory/Quant File:**	18SVOC.MS16\ 0318_CCC1.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/l	% Fit
Phenol	108-95-2	-	< 0.020	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.005	-
2-Chlorophenol	95-57-8	-	< 0.020	-
1,3-Dichlorobenzene	541-73-1	-	< 0.005	-
1,4-Dichlorobenzene	106-46-7	-	< 0.005	-
Benzyl alcohol	100-51-6	-	< 0.005	-
1,2-Dichlorobenzene	95-50-1	-	< 0.005	-
2-Methylphenol	95-48-7	-	< 0.005	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.005	-
Hexachloroethane	67-72-1	-	< 0.005	-
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.005	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.020	-
Nitrobenzene	98-95-3	-	< 0.005	-
Isophorone	78-59-1	-	< 0.005	-
2-Nitrophenol	88-75-5	-	< 0.020	-
2,4-Dimethylphenol	105-67-9	-	< 0.020	-
Benzoic Acid	65-85-0 *	-	< 0.100	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.005	-
2,4-Dichlorophenol	120-83-2	-	< 0.020	-
1,2,4-Trichlorobenzene	120-82-1	-	< 0.005	-
Naphthalene	91-20-3	-	< 0.002	-
4-Chlorophenol	106-48-9	-	< 0.020	-
4-Chloroaniline	106-47-8 *	-	< 0.005	-
Hexachlorobutadiene	87-68-3	-	< 0.005	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.005	-
2-Methylnaphthalene	91-57-6	-	< 0.002	-
1-Methylnaphthalene	90-12-0	-	< 0.002	-
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.005	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.020	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.020	-
2-Chloronaphthalene	91-58-7	-	< 0.002	-
Biphenyl	92-52-4	-	< 0.002	-
Diphenyl ether	101-84-8	-	< 0.002	-
2-Nitroaniline	88-74-4	-	< 0.005	-
Acenaphthylene	208-96-8	-	< 0.002	-
Dimethylphthalate	131-11-3	-	< 0.005	-
2,6-Dinitrotoluene	606-20-2	-	< 0.005	-
Acenaphthene	83-32-9	-	< 0.002	-
3-Nitroaniline	99-09-2	-	< 0.005	-

Target Compounds	CAS #	R.T.	Concentration mg/l	% Fit
2,4-Dinitrophenol	51-28-5 *	-	< 0.010	-
Dibenzofuran	132-64-9	-	< 0.005	-
4-Nitrophenol	100-02-7	-	< 0.050	-
2,4-Dinitrotoluene	121-14-2	-	< 0.005	-
Fluorene	86-73-7	-	< 0.002	-
Diethylphthalate	84-66-2	-	< 0.005	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.005	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.050	-
4-Nitroaniline	100-01-6	-	< 0.005	-
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.005	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.005	-
Hexachlorobenzene	118-74-1	-	< 0.005	-
Pentachlorophenol	87-86-5	-	< 0.050	-
Phenanthrene	85-01-8	-	< 0.002	-
Anthracene	120-12-7	-	< 0.002	-
Di-n-butylphthalate	84-74-2	-	< 0.005	-
Fluoranthene	206-44-0	-	< 0.002	-
Pyrene	129-00-0	-	< 0.002	-
Butylbenzylphthalate	85-68-7	-	< 0.005	-
Benzo[a]anthracene	56-55-3	-	< 0.002	-
Chrysene	218-01-9	-	< 0.002	-
3,3'-Dichlorobenzidine	91-94-1	-	< 0.020	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.005	-
Di-n-octylphthalate	117-84-0	-	< 0.002	-
Benzo[b]fluoranthene	205-99-2	-	< 0.002	-
Benzo[k]fluoranthene	207-08-9	-	< 0.002	-
Benzo[a]pyrene	50-32-8	-	< 0.002	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.002	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.002	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.002	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	84
Naphthalene-d8	86
Acenaphthene-d10	89
Phenanthrene-d10	90
Chrysene-d12	78
Perylene-d12	71

Surrogates	% Rec
2-Fluorophenol	44
Phenol-d5	32
Nitrobenzene-d5	80
2-Fluorobiphenyl	80
2,4,6-Tribromophenol	68
Terphenyl-d14	82

Compounds marked with a * are reported not UKAS.

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: Soil Mechanics : Project UCL HS
Job Number: W11_7239
QC Batch Number: 110239
Directory: D:\TES\DATA\Y2011\0323TPH_GC16\032311 2011-03-23 08-47-55\061B1401.D
Method: Separating Funnel

Separation: Silica gel
Eluents: Hexane, DCM

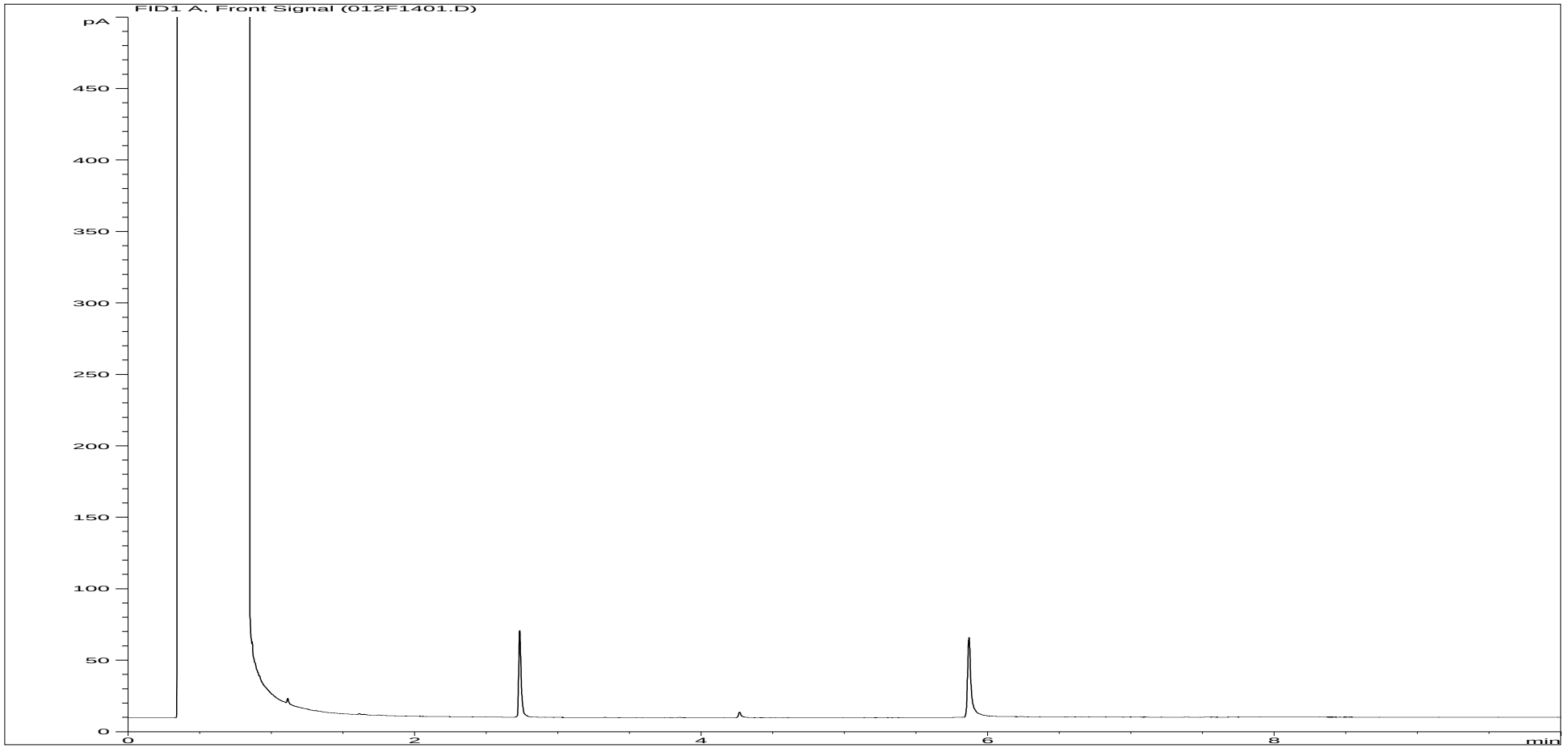
Matrix: Water
Date Booked in 14-Mar-11
Date Extracted 22-Mar-11
Date Analysed 23-Mar-11, 12:33:03

*** This sample data is not UKAS accredited.**

		Concentration, (mg/l)											
		>C8 - C10		>C10 - C12		>C12 - C16		>C16 - C21		>C21 - C35		>C8 - C40	
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**
EX1109506	BH3 ESW	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Where individual results are flagged see report notes for status.

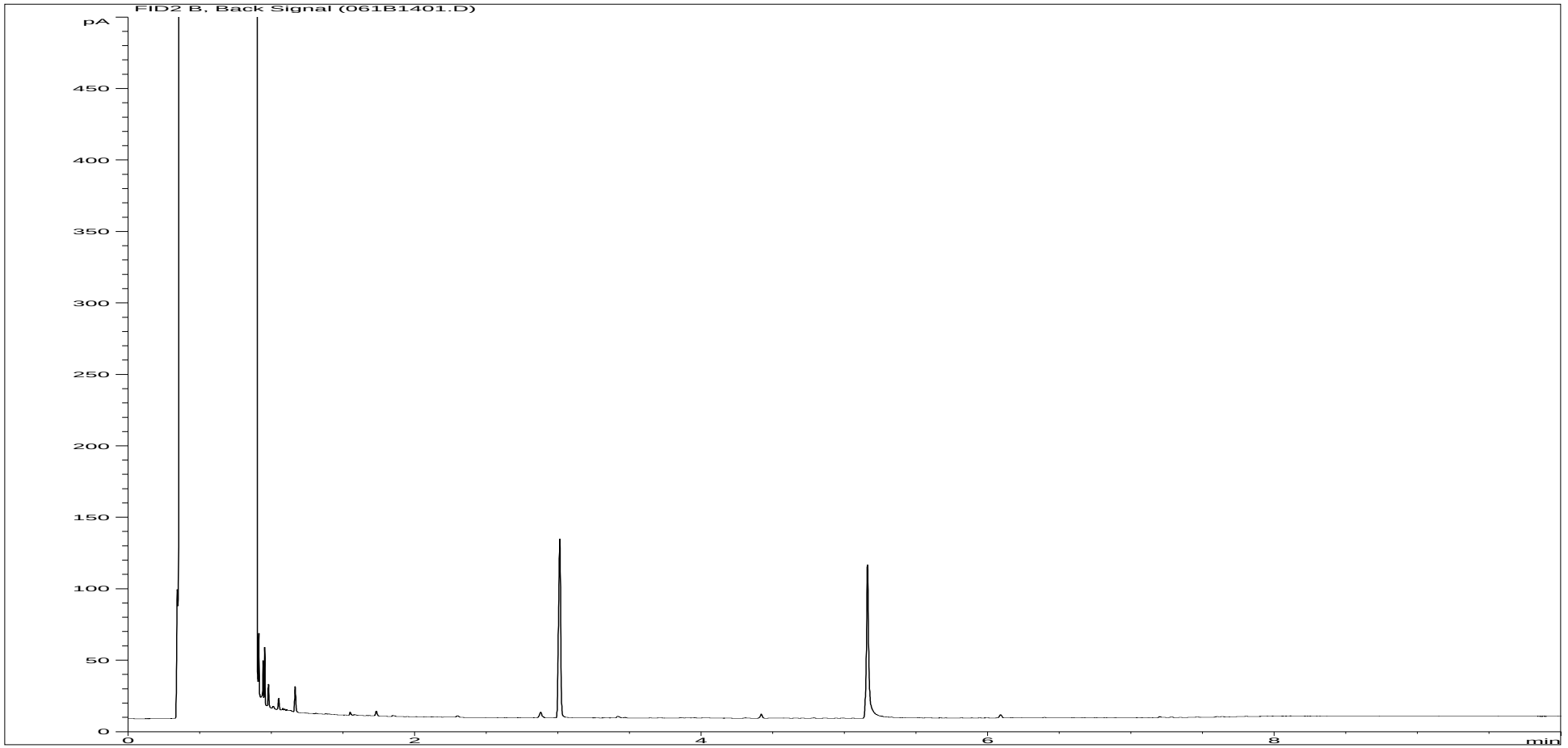
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1109506ALI	**Job Number:**	W11_7239
Multiplier:	0.02	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH3 ESW
Acquisition Date/Time:	23-Mar-11, 12:33:03		
Datafile:	D:\TES\DATA\Y2011\0323TPH_GC16\032311 2011-03-23 08-47-55\012F1401.D		

Where individual results are flagged see report notes for status.

Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1109506ARO	**Job Number:**	W11_7239
Multiplier:	0.015	**Client:**	Soil Mechanics
Dilution:	1	**Site:**	Project UCL HS
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH3 ESW
Acquisition Date/Time:	23-Mar-11, 12:33:03		
Datafile:	D:\TES\DATA\Y2011\0323TPH_GC16\032311 2011-03-23 08-47-55\061B1401.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	Soil Mechanics: Project UCL HS	**Directory/Quant file:**	322VOC.MS11\ Initial Calibration	**Matrix:**	Water
Sample Details:	BH3 ESW	**Date Booked in:**	14-Mar-11	**Method:**	Headspace
LIMS ID Number:	EX1109506	**Date Analysed:**	22-Mar-11	**Multiplier:**	1
Job Number:	W11_7239	**Operator:**	AK	**Position:**	2

Target Compounds	CAS #	R.T. (min.)	Concentration µg/l	% Fit
Dichlorodifluoromethane	75-71-8 *	-	< 1	-
Chloromethane	74-87-3	-	< 1	-
Vinyl Chloride	75-01-4	-	< 1	-
Bromomethane	74-83-9 *	-	< 5	-
Chloroethane	75-00-3	-	< 5	-
Trichlorofluoromethane	75-69-4	-	< 1	-
1,1-Dichloroethene	75-35-4	-	< 1	-
trans 1,2-Dichloroethene	156-60-5	-	< 1	-
1,1-Dichloroethane	75-34-3	-	< 1	-
2,2-Dichloropropane	594-20-7 *	-	< 1	-
cis 1,2-Dichloroethene	156-59-2	-	< 1	-
Bromochloromethane	74-97-5	-	< 1	-
Chloroform	67-66-3	-	< 5	-
1,1,1-Trichloroethane	71-55-6	-	< 1	-
Carbon Tetrachloride	56-23-5	-	< 1	-
1,1-Dichloropropene	563-58-6	-	< 1	-
Benzene	71-43-2	-	< 1	-
1,2-Dichloroethane	107-06-2	-	< 1	-
Trichloroethene	79-01-6	-	< 5	-
1,2-Dichloropropane	78-87-5	-	< 1	-
Dibromomethane	74-95-3	-	< 1	-
Bromodichloromethane	75-27-4	-	< 1	-
cis 1,3-Dichloropropene	10061-01-5 *	-	< 1	-
Toluene	108-88-3	-	< 1	-
trans 1,3-Dichloropropene	10061-02-6 *	-	< 1	-
1,1,2-Trichloroethane	79-00-5	-	< 1	-
Tetrachloroethene	127-18-4	-	< 5	-
1,3-Dichloropropane	142-28-9	-	< 1	-
Dibromochloromethane	124-48-1	-	< 1	-
1,2-Dibromoethane	106-93-4	-	< 1	-
Chlorobenzene	108-90-7	-	< 1	-
Ethylbenzene	100-41-4	-	< 1	-
1,1,1,2-Tetrachloroethane	630-20-6	-	< 1	-
m and p-Xylene	108-38-3/106-42-3	-	< 1	-
o-Xylene	95-47-6	-	< 1	-

Target Compounds	CAS #	R.T. (min.)	Concentration µg/l	% Fit
Styrene	100-42-5	-	< 1	-
Bromoform	75-25-2	-	< 1	-
iso-Propylbenzene	98-82-8	-	< 1	-
1,1,2,2-Tetrachloroethane	79-34-5 *	-	< 1	-
Propylbenzene	103-65-1	-	< 1	-
Bromobenzene	108-86-1	-	< 1	-
1,2,3-Trichloropropane	96-18-4	-	< 1	-
2-Chlorotoluene	95-49-8	-	< 1	-
1,3,5-Trimethylbenzene	108-67-8	-	< 1	-
4-Chlorotoluene	106-43-4	-	< 1	-
tert-Butylbenzene	98-06-6	-	< 1	-
1,2,4-Trimethylbenzene	95-63-6	-	< 1	-
sec-Butylbenzene	135-98-8	-	< 1	-
p-Isopropyltoluene	99-87-6	-	< 1	-
1,3-Dichlorobenzene	541-73-1	-	< 1	-
1,4-Dichlorobenzene	106-46-7	-	< 1	-
n-Butylbenzene	104-51-8	-	< 1	-
1,2-Dichlorobenzene	95-50-1	-	< 5	-
1,2-Dibromo-3-chloropropane	96-12-8 *	-	< 5	-
1,2,4-Trichlorobenzene	120-82-1	-	< 5	-
Hexachlorobutadiene	87-68-3	-	< 5	-
Naphthalene	91-20-3	-	< 5	-
1,2,3-Trichlorobenzene	87-61-6	-	< 5	-

Compounds marked * are not UKAS accredited
"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	3.65	81	Dibromofluoromethane	114
1,4-Difluorobenzene	4.00	85	Toluene-d8	91
Chlorobenzene-d5	5.12	85	Bromofluorobenzene	88
1,4-Dichlorobenzene-d4	5.91	73		

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	Calc_HD	As Received	Calculation based on Dissolved metals analysis by ICPOES
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Determination of Total Phenols by segmented flow analysis with colorimetric detection
Water	SFAS	As Received	Determination of Sulphide by segmented flow analysis with colorimetric detection
Water	SVOCSW	As Received	Determination of Semi Volatile Organic Compounds (SVOC) by DCM extraction followed by GCMS detection
Water	TPHFID-Si	As Received	Determination of speciated pentane extractable hydrocarbons in water by GCFID
Water	VOCHSAW	As Received	Determination of Volatile Organics Compounds or Gasoline Range Hydrocarbons (GRO) by Headspace GCMS
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on an air dried basis
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Oil analysis specific

Unless stated otherwise,
- Results are expressed as mg/kg
- SG is expressed as g/cm^3@ 15^{o}C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile
CR Denotes Crocidolite
AM Denotes Amosite
NAIIS No Asbestos Identified in Sample

Symbol Reference

^ Sub-contracted analysis. Note: The accreditation status is that assigned by the subcontract laboratory.
$$ Unable to analyse due to the nature of the sample
¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols. This may have resulted in deterioration of the sample(s) during transit to the laboratory. Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling
¥ Results for guidance only due to possible interference
& Blank corrected result
I.S Insufficient sample to complete requested analysis
I.S(g) Insufficient sample to re-analyse, results for guidance only
Intf Unable to analyse due to interferences
N.D Not determined
N.Det Not detected
Req Analysis requested, see attached sheets for results
Þ Raised detection limit due to nature of the sample
***** All accreditation has been removed by the laboratory for this result
‡ MCERTS accreditation has been removed for this result

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

END OF REPORT

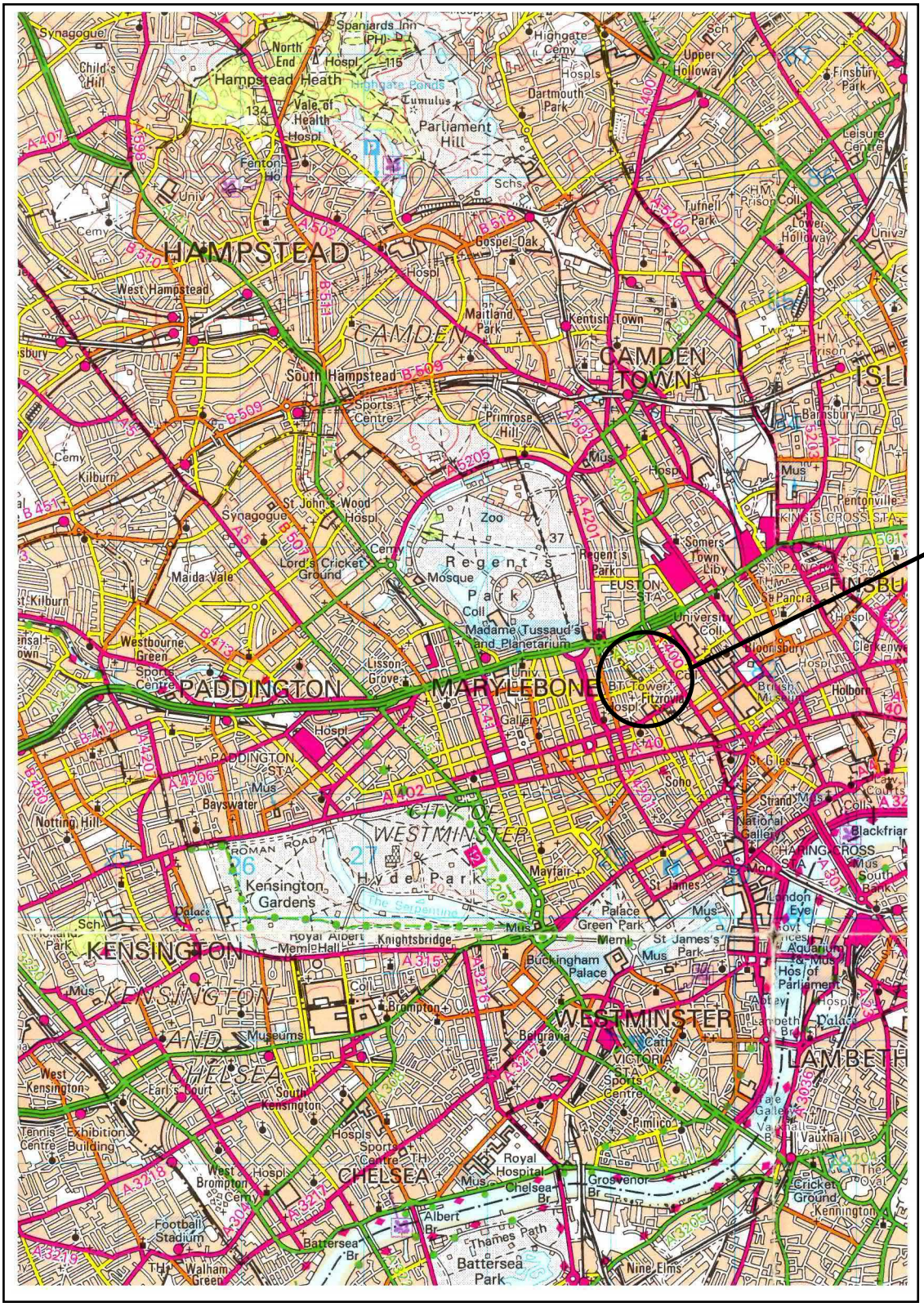
Where individual results are flagged see report notes for status.

ENCLOSURE F

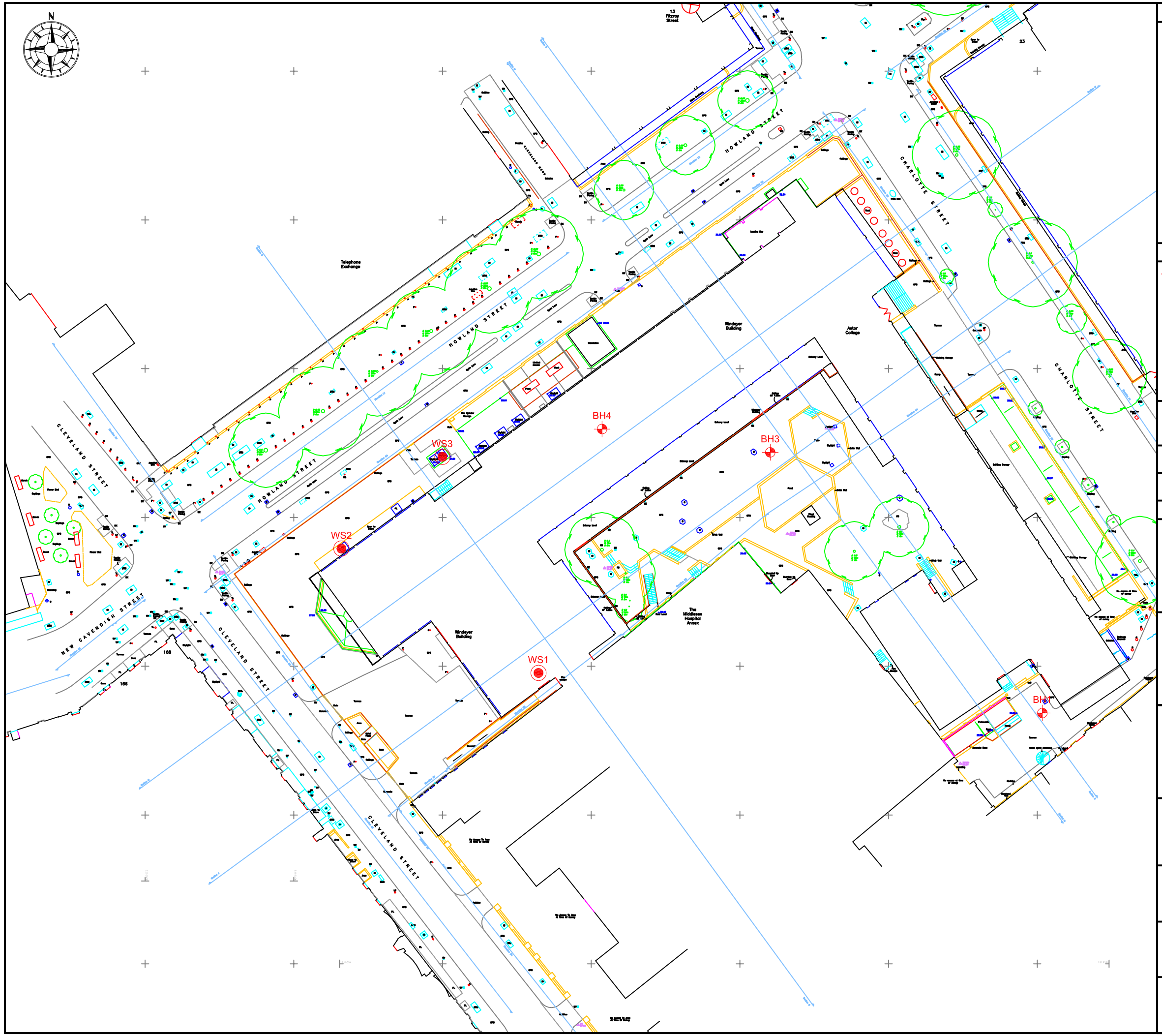
DRAWINGS

Site Location Plan

Soil Mechanics



Notes: Scale 1:50 000	**Project** PROJECT UCL HS **Project No.** D0050-10 **Carried out for** UCL PROPERTIES LTD	**Figure** **F1**



GENERAL NOTES

1. Reproduced from UCL PROPERTIES LTD's Drawing No. 10/3122-T-S1.
2. Hole Locations to National Grid Co-ordinate Reference System.

LEGEND TO SYMBOLS

Borehole Location

Window Sample Location

Scale: 1:2000

0 2m 4 6 8 10

x	x	x	x	x	x
Rev	Drawn	Date	Approv.	Date	Modification Details

AMENDMENTS

Title

EXPLORATORY HOLE LOCATION PLAN

Project

PROJECT GLIMMER

Client

UCL PROPERTIES LTD

Soil Mechanics

Date	Drawn By	Approv. By
01/03/2011	BS	PM

Sheet Size	Scale	Project No
A3	1:2000	D0050-10

Drawing No	Rev
F2	0

ENCLOSURE G

DIGITAL DATA

Sonic Logging Report and electronic data	CD1
Draft AGS Digital Data	CD1